mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

And

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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: DAVID MARCUS MOTHUPI
TEL NO: 082 682 5903
FAX NO: N/A
POSTAL ADDRESS: No.40015, Lesetlheng section, Phalane
PHYSICAL ADDRESS: No.40015, Lesetlheng section, Phalane
FILE REFERENCE NUMBER SAMRAD: NW/30/5/1/3/2/10951 MP
DATE: 19 MARCH 2022

PREPARED BY: BOSWA ENVIRONMENTAL CONSULTING

BOSWA
ENVIRONMENTAL CONSULTING

DEFINITIONS

Activity	is a distinct process or task undertaken by an organisation for which a responsibility can be assigned. Activities also include facilities or pieces of infrastructure that are possessed by an organisation.
Environmental Aspect	is an 'element of an organisations activities, products and services which can interact with the environment'. The interaction of an aspect with the environment may result in an impact.
Receptors	comprise but are not limited to people or man-made structures.
Resources	include components of the biophysical environment.
Environmental Impacts	are the consequences of these aspects on environmental resources or receptors of particular value or sensitivity, for example, disturbance due to noise and health effects due to poorer air quality. Receptors can comprise, but are not limited to, people or human-made systems, such as local residents, communities, and social infrastructure, as well as components of the biophysical environment such as aquifers, flora and palaeontology. In the case where the impact is on human health or well-being, this should be stated. Similarly, where the receptor is not anthropogenic, then it should, where possible, be stipulated what the receptor is.
Severity	refers to the degree of change to the receptor status in terms of the reversibility of the impact; sensitivity of receptor to stressor; duration of impact (increasing or decreasing with time); controversy potential and precedent setting; threat to environmental and health standards.
Spatial	refers to the geographical scale of the impact.
Duration	refers to the length of time over which the stressor will cause a change in the resource or receptor.
Frequency of Activity	refers to how often the proposed activity will take place.
Frequency of Impact	refers to the frequency with which a stressor (aspect) will impact on the receptor.

LIST OF ABBREVIATIONS

BAR: Basic Assessment Report
BID: Background Information Document
DEA: Department of Environmental Affairs
DMR: Department of Mineral Resources
DWA: Department of Water and Sanitation
EA: Environmental Authorisation
EIA: Environmental Impact Assessment
EMPr: Environmental Management Programme
GN: Government Notice
GIS: Geographic Information System
HA: Hectares
IAPs: Interested and Affected Parties
IDP: Integrated Development Plan
MPRDA: Mineral and Petroleum Resources Development Act, 2002 (Act 28 2002)
NEMA: National Environmental Management Act, 1998 (Act 107 of 1998)
NEM:WA: National Environmental Management Waste Act, 2008 (Act No. 59 of 2008)
NWA: National Water Act, 1998 (Act No. 36 of 1998) PPP Public Participation Process
PPP: Public Participation Report
MWP: Mining Work Programme

1. 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.

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Figure 1: Locality map of the application area, within the farm Roodebank 64, JQ.
Figure 2: Proposed site access road

Objective of the basic assessment process

The objective of the basic assessment process is to, through a consultative process─

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

(b) identify the alternatives considered, including the activity, location, and technology alternatives;

(c) describe the need and desirability of the proposed alternatives,

(d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage , and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on the these aspects to determine:

(i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and

(ii) the degree to which these impacts—

(aa) can be reversed;

(bb) may cause irreplaceable loss of resources; and

(cc) can be managed, avoided or mitigated;

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—

(i) identify and motivate a preferred site, activity and technology alternative;

(ii) identify suitable measures to manage, avoid or mitigate identified impacts; and

(iii) identify residual risks that need to be managed and monitored.

PART A

SCOPE OF ASSSSMENT AND BASIC ASSESSMENT REPORT

2. Contact Person and correspondence address

a) Details of

Details of the EAP

Name of The Practitioner: Tsholofelo Motlhaga
Tel No.: 081 585 4733
Fax No. : 086 747 1117
e-mail address: boswaenviro@gmail.com

i) Expertise of the EAP.

(1) **The qualifications of the EAP**

- BSc Honours. Environmental Monitoring and Modelling (University of South Africa)
- BSc Life and Environmental Science (University of Johannesburg)

(2) **Summary of the EAP's past experience**.
(In carrying out the Environmental Impact Assessment Procedure)

Ms Tsholofelo Motlhaga is the Environmental Assessment Practitioner who will facilitate the EIA (Basic Assessment) study for this particular project. Tsholofelo Motlhaga holds a BSc Life and Environmental Sciences degree (with specialisation in Geography and Environmental Management) from the University of Johannesburg and a BSc Honours degree in Environmental Monitoring and Modelling from the University of South Africa. Tsholofelo Motlhaga also holds a certificate in Exploring Geographical Information Systems from the University of South Africa, a certificate in ISO14001 (Environmental Management System Implementation) from NOSA and a certificate in Introduction to SAMTRAC from NOSA. Ms Motlhaga has worked as part of the team of Environmental Officers in the Section 24G Directorate at GDARD (Gauteng Department of Agriculture and Rural Development), and as an Environmental Control Officer (Pipelines, Roads

and reservoirs) at Rand Water. The experience gained in practice and in service as an official in the regulating authority enables Ms Motlhaga to have the relevant knowledge and expertise in Environmental Management and Legislation as required in this project. See EAP CV in **Appendix A.**

Location of the overall Activity.

Farm Name:	A certain portion of the remaining extent of the farm Roodebank (Formerly known as Damplaas), 64 JQ, Moses Kotane Local Municipality, North West Province
Application area (Ha)	4.8 Hectares
Magisterial district:	Mankwe
Distance and direction from nearest town	5 kms South West of Bojating Village
21 digit Surveyor General Code for each farm portion	T0JQ00000000006400000

Locality map

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

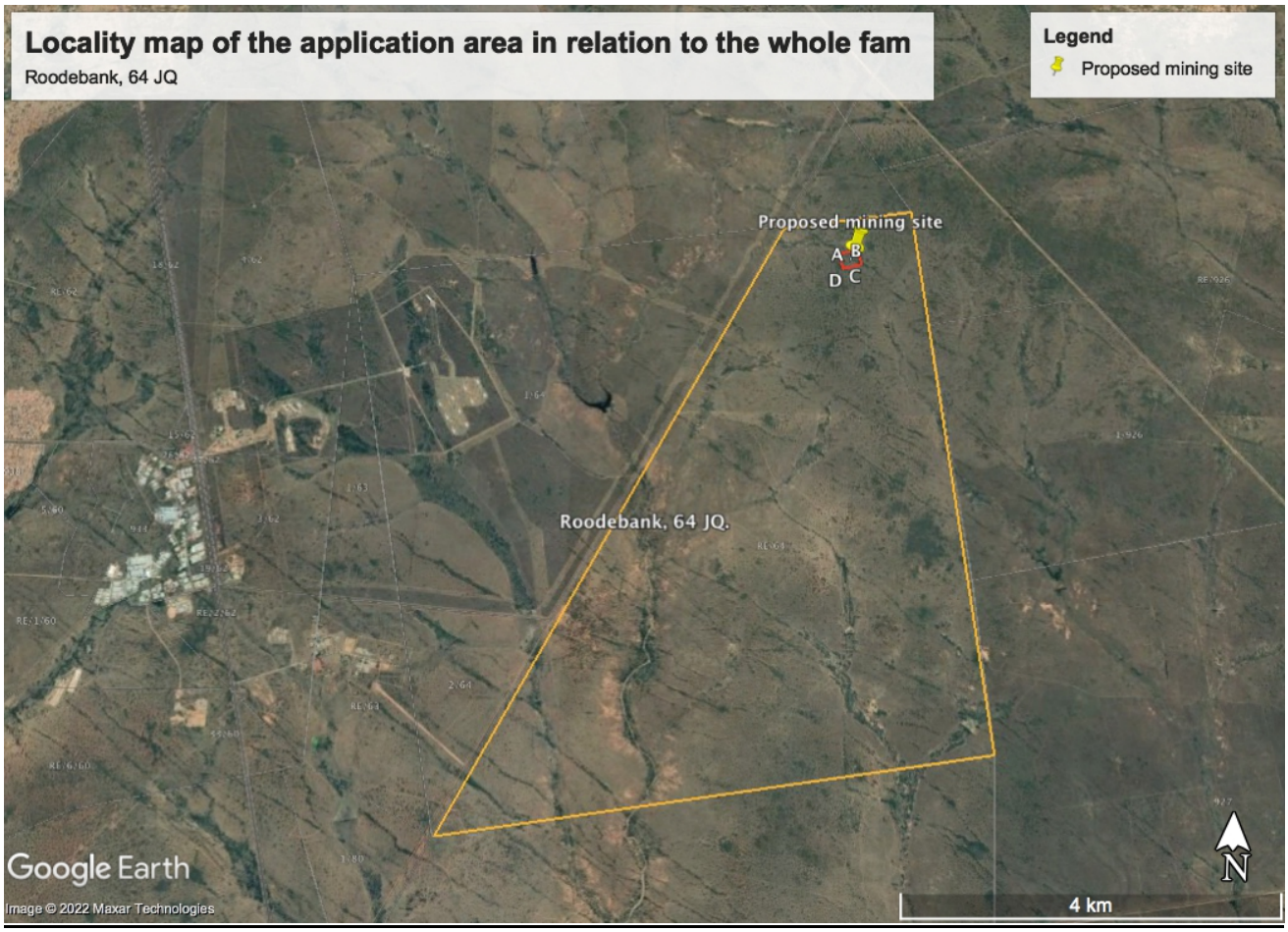

Figure 1: Locality map of the application area, within the farm Roodebank 64, JQ.

Description of the scope of the proposed overall activity.

Provide a plan drawn to a scale acceptable to the competent authority but not less than 1: 10 000 that shows the location, and area (hectares) of all the aforesaid main and listed activities, and infrastructure to be placed on site

David Marcus Mothupi has appointed Boswa Environmental Consulting to provide environmental consulting services for an application for a mining permit at a certain portion of the remaining extent of the farm Roodebank, 64 JQ, in the magisterial district of Mankwe. The commodities that the applicant intends to mine are Chrome and other Platinum Group Metals (PGMs). An application for a mining permit was lodged in terms of the Mineral and Petroleum Resources Development Act (Act 22 of 2002) with the Department of Mineral Resources and Energy (DMRE) in North West. The application was accepted under the reference: NW 30/5/1/3/2/10951 MP.

In terms of the National Environmental Management Act (Act 28 of 1998), an application for an environmental authorisation must be lodged simultaneously with the application for a mining permit. An application for the environmental authorisation was lodged in terms of Regulation 19 of the Environmental Impact Assessment Regulation (EIA), 2014 (as amended in 2017), and was acknowledged. This basic assessment report and environmental management programme is prepared in terms of the EIA regulations of 2014 (as amended), in support of the application for a mining permit.

The proposed area to be mined falls within the farm Roodebank, 64 JQ, Bojanala Platinum District Municipality, North West Province. There are currently existing gravel roads leading to the proposed mining area. The site is situated approximately 5 kilometres South West of Bojating Village. The farm can be accessed from the R510 provincial road, into an unnamed tar road. A shot road of approximately 550 meters will be made to access the site. Se**e Appendix H** for **Regulation 2(2) Map.**

(i) Listed and specified activities

NAME OF ACTIVITY **E.g. For prospecting** – drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc. **E.g. For mining**,- excavations, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.	**AERIAL EXTENT OF THE ACTIVITY** **(HA OR M²)**	**LISTED ACTIVITY** Mark with an **X** where applicable or affected	**APPLICABLE LISTING NOTICE** *GNR 983, GNR 984 or GNR 985*	**WASTE MANAGEMENT AUTHORISATION** Indicate whether an authorisation is required in terms of the Waste Management Act Mark with an **X** where applicable
Clearance of vegetation	8	☒	Activity 27 of GNR 327 OF	N/A

			2014, as amended	
Demarcation of the site	N/A		N/A	N/A
Excavation	0.25	☒	Activity 21 of GNR 327 OF 2014, as amended	N/A
Stockpiling of topsoil	0.01	☒	Activity 21 of GNR 327 OF 2014, as amended	N/A
Waste stockpile	0.04	☒	Activity 21 of GNR 327 OF 2014, as amended	N/A
Blasting	0.04	☒	Activity 21 of GNR 327 OF 2014, as amended	N/A
Hauling and transport	N/A	☒	Activity 21 of GNR 327 OF 2014, as amended	N/A
Mobile offices	0.008	☒	Activity 21 of GNR 327 OF 2014, as amended	N/A
Ablution facilities	0.004	☒	Activity 21 of GNR 327 OF 2014, as amended	N/A
Vehicle storage	0.020	☒	Activity 21 of GNR 327 OF 2014, as amended	N/A
Domestic waste storage	0.001	☒	Activity 21 of GNR 327 OF 2014, as amended	N/A

Description of the activities to be undertaken

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

The methodology for mining will be open cast of the 4.8 hectares applied for, which is below the maximum of 5 hectares which can be awarded for a mining permit. The mineral that is to be mined is chrome and its associated Platinum group Metals. The main activities during mining include:

- Demarcation of the mining area by digging trenches and putting up a fence.
- Clearance of vegetation

- Stockpiling of topsoil
- Putting up safety signs on the fence
- The placement of a mobile office container.
- The placement of ablution facilities
- The placement of waste containers
- The placement of an excavator, two dump trucks and a front-end loader
- The placement of screening equipment on site

Mining will be undertaken in three (3) phases, namely; Pre-mining, Mining and Decommissioning.

1) Pre-mining activities: Site preparation

At the start of the activity, the area will be cleared for the mining process. Topsoil will be stockpiled at a temporary location prior to mining. The mining area will be fenced off and signs will be put on the fence, particularly safety and warning signs. A mobile office will be placed on a flat plane. Machinery for the mining process will also be put in a demarcated location on site.

2) Mining activities

The method of mining to be applied is open cast. An excavator will be used by a qualified operator to excavate and remove the mineral from the open pit. The mineral will then be screened, and the mineral of interest will be loaded to be transported off-site for secondary processing.

Should blasting be required, a qualified, registered personnel will be appointed for the blasting process. The equipment to be utilised on the site will be excavators, dump trucks, screening equipment and front-end loaders. There will also be 24-hour security on site.

3) Decommissioning

All equipment and temporary structures will be removed. Earth moving machinery will be used to level the excavated areas. All remaining piles, dumps and spoil will be used to partially fill the excavated area and assist with rehabilitation of the site. No dumps or piles will be left after closure.

Topsoil will be spread over the open cast area as well as on the temporary access roads and allow to re-vegetate naturally. Any temporary mitigatory structures will be removed before mine closure can be granted by DMR.

DMR will be notified of the intent to close the mining operations 14 days prior to termination. An environmental risk report will be conducted. The environmental risk report will be submitted together with an application for closure to DMR according to regulation 57 of the MPRDA Regulations.

The applicant together with the Environmental Control Officer will inspect the rehabilitated site. The written acceptance that the rehabilitation has been completed to the satisfaction and compliance of the environmental management plan will be obtained from interested and affected parties. On completion of closure and rehabilitation, DMR will issue a closure certificate.

All mining activities will be undertaken according to best practice guidelines and the Environmental Management Programme (EMPr) developed for the mining activities.

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 including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLIY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT. (E.g. In terms of the National Water Act a Water Use License has/ has not been applied for)
Mineral and Petroleum Resources Development Act (Act 28 of 2002)	A mining permit in terms of MPRDA is required prior to commencement with the proposed mining activities	An application for a mining permit was lodged with the DMR and was Accepted on the 23rd of August 2021.
National Environmental Management Act (Act 107 of 1998)	A Basic Assessment is to be conducted in conjunction with the application for a mining permit.	An application for an environmental authorisation has been lodged and acknowledged by the DMRE. This Basic Assessment is required by the competent authority in order to make a decision.
National Environmental Management: Waste Act (Act 59 of 2008)	Provisions of the Waste Act were consulted in order to determine whether a waste license was required for any of the mining activities.	The proposed mining activities do not trigger any listed activities that require a waste management license. However, proper waste management measures will be addressed in the EMPr.
The National Water Act (Act 36 of 1998)	The proposed mining activities do not trigger any section 21 water uses therefore a Water Use License application is not required.	No Water Use License application needs to be lodged with the Department of Water and Sanitation.
National Environmental Management: Air Quality Act (Act 39 of 2004)	Health and safety	Dust suppression methods are included in the EMPr.
National Environmental Management: Biodiversity Act (Act 10 of 2004)	If during the screening phase, the activity is determined to have the potential to negatively affect	Upon generation of the EIA screening report, generated using the national EIA screening tool, the aquatic biodiversity sensitivity, plant species sensitivity, and terrestrial biodiversity sensitivity, were determined

	the biodiversity of that area, then an ecology study will be conducted.	to be low, thus resulting in no specialist ecology study being conducted. However, there is a section of this report that details information with regards to the biodiversity of the area of interest.

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 the preferred location).

Section 2(d) of the Minerals and Petroleum Resources Development Act (MPRDA) (Act 28 of 2002), gives object to; *"substantially and meaningfully expand opportunities for historically disadvantaged persons, including women, to enter the mineral and petroleum industries and to benefit from the exploitation of the nation's mineral and petroleum resources".* The applicant intending to perform the exploration activities does fit this category as a previously disadvantaged person, black male.

The granting of the proposed project will allow the applicant to contribute to the economy of South Africa and to alleviate poverty by creating jobs. The granting of the permit and environmental authorisation will reduce illegal mining and promote legal mining amongst start-up individuals. The proposed project should be considered at this particular point in time considering the high probability of a reserve of the proposed commodities.

Motivation for the overall preferred site, activities and technology alternative.

In terms of both the Environmental Impact Assessment (EIA) Regulations and the National Environmental Management Act (Act No. 107 of 1998), the applicant is required to demonstrate that alternatives that have been discussed during the planning of the project.

The alternatives that are being considered in this study are as follows:

ii) Site alternatives

The site location of the proposed project was selected based on desktop studies that were conducted thoroughly. The area has been selected as the preferred site based on the geological formation of the area. The site is therefore regarded as the preferred site and alternatives are not considered.

iii) Activity alternatives

The type of activity proposed is mining. This was chosen based on geological information with regards to the farm. There is no alternative.

iv) Technology alternatives

In terms of the technologies proposed, the proposed method of mining has been chosen based on the known success for open cast mining. No alternatives are indicated, but rather a phased approach of trusted mining techniques.

Full description of the process followed to reach the proposed preferred alternatives within the site.

NB!! – This section is about the determination of the specific site layout and the location of infrastructure and activities on site, having taken into consideration the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout.

i) Details of the development footprint alternatives considered.

With reference to the site plan provided as Appendix 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

a) the property on which or location where it is proposed to undertake the activity.

The application area has been chosen as a result of geological information and mineral deposits in the area. Chrome is also a very common commodity for small scale miners as it is reasonable to mine in terms of costs, and is a common commodity in South Africa.

b) the type of activity to be undertaken.

The mining of chrome and other PGMs is the only alternative due to the minerals deposits expected to be on the site.

c) the design or layout of the activity.

No permanent structures will be constructed. Existing access roads will be used to access the farm, thereafter a short access route (Approximately 450 meters) leading to the mining site will be cleared. The design and layout is designed based on the slope, wind direction and the access roads to be used by the trucks.

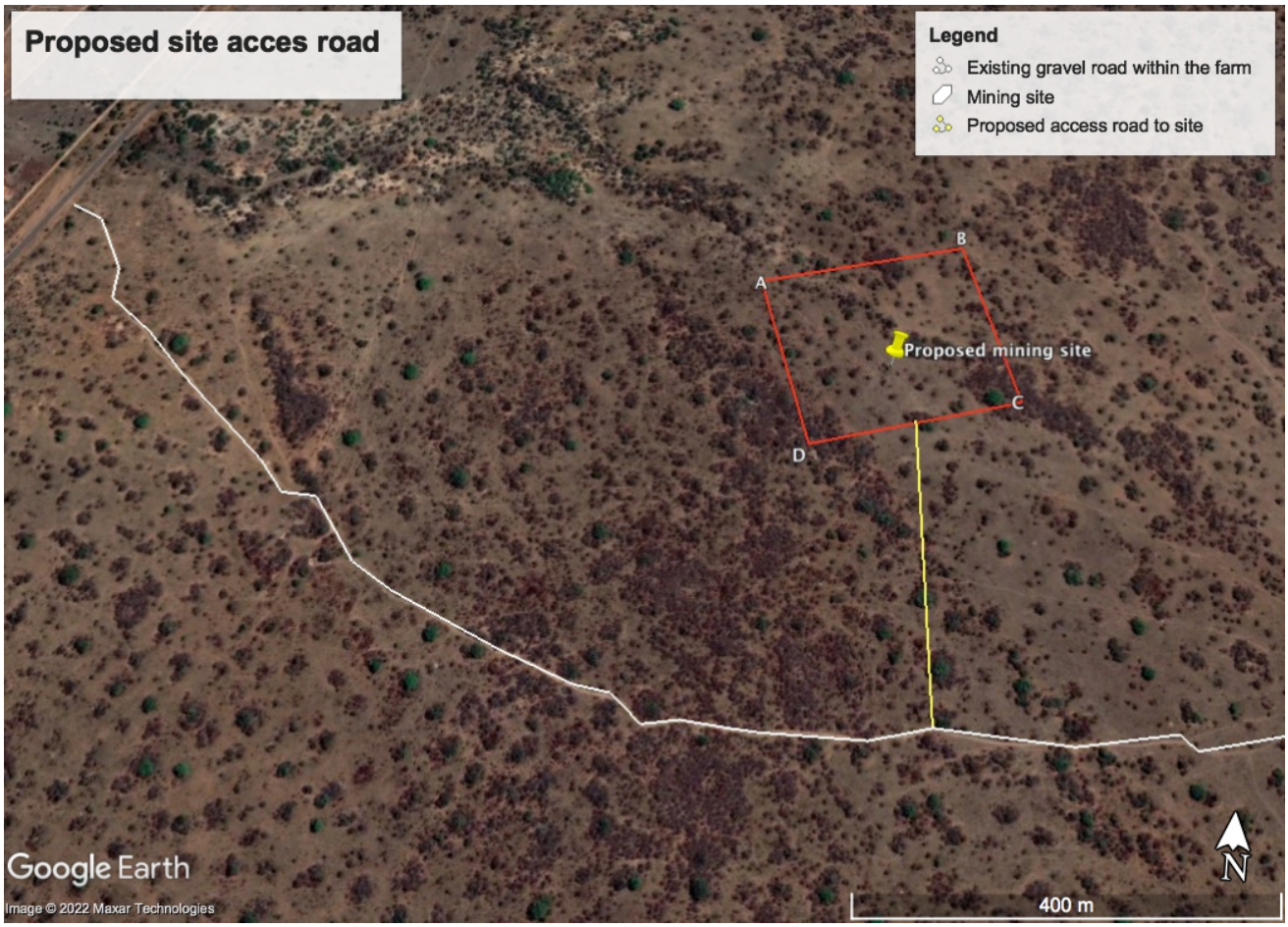

Figure 2: Proposed site access road

d) the technology to be used in the activity.

No technology alternatives where considered for this application. The above-mentioned technologies where deemed necessary and the only technology to be employed.

e) the operational aspects of the activity.

There will be temporary service infrastructure such as water tanks, ablution facilities and site offices. Demarcation of an access road will be limited to areas where there is no access at all. The proposed activities will be conducted in phases.

f) the option of not implementing the activity.

The option of not implementing the mining activities on the project site assumes the site remains in its current state, therefore the option of not implementing would result in no impacts on the social and biophysical environment. However, the option of not implementing the activity will result in untapped mineral deposits that could have been utilised to create jobs and to contribute to the Gross Domestic Product (GDP) of South Africa.

Details of the Public Participation Process Followed

Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings. (Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.

In terms of the EIA Regulations of 2014 (as amended), when applying for environmental authorisation, the Environmental Assessment Practitioner managing the application must conduct at least a public participation process where all potential or registered interested and parties,

including the competent authority, are given a period of at least 30 days to submit comments on each of the basic assessment reports, EMPr, scoping report and environmental impact assessment report, and where applicable the closure plan. In this case a Basic Assessment Report (BAR) is considered.

This section of the BAR will give an explanation of the public participation process to be taken in order to comply with the above-mentioned requirements.

The following is to be undertaken during the PPP:

1. Identification of Interested and Affected Parties (IAPs);
2. Notification of IAPs regarding the proposed project;
3. Gathering comments, issues and concerns from IAPs;
4. Responding to IAPs' comments, issues and concerns;
5. Compilation and submission of results of consultation report to the DMR; and
6. Providing IAPs with the opportunity to review and comment on the basic assessment report.

Each of the processes is described in detail in the sections below:

1) Identification of Interested and Affected Parties

Interested and affected parties (IAPs) that were identified include the following:

- Landowners (Moses Kotane Local Municipality)
- District Municipality: Bojanala Platinum District Municipality
- Local Municipalities: Moses Kotane Local Municipality
- The Ward Counsellor (Bojating Village)
- The tribal council (Bojating Village)
- Department of Water & Sanitation.
- Department of Public Works and Roads
- Department of Social Development
- Department of Health
- NW: Department of Agriculture, Land Reform and Rural Development.
- South African Heritage Resources Agency (SAHRA)

2) Notification of Interested and Affected Parties

IAPs were notified by providing each person/ organ of state with a notification letter that includes a description of the project, the public participation process, how they can get involved in the process as well as a registration and comment sheet. The notification letters were drafted in English and in the local language of Setswana. The method of communication was via email, postal as well as hand-delivery of the notification letters (See **APPENDIX B1** for example of notification letter, **APPENDIX B2** for proof of registered mail, **APPENIX B3** for signed receipt of hand delivered notification letters, and **APPENDIX B4** for proof of sent email.

Site notices were placed close to the proposed mining area, along the tar road as well as at the village of Bojating **(APPENDIX C)**.

An advert was also placed in the local newspaper (Platinum Weekly). The advert included a brief project description, location of the project, methods to register as an IAP and review period of the Basic Assessment report **(APPENDIX D)**.

IAPs will be provided with the opportunity to comment on this Draft Basic Assessment Report for 30 days form the date of the notifications. The comments will be incorporated into the final BAR.

On the 16th of March 2022, a meeting was held with the tribal council, who represent the community, the applicant and the Environmental Assessment Practitioner. The comments have been recorded in the comments and response form. See **APPENDIX I** for a signed register of the attendees of the meeting.

Summary of issues raised by I&APs

(Complete the table summarising comments and issues raised, and reaction to those responses)

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	Section and paragraph reference in this report where the issues and or response were incorporated.
AFFECTED PARTIES					
Landowner/s	**X**		NO ISSUES WERE RAISED		
Lawful occupier/s of the land			NO LAWFUL OCCUPIERS OF THE LAND		
Landowners or lawful occupiers on adjacent properties	**X**				
Municipal councillor	**X**		NO ISSUES WERE RAISED		
Municipality	**X**		NO ISSUES WERE RAISED		

Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e			NO ISSUES WERE RAISED		
Community council of Bojating village	**X**	16 March 2022	What is the maximum area size that a mining permit can be applied for?	The maximum area for which a mining permit can be approved is 5 hectares.	Section: Description of activities to be undertaken Paragraph: 1 Page: 13
			What will happen to water in the nearby river in terms of pollution?	Before the start of the mining activities, the contractor will drill tranches and demarcate the mining area with the soil. The heaps will serve as barriers to keep any pollutants within the mining site. Drip trays will also be used to avoid spillages of any hydrocarbons that might pollute the water.	
			What benefits will the mining activity bring to the people of Bojating village?	For the sake of safety, the mining contractors who will be doing the mining will bring their own machinery operators for their machinery as they will be trained specifically to operate those machinery. However, for any other jobs that arise, the local community of Bojating will be given first preference, and if they don't have the necessary skills set then workers will be sought after elsewhere. 30% of the workforce will come from the village. The applicant will also share 7% of their profits with the community and that can be used to meet the needs of the community.	Section: Impact on the socio-economic conditions of any directly affected person Paragraph: 1 Pag: 62
			Is there a social and labour plan?	A mining permit does not require the holder of the mine to have a social and labour plan. However, the applicant is willing to assist the community with their needs within the capacity	

				of the applicant. The company will also share 7% of their profits with the community and that can be used to meet the needs of the community.	
			What is the maximum time that a person can hold a permit?	The period for holding a mining permit is 2 years. Thereafter, the holder of the mining permit can renew the permit 3 times and each renewal will be for one year. This makes the total period that a person can hold a mining permit 5 years.	
			What commodities have been applied for?	Chrome and other PGMs	Section: Description of the scope of the proposed overall activity. Paragraph: 1 Page: 10
			Can a mining permit be turned into a mining right?	A mining permit is issued for a specific site based on the environmental impact assessment conducted. The applicant would have to lodge a new application with the DMRE and conduct another environmental impact assessment for a mining right which is bigger in scope (Scoping and EIR).	
			Seeing that the environmental assessment practitioner will not be around after the mining permit is issued, can the applicant meet with the council and go to the proposed mining site?	Yes. The applicant will meet with the community council and visit the mining site. A date has been set for the 23rd of March 2022.	
			What will happen if the applicant abandons the operation and leaves the area without rehabilitating it?	The applicant will pay a certain amount to DMRE which is specifically for rehabilitate. Should the applicant leave the place without rehabilitating, the DMRE can be approached and those funds can be used to rehabilitate the area.	
			Since you have mentioned that your initial intention is to mine chrome, how will we know if you have platinum.	The extraction of platinum is different to that of chrome in a sense that it is more expensive and required different types of machinery. The	

				applicant will inform the tribal council when they intend on putting in these new machines.	
Dept. Land Affairs			We would hereby like to confirm that the name of the farm Damplaas, 64 JQ, as referred/mentioned in your mining permit application, is in fact Roodebank, 64 JQ, as per the Deeds office registration/ records. See **APPENDIX H.**	Thank you very much for this response letter. Highly appreciated.	
Traditional Leaders	**X**		The name of the farm is Roodebank and Not Damplaas.	The department of agriculture, land reform and rural development will be consulted with regards to that information.	
Dept. Environmental Affairs			NO ISSUES WERE RAISED		
Other Competent Authorities affected			NO ISSUES WERE RAISED		
OTHER AFFECTED PARTIES					
INTERESTED PARTIES					

i. The Environmental attributes associated with the alternatives. (The environmental attributes described must include socio-economic, social, heritage, cultural, geographical, physical and biological aspects)

(1) Baseline Environment

(a) Type of environment affected by the proposed activity.
(its current geographical, physical, biological, socio- economic, and cultural character).

The site is situated approximately 5 kilometres South West of Bojating Village. Access to the farm can be gained from the R510 provincial road and joining the existing tar road that leads to the farm.

Climate

Summer rainfall with very dry winters, with a mean annual precipitation of about 600–700 mm, but local topography influences rainfall patterns over short distances. Frost fairly infrequent in winter in lower laying areas, and less on the hills. Daily temperatures vary considerably at different localities, with highest temperatures in lower-lying areas and lowest temperatures on southern aspects of mountains.

Flora

The area under application falls within the Pilanesburg Mountain Bushveld, part of the Savanna Biome (SVcb 5). The following vegetation type is normally found under the Pilanesberg Mountain Bushveld:

- **Small Trees:** *Combretum apiculatum (d), C. molle (d), C. zeyheri (d), Strychnos cocculoides (d), Croton gratissimus, Englerophytum magalismontanum, Rhus leptodic- tya, Vangueria parvifolia*

- **Low Shrubs:** *Polygala hottentotta. Graminoids: Chrysopogon serrulatus (d), Elionurus muticus (d), Panicum maximum (d), Themeda triandra (d), Enneapogon scoparius, Hyperthelia dissoluta, Panicum deustum.*
- **Tall Shrubs:** *Diplorhynchus condylo- carpon* (d), *Elephantorrhiza burkei* (d), *Grewia flava*, *Hibiscus calyphyllus*, *Mundulea sericea*, *Steganotaenia araliacea*, *Vitex rehmannii*.
- **Herbs:** *Abutilon pycno- don*, *Chamaesyce inaequilatera*, *Hermannia depressa*, *Nidorella resedifolia*, *Xerophyta retinervis*
- **Succulent herbs:** *Crassula lan- ceolata* subsp. *transvaalensis*.

Fauna

There was no observation of large antelope species. The fauna that are associated with the Pilanesberg Mountain Bushveld are anticipated to be on-site. According to the South African National Biodiversity Institute Biodiversity GIS LUDS report, the site does not fall within a critically endangered, endangered, or vulnerable threatened ecosystem.

Geology and soils

The alkaline complex consists of potassium- and sodium-rich, silica-poor rocks, mainly foyaite, lava and tuff with some syenite. Due to the original volcanic actions, subsequent fracturing, emplacement of intrusions, collapse and resurgence of magma and radial emplacement of dykes, a complex geological pattern exists. Pilanesberg is one of the very few large alkaline ring complexes in the world, approximately 1.3 gya old. Soils are shallow, rocky lithosols on the hills and mountains of the Glenrosa and Mispah soil forms, but with deeper soils on the valley floors.

Topography

Gentle to steep slopes with hills and mountains, with an altitude varying from 1100m to 1500m.

Heritage Resources

No areas or object of historical or paleontological importance were observed during the site inspection. Should the excavation or other activity during the operation phase reveal the skeletal remains of a human being, broken pieces of ceramic pottery, or any material that indicates previous occupation of the land, a qualified archaeologist will be notified immediately, and a report will be sent to the North West Provincial Heritage Resources Authority.

Socio-economic

The analysis of the socio economy is analysed at the municipal level (Moses Kotane Local Municipality).

- Demography

The Municipality covers an area of approximately 5719 km^2 and is mostly rural in nature, comprising 107 villages and two (02) formal townships of Mogwase and Madikwe with estimated population of 242 554 in the 2011 Census report. The Municipality has predominantly African population, with fewer Indian, Coloured and White groups mostly residing in Sun City (Moses Kotane Local Municipality Integrated Development Plan (MKLMIDP) 2020/ 2021). Of the population 98,3% are black African, 0,8% are white, with the other population groups making up the remaining 0,9 % (Census 2011).

- Major economic activities

The major economic activities taking place are mines within the municipality, Amandelbult, Northam Platinum, Siyanda Bakgatla, Rhino Andalusite, Chronimet Mine and PPC. The Municipality also rests in the gateway to Sun City. Others include; The Pilanesberg Game Reserve, the Madikwe Game Reserve and Bakubung Game Reserve. The N4 Corridor which is the east-west bound road connecting Rustenburg

and Pretoria runs to the south of Moses Kotane local municipality. The R510 north-south bound road connects Moses Kotane Local Municipality to the North.

- Unemployment and employment

There are 74 744 people in the municipality who are economically active (employed or unemployed but looking for work), and of these 37,9% are unemployed (Census 2011). The municipality is characterised by high levels of unemployment. The unemployment rate is 33.5% (Moses Kotane Local Municipality Integrated Development Plan (MKLMIDP) 2020/ 2021).

A relatively higher proportion (86.4%) of persons are employed to work for the formal sector. The employment rate within the Moses Kotane Local Municipality reached its highest growth at a growth rate of 2.4%, whilst the local municipality experienced negative employment growth rates of -3.9%. Besides the mining sector (31.3%) the main employer for the local municipality is wholesale and retail trade sector (18.8%) and the government sector (13.5%).

- Household Income

A relatively higher proportion (30.6%) of the residents within the Moses Kotane Local Municipality receive no income. 22.2% of the residents within the local municipality earn between R 8 590 and R 17 177 per annum or between R 716 and R 1 431 per month.

- Education

Of those aged 20 years and older, 9,3% have no schooling, 17,1% have some primary school education, 35,3% have some secondary education, 27,4% have completed matric, and 5,3% have some form of higher education (Census 2011).

The proportion of residents within the Moses Kotane Local Municipality (11.9%) who have completed matric is much lower than the percentage of residents that have completed matric within the Bojanala PDM (14.9%). Furthermore, only 0.9% of the residents within the local municipality have obtained a higher level of education.

Description of the current land uses.

The is currently no land-use at the site of interest, however the far south of the farm is being used by community members to keep their livestock, the community council have been consulted with regards to the matter. An investigation of the site of interest showed no sign of any human or agricultural activities taking place.

Description of specific environmental features and infrastructure on the site.

The area is covered by vegetation, grass and trees. There is a lake approximately 700 meters to the South-east of the proposed site. The lake joins into a river that moves south from the site.

Environmental and current land use map.

(Show all environmental, and current land use features)

SEE APPENDIX E

Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these 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).

Aspect affected	Potential Impact	Phase Pre-operation, exploration and decommissioning.	Extent		Duration		Magnitude		Probability		Significance [(E+D+M) X P] Before Mitigation	Potential Mitigation
Topography	• Change in the natural topography of the site as a result of clearing and removal of topsoil on the excavation site.	• Pre-operation	Local	1	Short	2	High	8	Highly probable	4	44	• Disturbed site must be rehabilitation to its initial state using the stockpiled topsoil.
Air Pollution	• Nuisance impact due to dust generation from clearing, excavation, screening and loading. • Exhaust fumes from vehicles and machinery used for mining activities. • Dust due to vehicles travelling on the gravel road used to access the site.	• Pre operation • Operation • Decommissioning	Local	1	Short	2	Low	4	Probable	3	21 (Low)	• Routine spraying of unpaved site areas and roads utilised to enter and exit the mining area. • Speed limits of vehicles inside the site will be monitored to move at a slow speed in order to avoid excessive dust or the excessive deterioration of the roads to be used. • All cleared, disturbed or exposed areas to be re-vegetated as soon as practically possible to prevent the formation of additional sources of dust. • No unnecessary revving of vehicles should take place.
Noise	• Increase in ambient noise levels due to use of machinery and movement of vehicles.	• Pre operation • Operation • Decommissioning	Local	1	Short	2	Moderate	6	Highly probable	4	36 (Medium)	• Avoid travelling past residences. Speed limit of 40km/h will be enforced. • Mining activities are to take place during daylight hours. Access route selection to give cognisance to the location of noise receptors and efforts must be taken to minimise such disturbance.

Land scape	• Change in the landscape as a result of excavation and movement of vehicles.	• Pre operation • Operation • Decommissioning	Local	1	Short	2	Minor	2	Highly probable	4	20 (Low)	• The mined area will be backfilled and made safe so as to reflect as far as possible the pre-operation state of the area. • All temporary features, such as mobile office containers, will be moved from the area during decommissioning.
Fauna & Flora (Terrestrial Ecology)	• Removal and damage of natural vegetation as a result of establishment of the mining site. • Accidental fires • Disturbance of animal habitats.	• Pre operation • Operation	Local	1	Short	2	Low	4	Probable	3	21 (Low)	• Site establishment should be aimed at minimising disturbance of flora and faunal habitat, by keeping the clearance within the defined coordinates. • Smoking should be restricted to a smoking area. • Fire-fighting equipment should be made available onsite in case of emergency.
Surface Water	• Topsoil stock piles not protected against erosion may carry sediment into water courses. • Leakage of oil and/ or diesel from machinery and vehicles may cause surface water pollution as a result of run-off	• Pre operation • Operation	Regional	2	Short	2	Moderate	6	Highly Probable	4	40 (Medium)	• Erosion and storm water control measures will be implemented. • The disposal of oil, grease and related hazardous waste will be stored in non-porous steel containers and be disposed of at a registered land-sill site. • Vehicle repairs will only take place within the maintenance area for vehicles. • Drip trays will be used whenever re-fueling, or maintenance takes place.
Ground water	• Deterioration of ground water quality as a result of seepage of diesel, oil and	• Pre operation • Operation	Provincial	3	Medium	3	High	8	Definite	5	60 (High)	• Drip trays will be placed at all points where diesel, oil or hydraulic fluid may drip and in so doing contaminate the soil.

	other harmful lubricants from machinery and vehicles. • Contamination of groundwater as a result of lack of proper sanitation (e.g employees relieving themselves on areas other than the designated mobile toilets).											• No repairs will be allowed outside the maintenance area except for emergencies. • Equipment used as part of the proposed operation will be adequately maintained so as to ensure that oil, diesel, grease or hydraulic fluid does not leak during operation. • Proper sanitation facilities will be provided for employees. No person will pollute the workings with feces or urine, or misuse the facilities provided. • Spill kit should be placed onsite in case of spillage emergencies.
Traffic Impact	• The trucks to be used to collect and transport the minerals will slow down traffic due to the slow movement of trucks as compared to smaller automobiles.	• Pre operation • Operation	National	4	Short	2	High	8	Definite	5	70 (High)	• Transportation trucks will be managed to come at a time where there is less traffic so as not to inconvenience other travellers.
Cultural environment	• There are houses and cattle kraals 6 kilometres South-West of the proposed site. Due to the distance between the sites, it is envisaged that there won't be any disturbance to	• Pre operation • Operation	Local	1	Short	2	Small	0	Very improbable	1	3 (Low)	• The mining area must not be accessed using the existing road that leads to the houses and kraals. An access area further up, closer to the site must be developed.

	the culture of the area.											
Land capability	• Reduction of land capability as a result of clearing and excavation.	• Pre operation • Operation • Decommissioning	Local	1	Short	2	High	8	Highly probable	4	44 (Medium)	• The mining site must be limited to the defined area as per the coordinates. Rehabilitation measures will be undertaken at the end of the operation.
Heritage Resources	• There are no heritage resources on site.	• Pre operation • Operation	Local	1	Short	2	Small	0	Very improbable	1	3 (Low)	• Should the contractor come across graves, or other items of archaeological importance, mining activities must be seized, and the expertise of a specialist must be sought.
Soil	• Excessive removal of topsoil may cause erosion on and offsite; • Topsoil could be lost if not properly stored for rehabilitated post completion of works; • Soils could become compacted and be unable to host vegetation (due to movement of vehicles.)	• Pre operation • Operation • Decommissioning	Local	1	Short	2	High	8	Highly probable	4	44 (Medium)	• The stored topsoil will be adequately protected from being blown away or being eroded. • Erosion and storm water control measures will be implemented. • The movement of vehicles will be confined to established roads for as far as practical in order to prevent the compaction of soils • Compacted areas will be ripped where possible during the decommissioning and closure phases of the operation in order to establish a growth medium for vegetation.
Waste	• Domestic and construction waste could lead to other visual impacts and loss of natural habitat.	• Pre operation • Operation	Local	1	Short	2	High	8	Highly probable	4	4	• Labelled waste bins will be placed on site for domestic waste disposal such as glass bottles, plastic bags and metal scrap. • The waste will be disposed of at a recognized municipal disposal facility.

												• The disposal of oil, grease and related hazardous waste will be stored in steel containers supplied by a contractor. All oil and grease will be removed on a regular basis from the operation by a registered approved contractor. • Tool box talks will be held to create awareness on the proper disposal of waste.
Visual	• The vehicles and other machinery will be visible to nearby dwellers, and will create visual intrusion due to prospecting and drilling activities.	• Pre operation • Operation	Local	1	Short	2	Moderate	4	Probable	3	21 (Low)	• Implement measures to reduce the visual impacts of mining activities, i.e. rehabilitation of mining sites and access roads.
Social	• The influx of jobseeker in the area may result in an increase in petty crimes. • Unauthorized access to private property outside of demarcated areas will cause conflict among landowners.	• Operation	Local	1	Short	2	Moderate	4	Highly probable	4	28 (Low)	• Liaise with the SAPS and existing forums in order to implement effective crime prevention strategies; and to prevent unauthorized occupation of property.
Health and Safety	• Danger of people or fauna entering the mining area and getting injured.	• Pre operation • Operation • Decommissioning	Local	1	Short	2	Very High	10	Highly probable	4	52 (Medium)	• Acceptable hygienic and aesthetic practices will be adhered to.

	• The danger of misuse of machinery leading to accidents and fatalities.											• Workers must always wear PPE when conducting mining activities. • The mining site will be fenced in order to prevent unauthorised entry into the site by people or wondering animals. • The entrance gate will be closed at all times and a security will monitor entrance to the site. • All personnel who will be controlling the machinery must be trained and possess the necessary qualifications. • Safety meetings will be held on a regular basis (weekly) to inform the workers of the dangers of misusing the machinery. • A safety representative will be appointed
Socio-economic	• The mining activities are essential for the development of the nearby village and township, which may have a positive impact on the local socio-economic	• Pre operation • Operation • Decommissioning	Local								Positive Impact	

	environment through potential but limited employment opportunities;											

Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;

(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).

Impacts were assessed in terms of the following criteria:

- The **extent**, wherein it is indicated whether the impact will be local -1, district – 2, provincial- 3, national- 4, or international- 5, (with 1 being low and 5 being high).
- The **duration**, wherein it was indicated whether:

- the lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;

- the lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2;

- medium-term (5–15 years) – assigned a score of 3;

- long term (> 15 years) - assigned a score of 4; or

- permanent - assigned a score of 5;

- The **magnitude**, quantified on a scale from 0-10, where 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- The **probability** of occurrence, which describes the likelihood of the impact actually occurring. Probability was estimated on a scale of 1–5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4

is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).

- The **significance**, was determined through a synthesis of the characteristics described above and can be assessed as low, medium or high;

Significance: It is calculated as follows: (Duration + Extent + Magnitude) X Probability. The results are then interpreted as follows:

- 0 - 30 = low
- 31-60 = medium
- 61 and more = high.

Significant points	Rating	Colour
0-30	Low	
31-60	Medium	
61 and more	High	

The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected.

(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)

No alternative sites were considered during the study. The project location was however bound to the current location due to the underlying geology. The mining permit is dependent on the area chosen being susceptible to possible mineral deposits and therefore no alternative site could be considered. However should there be unexpected discoveries such as graves, an alternative site may be identified. The alternative sites will be identified based on the location of sensitive environments such as heritage sites (graves etc.), wetlands, riparian zones, and areas with Red Data

Species. Changes in the layout plan will be discussed and agreed on with the affected parties. Negative and positive impacts of the project within the proposed site have been identified in the previous section together with proposed mitigation measures.

Motivation where no alternative sites were considered.

No alternatives have been investigated as the activity or project is solely dependent on the underlying geology, and historical mining operations within the surrounding areas which indicate that economically viable mineral resources occur within the application area.

Statement motivating the alternative development location within the overall site.
(Provide a statement motivating the final site layout that is proposed)

No alternative development location within the overall site was selected as no alternatives were considered.

b) Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity. (Including (i) a description of all environmental issues and risks that erer identified during the environmental impact assessment process and (ii) 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 impact assessment process may be summarised as follows:

- Identification of proposed mining activities including their nature and duration.
- Screening of activities likely to result in impacts or risks.
- Utilisation of an assessment methodology to assess and score preliminary impacts and risks identified.
- Inclusion of I&AP comments regarding impact identification and assessment.
- Finalisation of impact identification and scoring.

The impact significance rating methodology is guided by the requirements of the NEMA 2014 EIA Regulations (as amended). Please refer to Section 9.1 for a full description of the impact assessment methodology. Please refer to Table 20 for a description of the activities and associated impacts.

Impacts were assessed in terms of the following criteria:

- The **extent**, wherein it is indicated whether the impact will be local -1, district – 2, provincial- 3, national- 4, or international- 5, (with 1 being low and 5 being high).
- The **duration**, wherein it was indicated whether:

- the lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;

- the lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2;

- medium-term (5–15 years) – assigned a score of 3;

- long term (> 15 years) - assigned a score of 4; or

- permanent - assigned a score of 5;

- The **magnitude**, quantified on a scale from 0-10, where 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.

- The **probability** of occurrence, which describes the likelihood of the impact actually occurring. Probability was estimated on a scale of 1–5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).

- The **significance**, was determined through a synthesis of the characteristics described above and can be assessed as low, medium or high;

Significance: It is calculated as follows: (Duration + Extent + Magnitude) X Probability. The results are then interpreted as follows:

- 0 - 30 = low
- 31-60 = medium
- 61 and more = high.

Significant points	**Rating**	**Colour**
0-30	Low	
31-60	Medium	
61 and more	High	

Assessment of each identified potentially significant impact and risk

(This section of the report must consider all the known typical impacts of each of the activities (including those that could or should have been identified by knowledgeable persons) and not only those that were raised by registered interested and affected parties).

Aspect affected	Potential Impact	Phase Pre-operation, exploration and decommissioning.	Extent		Duration		Magnitude		Probability		Significance [(E+D+M) X P] Before Mitigation	Potential Mitigation	Significance [(E+D+M) X P] After Mitigation
Topography	• Change in the natural topography of the site as a result of clearing and removal of topsoil on the excavation site.	• Pre-operation	Local	1	Short	2	High	8	Highly probable	4	44 (Medium)	• Disturbed site must be rehabilitated to its initial state using the stockpiled topsoil.	21 (Low)
Air Pollution	• Nuisance impact due to dust generation from clearing, excavation, screening and loading. • Exhaust fumes from vehicles and machinery used for mining activities. • Dust due to vehicles travelling on the gravel road used to access the site.	• Pre operation • Exploration • Decommissioning	Local	1	Short	2	Low	4	Improbable	3	21 (Low)	• Routine spraying of unpaved site areas and roads utilised to enter and exit the mining area. • Speed limits of vehicles inside the site will be monitored to move at a slow speed in order to avoid excessive dust or the excessive deterioration of the roads to be used. • All cleared, disturbed or exposed areas to be re-vegetated as soon as practically possible to prevent the formation of additional sources of dust. • No unnecessary revving of vehicles should take place.	14 (Low)
Noise	Increase in ambient noise levels due to	• Pre operation • Exploration	Local	1	Short	2	Moderate	6	Highly probable	4	36 (Medium)	• Avoid travelling past residences. Speed limit	21 (Low)

		use of machinery and movement of vehicles.	• Decommissioning										of 40km/h will be enforced. • Mining activities are to take place during daylight hours. Access route selection to give cognisance to the location of noise receptors and efforts must be taken to minimise such disturbance.	
Land scape	• Change in the landscape as a result of excavation and movement of vehicles.		• Pre operation • Exploration • Decommissioning	Local	1	Short	2	Minor	2	Highly probable	4	20 (Low)	• The drilled area will be backfilled and made safe so as to reflect as far as possible the pre-operation state of the area. • All temporary features, such as mobile office containers, will be moved from the area during decommissioning.	15 (Low)
Fauna & Flora (Terrestrial Ecology)	• Removal and damage of natural vegetation as a result of establishment of the mining site. • Accidental fires • Disturbance of animal habitats.		• Pre operation • Exploration	Local	1	Short	2	Low	4	Probable	3	21 (Low)	• Site establishment should be aimed at minimising disturbance of flora and faunal habitat, by keeping the clearance within the defined coordinates. • Smoking should be restricted to a smoking area. • Fire-fighting equipment should be made available onsite in case of emergency.	14 (Low)
Surface Water	• Topsoil stock piles not protected against erosion may carry sediment		• Pre operation • Exploration	District	2	Short	2	Moderate	6	Highly Probable	4	40 (Medium)	• Erosion and storm water control measures will be implemented. • The disposal of oil, grease and related hazardous waste will be	28 (Low)

	into water courses. • Leakage of oil and/ or diesel from machinery and vehicles may cause surface water pollution as a result of run-off										stored in non-porous steel containers and be disposed of at a registered land-sill site. • Vehicle repairs will only take place within the maintenance area for vehicles. • Drip trays will be used whenever re-fueling, or maintenance takes place.	
Ground water	• Deterioration of ground water quality as a result of seepage of diesel, oil and other harmful lubricants from machinery and vehicles. • Contamination of groundwater as a result of lack of proper sanitation (e.g employees relieving themselves on areas other than the designated mobile toilets).	• Pre operation • Exploration	Provincial	3	Medium	3	High	8	Definite	5	60 (High)	• Drip trays will be placed at all points where diesel, oil or hydraulic fluid may drip and in so doing contaminate the soil. • No repairs will be allowed outside the maintenance area except for emergencies. • Equipment used as part of the proposed operation will be adequately maintained so as to ensure that oil, diesel, grease or hydraulic fluid does not leak during operation. • Proper sanitation facilities will be provided for employees. No person will pollute the workings with feces or urine, or misuse the facilities provided. • Spill kit should be placed onsite in case of spillage emergencies.	40 (Medium)
Traffic Impact	• The trucks to be used to collect and transport the minerals will slow down traffic due to the slow	• Pre operation • Exploration	National	4	Short	2	High	8	Definite	5	70 (High)	• Transportation trucks will be managed to come at a time where there is less traffic so as not to inconvenience other travellers.	40 (Medium)

	movement of trucks as compared to smaller automobiles.												
Cultural environment	• There are houses and cattle kraals 6 kilometres South-West of the proposed site. Due to the distance between the sites, it is envisaged that there won't be any disturbance to the culture of the area.	• Pre operation • Exploration	Local	1	Short	2	Small	0	Very improbable	1	3 (Low)	• The mining area must not be accessed using the existing road that leads to the houses and kraals. An access area further up, closer to the site must be developed.	3 (Low)
Land capability	• Reduction of land capability as a result of clearing and excavation.	• Pre operation • Exploration • Decommissioning	Local	1	Short	2	High	8	Highly probable	4	44 (Medium)	• The mining site must be limited to the defined area as per the coordinates. Rehabilitation measures will be undertaken at the end of the operation.	28 (Low)
Heritage Resources	• There are no heritage resources on site.	• Pre operation • Exploration	Local	1	Short	2	Small	0	Very improbable	1	3 (Low)	• Should the contractor come across graves, or other items of archaeological importance, mining activities must be seized, and the expertise of a specialist must be sought.	3 (Low)

Soil	• Excessive removal of topsoil may cause erosion on and offsite; • Topsoil could be lost if not properly stored for rehabilitated post completion of works; • Soils could become compacted and be unable to host vegetation (due to movement of vehicles.)	• Pre operation • Exploration • Decommissioning	Local	1	Short	2	High	8	Highly probable	4	44 (Medium)	• The stored topsoil will be adequately protected from being blown away or being eroded. • Erosion and storm water control measures will be implemented. • The movement of vehicles will be confined to established roads for as far as practical in order to prevent the compaction of soils. • Compacted areas will be ripped where possible during the decommissioning and closure phases of the operation in order to establish a growth medium for vegetation.	21 (Low)
Waste	• Domestic and construction waste could lead to other visual impacts and loss of natural habitat.	• Pre operation • Exploration	Local	1	Short	2	High	8	Highly probable	4	44 (Medium)	• Labelled waste bins will be placed on site for domestic waste disposal such as glass bottles, plastic bags and metal scrap. • The waste will be disposed of at a recognized municipal disposal facility. • The disposal of oil, grease and related hazardous waste will be stored in steel containers supplied by a contractor. All oil and grease will be removed on a regular basis from the operation by a registered approved contractor. • Tool box talks will be held to create awareness on the proper disposal of waste.	14 (Low)

Visual	• The vehicles and other machinery will be visible to nearby dwellers, and will create visual intrusion due to prospecting and drilling activities.	• Pre operation • Exploration	Local	1	Short	2	Moderate	4	Probable	3	21 (Low)	• Implement measures to reduce the visual impacts of mining activities, i.e. rehabilitation of mining sites and access roads.	14 (Low)
Social	• The influx of jobseeker in the area may result in an increase in petty crimes. • Unauthorized access to private property outside of demarcated areas will cause conflict among land owners.	• Exploration	Local	1	Short	2	Moderate	4	Highly probable	4	28 (Low)	• Liaise with the SAPS and existing forums in order to implement effective crime prevention strategies; and to prevent unauthorized occupation of private property.	14 (Low)
Health and Safety	• Danger of people or fauna entering the mining area and getting injured. • The danger of misuse of machinery leading to accidents and fatalities.	• Pre operation • Exploration • Decommissioning	Local	1	Short	2	Very High	10	Highly probable	4	52 (Medium)	• Acceptable hygienic and aesthetic practices will be adhered to. • Workers must always wear PPE when conducting mining activities. • The mining site will be fenced in order to prevent unauthorised entry into the site by people or wondering animals.	28 (Low)

												• The entrance gate will be closed at all times and a security will monitor entrance to the site. • All personnel who will be controlling the machinery must be trained and possess the necessary qualifications. • Safety meetings will be held on a regular basis (weekly) to inform the workers of the dangers of misusing the machinery. • A safety representative will be appointed	
Socio-economic	• The mining activities are essential for the development of the surrounding villages, which may have a positive impact on the local socio-economic environment through potential but limited employment opportunities;	• Pre operation • Exploration • Decommissioning									Positive Impact		

Summary of specialist reports.

(This summary must be completed if any specialist reports informed the impact assessment and final site layout process and must be in the following tabular form):-

No specialist studies have been conducted for this application.

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.

Environmental impact statement

(i) Summary of the key findings of the environmental impact assessment;

- The removal of vegetation cover on part of the land on-site is inevitable.
- Topsoil will be preserved throughout the mining process in order to avoid erosion, sedimentation in water bodies and to be able to use it for rehabilitation purposes.
- Necessary precautions such as using drip trays will be taken for the handling of fuel and other hazardous chemicals that have the potential to pollute water bodies.
- The employees will undergo training and will be given strict instruction not to undertake activities that will negatively affect the environment and people.
- Conditions of the environmental authorisation and approved environmental management plan will be adhered to at all times in order to ensure that potential impacts are mitigated.
- Waste generated from the site will be collected in proper bins and disposed of at a recognised municipal disposal site.
- Employees will be provided with proper sanitation facilities.
- No heritage resources were identified on site.
- No mining activities are taking place in adjacent farms
- There are domestic livestock farming activities taking place approximately 6 kilometres from the site.

(ii) 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 .

SEE APPENDIX F

(iii) Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;

- Potential water and soil pollution resulting from hydrocarbon spills and soil erosion which may impact on ecosystem functioning and on the water resources utilised by the communities and landowners;

- Increased ambient noise levels resulting from mining activities and increased traffic movement;
- Soil, surface water and groundwater contamination from hydrocarbons during the construction and operational activities which include drill rig operation and use of vehicles on site;
- Possible destruction or loss of Cultural and Heritage Resources during the construction phase as well as during the operational phase as drilling commenced; and
- Dust fall out & nuisance from construction and operational activities.
- Influx of job seekers to site may result in increased opportunistic crimes;
- Short term boost for local businesses;
- Potential visual impacts by drilling activities as well as vegetation clearance;
- Increased vehicle activity within the area resulting in potential destruction and disturbance of flora and fauna;

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.

The objectives of the EMPr will be to provide detailed conditions to be complied with in order to avoid and/or reduce impacts that may be detrimental to the environment. The proposed project's objective with regards to environmental management is to manage all the significant environmental aspects by addressing, managing and controlling the environmental impacts of the work, and ensuring a continuous monitoring of environmental performance, and continual improvement in environmental performance through:

- Providing sufficient information with regards to the mining activities in order to avoid unnecessary social and environmental impacts;
- Ensuring an approach that will provide the necessary confidence in terms of environmental compliance;

- Providing a management plan that is effective and practical for implementation;
- Allow quick detection of potential impacts, which in turn will allow for quick response to issue/impacts.
- Ensuring that a system is in place for treating and/or rectifying any significant impacts that will occur due to the proposed activity;
- Ensure that mitigation and management measure are effective.
- Reduce duration of any potential negative impacts.

Environmental impact management outcomes are:

- Conduct mining activities responsibly and ensure operation is compliant with legislative requirements.
- Protect the biophysical environment as far as possible, specifically wetlands and riverine areas and any protected species observed on site.
- Protect the water resources in the area as far as possible.
- Ensure atmospheric pollution is kept to a minimum:
- Ensure adequate rehabilitation to allow continued grazing land use.
- Ensure socially responsible activities.
- Protect historical and cultural sites if they are observed on site.

Aspects for inclusion as conditions of Authorisation.

Any aspects which must be made conditions of the Environmental Authorisation

The following aspects are suggested to be included as conditions in the authorisation:

- The EMPr serves as a legally binding document together with the environmental authorisation and must be implemented fully at all stages of the proposed project.
- No activities may take place within 100m from any river or surface water body.
- No trees or shrubs will be felled or damaged for the purpose of obtaining firewood
- Topsoil must be removed from all areas where physical disturbance of the surface will occur.

- No relocation of heritage resources may be undertaken without the approval of SAHRA;
- A minimum distance of 500m from any dwellings or infrastructure must be kept.
- Since heritage sites, such as burial sites, are not always clearly identifiable due to disturbed/removed surface features, care must be exercised when mining.
- No activity is to occur within 100 m of any road servitude, wetlands and their 100 m buffer zones, within rivers and their 100 m buffer zone / 1:100-year flood line without the necessary authorisation under NEMA and NWA.
- Planning must take place before carrying out mining activities in a particular area is critical to ensure the sensitive areas are preserved and to ensure mining proceeds in a manner compliant with national legislation.
- Disturbed areas must be rehabilitated to previous land use capability, and the site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.

Description of any assumptions, uncertainties and gaps in knowledge.

(Which relate to the assessment and mitigation measures proposed)

None.

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

ii) Reasons why the activity should be authorized or not.

- The desktop studies have proven that the site is located on a mineralised zone, mining activities must be undertaken to confirm the ore reserves.
- Environmental Management Programme has been developed to ensure proper mitigation measures are implemented to mitigate potential impacts.
- The mining sector contributes immensely to the economy of South Africa and also provides employment opportunities for many. This will benefit the country by creating jobs and contributing to the Gross Domestic Product (GDP).

- Enforcement of mitigation measures stipulated in the EMPr, will reduce impacts significantly to acceptable levels which will easily recover.
- The option of not approving the activities will result in sterilisation minerals.
- In addition to this, should economical reserves be present and the applicant does not have the opportunity mine, the opportunity to utilize these reserves to create employment and contribute to the GDP will be forfeited.

iii) Conditions that must be included in the authorisation

- The EMPr serves as a legally binding document together with the environmental authorisation and must be implemented fully at all stages of the proposed project.
- No activities may take place within 100m from any river or surface water body.
- No trees or shrubs will be felled or damaged for the purpose of obtaining firewood
- Topsoil must be removed from all areas where physical disturbance of the surface will occur.
- No relocation of heritage resources may be undertaken without the approval of SAHRA;
- A minimum distance of 500m from any dwellings or infrastructure must be kept.
- Since heritage sites, such as burial sites, are not always clearly identifiable due to disturbed/removed surface features, care must be exercised when mining.
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- Planning must take place before carrying out mining activities in a particular area is critical to ensure the sensitive areas are preserved and to ensure mining proceeds in a manner compliant with national legislation.
- Disturbed areas must be rehabilitated to previous land use capability, and the site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.

Period for which the Environmental Authorisation is required.

2 years. The period which a mining permit can be held for.

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.

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.

Financial Provision

State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation.

iv) Explain how the aforesaid amount was derived.

Quantum was calculated using the guideline document developed by the Department of Mineral Resources in 2005. In addition, consideration has been given to Section 41 of the Mineral & Petroleum Resource Development Act, No 28 of 2002. The quantum has been aligned with the rehabilitation and allows for the site to be rehabilitated back to the original status of the site. This will include:

1. Ensuring all pollution generating activities are eliminated.
2. Ensuring all infrastructure is removed from site.
3. Ensuring that the existing land use can continue.
4. Ensuring that the site is safe for humans and animals.

Please see table on next page:

No.	Description	Unit	A	B	C	D	E=A*B*C*D
			Quantity	Master rate	Multiplication factor	Weighing factor 1	Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	14,05	1	1	0
2(A)	Demolition of steel building and structures	m2	0	195,76	1	1	0
2(B)	Demolition of reinforced concrete building and structures	m2	0	288,49	1	1	0
3	Rehabilitation of access roads	m2	0	35,03	1	1	0
4 (A)	Demolitions and rehabilitation of electrified railway lines	m	0	340,01	1	1	0
4 (B)	Demolitions and rehabilitation of non-electrified railway lines	m	0	185,46	1	1	0
5	Demolition of housing and/ or administration facilities	m2	0	391,53	1	1	0
6	Open cast rehabilitation including final voids and ramps	ha	0.25	205242,16	1	1	51 310,54
7	Sealing of shaft, audits and lines	m3	0	105.09	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0	136828.01	1	1	0
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds(basic salt-producing waste)	ha	0	170416,93	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)9	ha	0	494971,55	1	1	0
9	Rehabilitation of subsided areas	ha	0	114572,93	1	1	0
10	General surface rehabilitation	ha	0.25	108390,94	1	1	27 390,735
11	River diversions	ha	0	108390,94	1	1	0
12	Fencing	m	0	123,64	1	1	0
13	Water management	ha	0	41213,28	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0.2	14424,65	1	1	1442,465
15 (A)	Specialist study (Closure EMPr)	Sum	0	100000,00	1	1	0
15 (B)	Specialist study (Soil remediation)	Sum	0	100000,00	1	1	0
						Sub Total 1	80 143,74

1	Preliminary and general	3575,5870 (12% of Sub Total 1)	Weighting factor 2 1	9617.2488
2	Contingency	5166,4715(10% of Sub Total 1)		8014,374

Sub Total 2	97 775,3628
Vat (15%)	14 666,3044
Grand Total	**112 441,6672**

v) Confirm that this amount can be provided for from operating expenditure. (Confirm that the amount, is anticipated to be an operating cost and is provided for as such in the Mining work programme, Financial and Technical Competence Report or Prospecting Work Programme as the case may be).

The current expenditure provided for in the Financial and Technical ability does not include the calculated Financial Provision as included into this Basic Assessment, as these values were not available at the time of the submission. Should the mining permit be granted, the applicant will make provision for the estimated closure cost.

Specific Information required by the competent Authority

vi) 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:-

(1) Impact on the socio-economic conditions of any directly affected person. **(**Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as an **Appendix** .

Current land uses inside the farm, such as domestic farming, may be temporarily impacted. This will, however, be a small area relative to the farm. These areas will be rehabilitated post mining activities. The proposed mining activities are expected to provide opportunities for employment to residents of the nearby village. Consideration will be given to local procurement of goods and services where practicable.

(2) Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act. **(**Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of the national estate contemplated in section 3(2)(*i*)(vi) and (vii) of that Act, attach the investigation report as **Appendix 2.19.2** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

There are no significant heritage resources present on the site and significant impacts are thus not expected. However, should there be any artefacts discovered on site during any phase of the mining activities, such discovery will be reported to SAHRA and in the meantime all the activities should seize.

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 EAP must attach such motivation as **Appendix 4)**.

None.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

Draft environmental management programme.

a) **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).

The requirement for the provision of the details and expertise of the EAP are included in PART A Section 1(a).

b) **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, section (1)(h) herein as required).

The requirement to describe the aspects of the activity that are covered by the environmental management programme is already included in PART A, section (1) (h)

c) Composite Map

(Provide a map **(Attached as an Appendix**) 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)

Appendix (same as site layout)

d) **Description of Impact management objectives including management statements**

i) **Determination of closure objectives.** (ensure that the closure objectives are informed by the type of environment described)

The following closure objectives will guide the closure plans:

- Minimise erosion in areas that are already disturbed;
- Ensure that the impacted areas are free draining;
- Ensure the areas are safe for all people;
- Protect drainage lines and watercourses;
- Ensure that no temporary infrastructure is left on-site during long periods of cessation or upon closure; and

- Ensure environmental risks are minimised.
- Ensure that the existing land-use can continue.
- Rehabilitate the disturbed area to its former land use capability by revegetating with indigenous plant species.

ii) **Volumes and rate of water use required for the operation.**

Minimum water will be required during excavation and does not trigger water use license. Only a small volume of water will be required during mining. The majority of the water will be for domestic use. Water will be brought onto site for portable use, this is estimated at 5 litres per person / day. The minerals will be washed and treated off-site.

iii) **Has a water use licence has been applied for?**

Not applicable. The department of Water and Sanitation has been notified as an interested and affected party.

Impacts to be mitigated in their respective phases

Measures to rehabilitate the environment affected by the undertaking of any listed activity

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
Pre-operation phase						
Site clearance and construction of infrastructure.	Air Quality	Construction Phase	Local	Ensure that the areas of disturbance are minimised and restricted to the required footprint areas; and Ensure that dust suppressants are applied to exposed surfaces.	Dust Management Plan; and Dust Monitoring Programme in accordance with NEM: AQA.	Daily
	Topography and Visual Environment	Construction Phase	Local	Limit the footprint areas of the of the surface infrastructure, where possible, especially the width of the haul roads; Establish vegetation, where possible, to aid in screening infrastructure;	Mine Plan Development	On-going during Construction and Operational Phase

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
				Construction activities should be limited to night time and down lighting must be used to minimise light pollution.		
	Soils	Construction Phase	Local	Ensure soils are stripped and stockpiled prior to the excavation of infrastructure foundations; and Implement Storm Water Management designs to prevent erosion	Soil Rehabilitation Plan; Storm Water Management Plan in accordance with MPRDA Regulation 56 (1) to (8); and Soil pollution and erosion control.	Weekly during construction and operational phase
	Fauna and Flora	Construction Phase	Local	Vegetate open and exposed areas to prevent soil erosion and the establishment of alien invasive vegetation;	Conservation Management Plan; and Alien Invasive	Weekly

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Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance wi thStandards	Time Period for Implementation
				Ensure a Storm Water Management Plan is implemented; and Alien invasive vegetation to be identified and removed throughout the lifecycle of the mine.	Management Plan in accordance with NEM: BA and ECA.	
	Surface Water	Construction Phase	Local	Erosion and storm water control measures will be implemented. The disposal of oil, grease and related hazardous waste will be stored in non-porous steel containers and be disposed of at a registered land-sill site. Vehicle repairs will only take place within the maintenance area for vehicles. Drip trays will be used whenever re-fueling, or maintenance takes place.	Stormwater Management Plan in accordance with NWA.	On-going during Construction Phase.

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
	Noise	Life of Mine	Project Area	Ensure construction activities are only undertaken during daylight hours; Construction related machines and vehicles should be serviced on a regular basis to ensure noise suppression mechanisms are effective (e.g. installed exhaust mufflers); and Ensure equipment and machinery is switched off when not in use.	Regular Vehicle Inspections in accordance with NEM: AQA and ECA.	Daily and according to Maintenance Plan during Construction Phase.
	Heritage	Construction	Local	Should any graves or materials of archaeological importance be identified on site, mining activities should cease immediately and the South African Heritage Resources Agency (SAHRA)must be informed.	Entitlement Framework in	Daily

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
		Phase Operational Phase			Accordance with MPHRA.	
Top soil stockpile.	Soils	Construction Phase Operational Phase	Local	Minimise topsoil stockpile heights as far as possible; Ensure soils are stripped in accordance with the Rehabilitation Plan. Ensure soils are stripped and stockpiled prior to the excavation of the ground; Ensure that erosion controlled measures are applied in order to avoid sedimentation in waterbodies.	Soil Rehabilitation Plan; Storm Water Management Plan in accordance with MPRDA Regulation 56 (1) to (8); Soil pollution and erosion control.	On-going and Annually during Construction Phase and Operational Phase.

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
				Traffic and access to the stockpiles will be restricted; Ensure that the topsoil stockpiles are vegetated to prevent soil erosion and to reinstitute the ecological processes within the soil; and Implement Storm Water Management designs to prevent erosion.		
	Fauna and flora	Construction Phase	Limited	Vegetate open and exposed areas to prevent soil erosion and the establishment of alien invasive vegetation; Ensure a Storm Water Management Plan is implemented; and Alien invasive vegetation to be identified and removed throughout the life of mine.	Conservation Management Plan; and Alien Invasive Management Plan in accordance with NEM: BA and ECA.	On-going during Life of Mine.

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Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
	Surface Water	Construction Phase	Local	Erosion and storm water control measures will be implemented. The disposal of oil, grease and related hazardous waste will be stored in non-porous steel containers and be disposed of at a registered land-sill site. Vehicle repairs will only take place within the maintenance area for vehicles. Drip trays will be used whenever re-fueling, or maintenance takes place.	Storm Water Management Plan in accordance with NWA-GN R. 704;	b) On-going during Construction Phase

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
	Groundwater	Construction Phase Operational Phase	Local	Drip trays should be placed at all points where diesel, oil or hydraulic fluid may drip and in so doing contaminate the soil. No repairs will be allowed outside the maintenance area except for emergencies. Equipment used as part of the proposed operation will be adequately maintained so as to ensure that oil, diesel, grease or hydraulic fluid does not leak during operation. Proper sanitation facilities will be provided for employees. No person will pollute the workings with feces or urine, or misuse the facilities provided. A spill kit should be placed onsite in case of spillage emergencies.	Groundwater Monitoring Programme; Storm Water Management Plan; and • Numerical and conceptual model in accordance with NWA.	On-going, Quarterly and Annually during Life of Mine.

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
	Air	Operational	Regional	Routine spraying of unpaved site areas and roads utilised to enter and exit the mining area. Speed limits of vehicles inside the application area will be strictly controlled to avoid excessive dust or the excessive deterioration of the roads to be used. All cleared, disturbed or exposed areas to be re-vegetated as soon as practically possible to prevent the formation of additional sources of dust. No unnecessary revving of vehicles should take place. Restrict Travelling speed of vehicles to reduce the generation of duct.	National Environmental Management: Air Quality Act (NEM:AQA)	Throughout the lifecycle of the mine.
Operational Phase						

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
	Surface Water	Operational Phase	Municipal	Erosion and storm water control measures will be implemented. The disposal of oil, grease and related hazardous waste will be stored in non-porous steel containers and be disposed of at a registered land-sill site. Vehicle repairs will only take place within the maintenance area for vehicles. Drip trays will be used whenever re-fueling, or maintenance takes place.	Storm Water Management Plan Surface Water Monitoring Programme in accordance with NWA.	On-going and Monthly during Operational Phase.

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Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
	Groundwater	Operational Phase	Limited	Drip trays should be placed at all points where diesel, oil or hydraulic fluid may drip and in so doing contaminate the soil. No repairs will be allowed outside the maintenance area except for emergencies. Equipment used as part of the proposed operation will be adequately maintained so as to ensure that oil, diesel, grease or hydraulic fluid does not leak during operation. Proper sanitation facilities	Storm Water Management Plan Groundwater Monitoring Programme in accordance with NWA.	Monthly and Quarterly during Operational Phase.

				will be provided for employees. No person will pollute the workings with feces or urine, or misuse the facilities provided. A spill kit should be placed onsite in case of spillage emergencies.		

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
	Traffic	Operational Phase	Local	Transportation trucks will be managed to come at a time where there is less traffic so as not to inconvenience other travelers.	National Water Act: NWA	On-going, Daily and Biannually during Life of Mine

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Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
				Monitor the dirty water management facilities monthly to identify potential leaks and implement management measures to rectify potential issues.		

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
	Topography and Visual Environment	Operational Phase	Local	Ensure topsoil stockpiles are contoured and have a steepness of less than 18° to prevent slope failure and erosion and aid in vegetation establishment; Limit and reduce the stockpileheights as far as possible; Ensure that the topsoil stockpiles are vegetated; and	Mine Plan Development	On-going during Operational Phase.

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
				Establish and maintain vegetation screens.		
	Soils	Operational Phase	Local	Ensure stockpiles are maintained in a fertile and erosion free state by sampling and analyzing for macro nutrients and pH on an annual basis; Ensure topsoil stockpiles are vegetated to prevent erosion; Ensure access to the stockpiles is restricted to prevent unauthorized use and borrowing of topsoil; Ensure topsoil stockpiles are clearly demarcated; and Implement Storm Water Management designs to prevent erosion.	Storm Water Management Plan; and Soil Rehabilitation Plan in accordance with MPRDA Regulation 56 (1) to (8); Soil pollution and erosion control	Annually and on-going during Construction Phase and Operational Phase.

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
Concurrent Rehabilitation	Air Quality	Operational Phase Decommissioning Phase	Municipal	Ensure the rehabilitated areas are vegetated to prevent erosion and surface exposure to winds; and Monitor the establishment of vegetation.	Dust Management Plan; Dust Monitoring Programme in accordance with NEM: AQA	As required and Monthly during Operational Phase and Decommissioning Phase.
	Topography and Visual Environment	Operational Phase Decommissioning Phase	Local	The open-pit must be backfilled; and Topsoil must be backfilled over the open-pit area and the area vegetated.	Rehabilitation Plan	As required during Operation Phase and Decommissioning Phase.
	Soils	Life of Mine	Very limited	All potential hydrocarbon spillages and leaks must be cleaned up immediately and the soils remediated; Spillage control kits will be readily available on site to contain the mobilization of contaminants and	Emergency Response Plan Vehicle Maintenance Plan in accordance with MPRDA Regulation 56 (1) to (8); Soil pollution and	As required during Life of Mine.

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
				clean up spills; All vehicles and machinery to be serviced in a hard park area or at an off-site location; and Vehicles with leaks must have drip trays in place.	erosion control and Hazardous Substances Act 1973	
		Operational Phase Decommissioning Phase		Ensure that the topography of rehabilitated areas takes the pre-mining landscape into consideration and that the topography is free draining; Ensure that the soil layers are backfilled in reverse order of the stripping and the subsoil must underlie the topsoil;	Soil Rehabilitation Plan; Soil monitoringin accordance with MPRDA Regulation 56 (1) to (8); soil pollution and erosion control.	On-going and Prior to vegetation establishment during Operational Phase; Decommissioning Phase and Post-Closure Phase.

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
	Surface Water	Operational	Limited	Rehabilitation activities must be monitored to ensure that the nearest water bodies are not affected by these activities which can to sedimentation and other surface water pollution	Rehabilitation Plan in	Monthly during Operational

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
		Phase Decommissioning Phase		mining drainage pattern is emulated, and that vegetation establishment is successful; The backfilled areas should be vegetated as soon as possible to prevent dust and siltation of the water bodies; Monitor surface water resources up and downstream of the Project areato identify potential contamination;and Where rehabilitation (grass seeding of topsoil cover) is not effective, the associated soil erosion must be mitigated by installing silt traps in affected areas.	accordance with NEMA.	Phase, Decommissioning Phase and Post-Closure.
	Groundwater	Operational Phase Decommissioning Phase	Local	Ensure that the backfilled material is compacted where possible and the pre- mining drainage pattern is emulated; Groundwater monitoring of the water quality and levels must take place	Rehabilitation Plan; and Groundwater Monitoring Programme in accordance with	As required and Quarterly during Operational Phase and Decommissioning Phase.

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
				quarterly to identify potential impacts and leaks or seepage. The monitoring programme will assist with the identification of potential AMD occurring. All contaminated water must be contained in the PCD;and The backfill material must be placed in such a manner to reduce the potential leaching impacts on the underlying aquifers. Material with a high neutralizing effect needs to be placed at the bottom followed by waste rock and coal slurry higher up. The top layers can again be material with a high neutralizing capacity. The top layer needs to ensure free draining of the rain water from the rehabilitated areas.	NWA.	
	Fauna and Flora	Operational	Very limited	Vegetate disturbed and rehabilitated areas with indigenous vegetation;	Rehabilitation Plan; and	As required and On-going during

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
		Phase Decommissioning Phase		Alien invasive vegetation to be identified and removed throughout the LoM; and Establish and implement an Alien Invasive Management Programme.	Alien Invasive Management Plan in accordance with NEM:BA; and ECA.	Operational Phase, Decommissioning Phase and Post-Closure.
	Noise	Construction Phase Operational Phase	Project Area	Rehabilitation related machines and vehicles should be serviced on a regular basis to ensure noise suppression mechanisms are effective (e.g. installed exhaust mufflers); and Ensure equipment and machinery is switched off when not in use.	Regular Vehicle Inspections in accordance with NEM: AQA and ECA.	Daily and according to Maintenance Plan during Operational Phase.
Decommission Phase						
Demolition of Infrastructure	Air Quality	Decommissioning Phase	Local	The area of disturbance must be restricted to the required footprint size; Demolition activities should be undertaken judiciously during windy periods (winds greater than 5.4 m per second); and	Dust Management Plan; Dust Monitoring Programme in accordance with NEM: AQA.	On-going during Decommissioning Phase.

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
				The area of disturbance must be minimized to limit the area exposed to wind erosion.		
	Topography and Visual Environment	Decommissioning Phase	Limited	Demolish all unnecessary infrastructure; Ensure that all demolished infrastructure is removed from site's surface; and Ensure that rehabilitated areas are rehabilitated and vegetated.	Rehabilitation Plan; and Closure Plan .	As required during Decommissioning Phase and Post-Closure.
	Soils	Decommissioning Phase	Very limited	Ensure that demolished infrastructure is removed off-site and disposed of by a reputable contractor; All potential hydrocarbon spillages and leaks must be cleaned up immediately and the soils remediated; Spillage control kits will be readily available on site to contain the mobilization of contaminants and clean up spills;	Emergency Response Vehicle Maintenance Plan in accordance with MPRDA Regulation 56 (1) to (8); Soil pollution and erosion control; Hazardous Substances Act 1973	As required during Life of Mine.

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
				All vehicles and machinery to be serviced in a hard park area or at an off-site location; and Vehicles with leaks must have drip trays in place.		
	Fauna and Flora	Decommissioning Phase Post-Closure	Limited	Restrict vehicles and machinery to existing roads and designated areas to prevent vegetation destruction;and Alien invasive vegetation to be identified and removed throughout the life of the mine and Establish and implement an Alien Invasive Management Programme.	Conservation Management Plan Alien Invasive Management Plan in accordance with NEM:BA and ECA.	On-going during Decommissioning Phase and Life of the mine.
	Wetlands and Aquatic Ecology	Decommissioning Phase	Provincial	Restrict vehicles and machinery to existing roads and designated areas to prevent vegetation destruction; All potential hydrocarbon spillages and leaks must be cleaned up immediately and the soils remediated; Spillage control kits will be readily	Storm Water Management Plan Aquatic Monitoring Programme in accordance with NWA.	On-going and Biannually during: Life of the mine.

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
				available on site to contain the mobilization of contaminants and clean up spills;		
	Surface Water	Decommissioning Phase	Local	Reputable and accredited contractors will be used for the transport and disposal of wastes and demolished material off-site; All potential hydrocarbon spillages and leaks to be cleaned up immediately and the soils remediated; Spillage kits will be readily available on site to contain the mobilisation of contaminants and	IWWMP; Emergency Response Plan Vehicle Maintenance Plan in accordance with NWA.	On-going.

Activity	Aspect Affected	Phase	Size & scale of distribution	Mitigation Measure	Compliance with Standards	Time Period for Implementation
	Noise	Decommissioning Phase	Project Area	Ensure demolition activities only take place during daylight hours; Demolition related machines and vehicles should be serviced on a regular basis to ensure noise suppression mechanisms are effective (e.g. installed exhaust mufflers); and Ensure equipment and machinery is switched off when not in use.	Regular Vehicle Inspections in accordance with NEM: AQA and ECA.	Daily and according to Maintenance Plan during Decommissioning Phase.

Impact Management Outcomes

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

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
All activities throughout the Life of Mine.	Dust generation	A minimum of eight (8) dust buckets should be installed, for each direction; Dust fallout levels must be monitored; It is recommended that PM10 fallout be monitored.	Environmental Manager; Environmental Control Officer; Air Quality Specialist	Dust buckets must be monitored every month, with a report compiled every quarter. Should the reports indicate that the NEM: AQA NDCR are exceeded, additional mitigation measures must be implemented.	Dust buckets must be monitored every month, with a report compiled every quarter. Should the reports indicate that the NEM: AQA NDCR are exceeded, additional mitigation measures must be implemented.
	Loss of soil recourses and land capability	Inspection of stripping depths and separation of topsoil and subsoil during	Environmental Manager; Environmental Control Officer;	Inspection of stripping depths must be on-going	Inspection of stripping depths must be on-going

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
		stockpiling; Inspection of stockpiles to manage and prevent erosion; Inspection of rehabilitated areas to ensure that the surface is free-draining; Random inspections of soil thickness on rehabilitated areas; Fertility and acidic analysis and amelioration procedures prior to vegetation establishment.	Soil Specialist.	during site clearance activities and stockpiling to ensure that soils are stored separately. Stockpiles should be monitored monthly to manage potential soil erosion. The testing and analysis for macro nutrients and pH must be sampled on an annual basis and results kept planning for rehabilitation. The rehabilitation activities must be monitored, and random samples	during site clearance activities and stockpiling to ensure that soils are stored separately. Stockpiles should be monitored monthly to manage potential soil erosion. The testing and analysis for macro nutrients and pH must be sampled on an annual basis and results kept planning for rehabilitation. The rehabilitation

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				selected for to test for soil thickness. The land must be shaped and sampled, and remediation techniques implemented, if necessary, prior to vegetation establishment.	activities must be monitored, and random samples selected for totest for soil thickness. The land must be shaped and sampled, and remediation techniques implemented, if necessary, prior to vegetation establishment.
	Loss of biodiversity	Floral and faunal SSC must be rescued and relocated, should they occur within the disturbed areas; Faunal and Floral SSC in the Project area, but not within the directly disturbed mine areas, should be monitored,	Environmental Manager; Environmental Control Officer	Monitoring musttake place at least in two years and especially during the wet season. Results of the monitoring must be recorded and compared to	Monitoring must take place atleast in two years and especially during the wet season. Results of the monitoring must be recorded

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
		particularly the Grass Owl, Serval, Hedgehog and Giant Bullfrog populations; Alien invasive vegetation must be controlled on a monthly basis.		previous years' results to keep track of the populations of the faunal and floral species. Monthly monitoring for alien invasive vegetation must take place and managed according to the NEM: BA requirements.	and compared to previous years' results to keep track of the populations of the faunal and floral species. Monthly monitoring for alien invasive vegetation must take place and managed according to the NEM: BA requirements.
	Potential contamination and sedimentation of wetlands and aquatic	The following must be tested for: *In situ* water quality must be analyzed; Sediment and water column metal analysis;	Environmental Manager; Environmental Control Officer	The Aquatic Ecology Monitoring Programme must be implemented from the onset ofthe Construction	The Aquatic Ecology Monitoring Programme must be implemented from the onset of

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	ecosystems.	Toxicity testing; Habitat integrity; and Aquatic macro-invertebrates.		Phase and continue throughout the LoM. The monitoring must take place biannually, once during high flow and once during lowflow. A report must be compiled annually and take cognisance of previous years' monitoring results to track and identify potential impacts.	the Construction Phase and continue throughout the LoM. The monitoring must take place biannually, once during high flow and once during low flow. A report must be compiled annually and take cognisance of previous years' monitoring results to track and identify potential impacts.
	Contamination to surface water	The following constituents must be tested for: Sodium, calcium, sulphate,	Environmental Manager; Environmental Control Officer	Surface water monitoring must take place from the	Surface water monitoring must take place from

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	resources	chloride and potassium Manganese, magnesium and fluoride; Nitrate and ammonium; and pH, electrical conductivity and TDS.		onset of the Construction Phase, throughout the LoM and for a period of 3 years following closure. Sampling must be undertaken monthly during the Construction Phase, as well as duringthe initial stages of the Operational Phase. Should the water sampling indicate that there are no impacts to the surface water quality, sampling can be reduced to a quarterly basis. All sampling results must be recorded to	the onset of the Construction Phase, throughout the LoM and for a period of 3 years following closure. Sampling must be undertaken monthly during the Construction Phase, as well as during the initial stages of the Operational Phase. Should the water sampling indicate that there are no impacts to the surface water quality, sampling can be reduced

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				track potential quality changes or deterioration.	to a quarterly basis. All sampling results must be recorded to track potential quality changes or deterioration.

Impact Management Actions

(A description of impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (c) and (d) will be achieved).

Activity	Potential Impact	Mitigation
Construction Phase		
Site clearance for road construction, powerlines, water pipelines, Construction of infrastructure and the plant	Loss of vegetation and subsequent loss of habitat for fauna. The indigenous and naturalvegetation will be impacted upon within the proposed open casted mining area as a result of clearance of vegetation due to mining. Noise generated by the mining and mining related activities may frighten animals which may leadto injuries, deaths as well as the animalsmigrating away from the site.	a. Removal of vegetation should be restricted to the relevant infrastructure footprints only; b. Topsoil should be stored separately to be used in rehabilitation and landscaping, c. Transformation of natural areas should exclude any areas designated as having high or very high sensitivities; d. Prevent all effluent from the mining activities from entering the wetland habitat e. Management of the topsoil stockpile to preserve the seedbed; f. Fence development footprint area prior to commencement construction; g. No off-road driving into natural vegetation h. Implement alien invasive species eradication program.
Site clearance for road construction, powerlines, plant, ttrenches and foundations for surface infrastructure development, Topsoil stripping and Stockpiling	Loss of soil resource and land use	a. Limiting the area of impact to as small a footprint as possible, inclusive of waste management facilities, resource stockpiles and the length of servitudes, access and haulage

Activity	Potential Impact	Mitigation
		ways and conveyancing systems wherever possible; b. Implement a soil utilization plan; c. Restriction of vehicle movement over unprotected or sensitive areas, this will reduce compaction; and d. Topsoil to be stripped and stockpiled separately.
Site clearance	Increased risk of erosion	a. Minimise the construction footprint within any wetland areas. Clearly demarcate the required construction servitude and maintain all activities within the demarcated area; b. Maintain flow connectivity in any valley bottom wetlands during the construction phase by temporarily diverting streams around the construction area; c. Install erosion prevention measures prior to the onset of construction activities;
Stripping, dumping activities and vehicular movements on dust roads	Increase in ambient dust levels	a. Regular watering of the site roads; b. Dressing off of tip faces, unused roads and disturbed areas; c. Minimising unnecessary disturbance of non-

Activity	Potential Impact	Mitigation
		operational areas; d. Use of chemical additives to control dust to be employed if necessary.
Trenching activities, Equipment use and vehicular activity	Increase in ambient noise levels. The noise from the mining machinery will be audible if opencast mining operations are undertaken during the night time, exceedances of all but the guidelines for industrial districts would be experienced and the noise levels at the nearest sensitive receptors would be objectionable;	a. Regular planned mobile plant maintenance, with special attention paid to the maintenance of engine efficiency and silencer effectiveness; b. Regular planned vehicle services.
Vehicles maintenance, fuel storage, servicing areas and construction equipment storage	Pollution of surface water resource including wetlands due to hydrocarbon spillages	a. Servicing of construction vehicles will take place only in dedicated areas that are equipped with drip trays; b. Bunded containment and settlement facilities will be provided for hazardous materials, such as fuel and oil; c. Spill-sorb or a similar product will be kept on site, and used to clean up hydrocarbon spills if they should occur; d. Hazardous material will be placed in bunded areas; e. Spill kits to clean up hydrocarbon spills will be available;

Activity	Potential Impact	Mitigation
		f.Clean upslope runoff will be diverted around construction areas. g. Prevent all effluent from the mining activities from entering the wetland habitat.
Site Clearance and Excavation of an open cast mine	Potential impact on heritage Resources	a. Conduct heritage impact assessment to identify heritage sites within the project area; b. If any heritage sites are identified, appropriate steps as per the Heritage Resources Act will be undertaken; c. Education and training on heritage resources will be given to mine employees
Vehicular movements	Increase in traffic volumes on existing traffic network	a. Traffic signage at site access point; b. Undertake traffic impact study; c. Traffic signage at site access points; d. Upgrade gravel roads to tarred roads.
Employment	Spontaneous settlement and increased pressure on social services	a. Develop a clear and concise employment and recruitment policy that prioritizes local recruitment; b. Identify and support community development programs that address challenges raised by population influx and spontaneous settlement; c. Support local government capacity for

Activity	Potential Impact	Mitigation
		integrated development planning.
Operational Phase		
Blasting, loading, hauling, stockpiling, backfilling and tailings storage and vehicle operations	Release of fugitive emissions in the form of N2O, CH4 and CO2 impact on air quality within and near the project area, particularly in the downwind direction	a. Efficiency will be applied to reduce wastage and unnecessary fuel consumption; b. Carbon offsets will be considered if required; c. Concurrent best practice rehabilitation and vegetation monitoring will be applied to allow for the restoration of some the carbon sink functionality within the mining right area.
Excavation for an open cast mine	Influx of groundwater into the pits, leading to a decrease in groundwater quality and yield	a. Detailed geological mapping to identify geological features; b. Mining will take place according to design mine stability safety factors; c. Mining will not take place in the weathered overlying strata; d. Identify boreholes (undertake hydrocencus) within mining area and plug deep boreholesto prevent inflow into the pit; e. Monitor groundwater levels and yields of external borehole users.
Excavation of an open cast mine	The formation of Acid Mine Drainage in	a. Optimise storage of mine water to minimize

Activity	Potential Impact	Mitigation
	groundwater resources.	exposure to oxygen; b. Develop a groundwater monitoring program to assess the groundwater quality; c. Should Acid Mine Drainage (AMD) be identified within the groundwater resources,the polluted water will be remediatedaccordingly.
Equipment, vehicle operations, leakages of oil and other industrial liquids from the trucks and machineries and stockpiling.	Contamination of soil	a. Spill leak detection plan should be implemented.
Vehicles maintenance, Fuel storage, servicing areas and construction, spilled construction materials such as cement, paint, fuel and oil.	Surface water and wetland resources due to hydrocarbon spills and carbonaceous material.	a. Implement storm water management plan; b. Divert clean storm water around construction areas; c. Surface water management structures be constructed first as to ensure that runoff and dirty water spills are contained;
Loading, stockpiling, backfilling and Co-Disposal Facility storage.	Dust generated during the mining may cause a negative visual impact and altered visibility	a. Regular watering of the site roads; b. Dressing off tip faces, unused roads and disturbed areas; c. Minimizing unnecessary disturbance of non-operational areas; d. Use of chemical additives to control dust to be

Activity	Potential Impact	Mitigation
		employed if necessary.
Blasting and vibrations	General increase in Blasting and vibrations	Blasting and other noise generating activities should be conducted during the day when surrounding noise levels is high.
Vehicular operation, hauling and transportation of material	General increase in ambient noise levels	a. Regular planned mobile plant maintenance, with special attention paid to the maintenance of engine efficiency and silencer effectiveness; b. Regular planned vehicle services.
Waste disposal	Waste generation including Debris (slimes), waste rock, litter and other solid waste will be generated and deposited in and around the site. This could potentially attract nuisance and affect the natural scenery of the site.	The slimes and waste rock will be used to backfill the trenches. This will be undertaken in a concurrent rehabilitation manner.
Employment	Spontaneous settlement and Increase pressure on social services	a. Develop an employment and recruitment policy that prioritises local recruitment; b. Identify and support community development programmes; c. Support local government capacity for integrated development planning.
Employment	Benefits resulting from employment and income opportunities created by the mine	Positive impact that need to be enhanced.

Activity	Potential Impact	Mitigation
Decommissioning Phase		
Backfilling of the open cast mine	Compaction of soil and contamination of soil resources	a. Reinstatement of stored soils onto areas of disturbance where infrastructure has been demolished; b. Contour and stabilize slopes to be free-draining; c. Cultivation of growing medium, the planting of required vegetative cover and irrigation if required.
Backfilling of the open cast mine	Pollution of surface water resources	a. The storm water management infrastructure, including the PCD, will be decommissioned last to ensure adequate storm water management during the rehabilitation phase; b. Erosion protection measures will be implemented at steep areas; c. Spill kits will available and hydrocarbon spills will be cleaned up immediately; d. All traces of hydrocarbons and residual waste will be removed before infrastructure is demolished.
Backfilling of the open cast mine	Increase in dust fallout	a. Regular watering of the site roads; b. Dressing off tip faces, unused roads and

Activity	Potential Impact	Mitigation
		disturbed areas; c. Minimising unnecessary disturbance of non-operational areas; d. Use of chemical additives to control dust to be employed if necessary.
Hauling, Equipment and vehicular operations	General increase in ambient noise levels	a. Regular planned mobile plant maintenance, with special attention paid to the maintenance of engine efficiency and silencer effectiveness; b. Regular planned vehicle services.
Loss of employment	Loss of employment and enterprise development opportunities	a. Develop and implement Labour and Human Resources Plan (LHRP) that address the impacts associated with retrenchment, job losses and reduced demand for local goods and services; b. Develop a closure plan which will aim to reinforce the objectives of the SLP by reducing the reliance on LCM for employment by promoting skills transfer to ensurealternative livelihoods portable skills.

Financial Provision

(1) Determination of the amount of Financial Provision.

(a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.

Closure objectives:

- Return the disturbed area to an acceptable post mining state in a sustainable manner.
- Prevent the establishment of any permanent structures.
- To manage and limit the impact to the surface and groundwater.
- To ensure that all areas are stable and there is no risk of erosion
- To limit and rehabilitate any erosion features caused by the mining activities and prevent any permanent impact to the soil capability thereof.
- To limit and manage the visual impact of the mining activities.
- To safeguard the safety and health of humans and animals on the site
- To close the mining operation efficiently, cost effectively and in accordance with Government Policy.

Rehabilitation Plan:

On completion of the operation, the various surfaces, including the office area, storage areas and the plant site, will finally be rehabilitated as follows:

- Stockpiled waste rock will be backfilled into the open excavations. Any compacted area will then be ripped, where possible, the topsoil or growth medium returned and landscaped.
- The site will be seeded, should the need arise, with a vegetation seed mix adapted to reflect the local indigenous flora.
- All infrastructure, equipment, plant, and other items used during the operational period will be removed from the site.
- On completion of operations, structures or objects on the office site will be dealt with in accordance with Regulation 44 of the Minerals and Petroleum Resources Development Act, 2002, which states:

Regulation 44

1. *When a prospecting right, mining right, retention permit or mining permit lapses, is cancelled or is abandoned or when any prospecting or mining operation comes to an end, the holder of such right or permit may not demolish or remove any building, structure or object-*
    (a) which may not be demolished or removed in terms of any other law;
    (b) which has been identified in writing by the Minister for purposes of this section; or
    (c) which is to be retained in terms of an agreement between the holder and the owner or occupier of the land, which agreement has been approved by the Minister in writing.

2. agreement has been approved by the Minister in writing. The provision of subsection (1) does not apply to bona fide mining equipment, which may be removed.

Mobile offices, workshops and storage areas

- The mobile containers will be removed from site where after the above areas will be cleared of any remaining contaminated soil which will be placed in acceptable containers and moved by the applicant to a recognized disposing facility or by a waste removal company.

Topsoil and rock material

- On completion of mining activities, all rock material in and around the excavations, including any stockpiled gravel or oversized rocks, but excluding topsoil, shall be returned to the excavated area.
- The topsoil stockpiled prior to mining shall be spread evenly over designated areas of the borrow pit, to a thickness of not less than 75 mm.
- The topsoil must be keyed into the re-profiled surfaces to ensure that they are not eroded or washed away.
- The top-soiled surface shall also be left fairly rough (ie not smoothed down) to enhance seedling establishment, reduce water run-off and increase infiltration.

Revegetation

- Topsoil will be left to revegetate naturally unless the process does not occur unaided or if significant topsoil erosion occurs.
- The prepared surfaces shall be irrigated regularly for the initial 30 day period and monitored for natural re-growth.
- If necessary, planting or seeding shall be undertaken if natural vegetation did not begin to establish after 30 - 60 days

(specialist guidance shall be sought to determine the exact requirements).

- During rehabilitation, specific consideration must be given to the slopes as these areas are more prone to erosion before the new vegetation can establish;
- No alien species shall be planted at any time in this area, and any invasive alien plants that establish during rehabilitation should be manually removed;

Residue deposits

- Waste material of all description inclusive of receptacles, scrap, rubble and tires will be removed entirely from the mining area and disposed of at a recognized landfill facility. It will not be permitted to be buried or burned on the site.
- In order to ensure the long term stability of all rehabilitated areas including the backfilled excavations, monitoring of all areas will take place until a closure certificate has been issued.
- The planting of self-sustaining vegetation will result in the control of erosion and dust and no further rehabilitation is planned.

Additional measures

- No construction equipment, vehicles or unauthorised personnel shall be allowed unto areas that have been rehabilitated.
- Only persons or equipment required for the preparation of areas, application of fertiliser and spreading of top material shall be allowed to operate on these areas.

Closure

- When the holder of the mining permit intends closing down the mining operations, an Environmental risk report shall accompany the application for closure.

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

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

(c) Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure.

On completion of the operation, the various surfaces, including the office area, storage areas and plant site, will finally be rehabilitated as follows:

- Stockpiled waste rock will be backfilled into the open excavations. Any compacted area will then be ripped, where possible, the topsoil or growth medium returned and landscaped.
- The site will be seeded, should the need arise, with a vegetation seed mix adapted to reflect the local indigenous flora.
- All infrastructure, equipment, plant, and other items used during the operational period will be removed from the site.
- On completion of operations, structures or objects on the office site will be dealt with in accordance with Regulation 44 of the Minerals and Petroleum Resources Development Act, 2002, which states:

Regulation 44

2. When a prospecting right, mining right, retention permit or mining permit lapses, is cancelled or is abandoned or when any prospecting or mining operation comes to an end, the holder of such right or permit may not demolish or remove any building, structure or object-

(d) which may not be demolished or removed in terms of any other law;

(e) which has been identified in writing by the Minister for purposes of this section; or

(f) which is to be retained in terms of an agreement between the holder and the owner or occupier of the land, which agreement has been approved by the Minister in writing.

2. agreement has been approved by the Minister in writing. The provision of subsection (1) does not apply to bona fide mining equipment, which may be removed.

<u>Mobile offices, workshops and storage areas</u>

- The mobile containers will be removed from site where after the above areas will be cleared of any remaining contaminated soil which will be placed in acceptable containers and moved by the applicant to a recognized disposing facility or by a waste removal company.

Topsoil and rock material

- On completion of mining activities, all rock material in and around the excavations, including any stockpiled gravel or oversized rocks, but excluding topsoil, shall be returned to the excavated area.
- The topsoil stockpiled prior to mining shall be spread evenly over designated areas of the borrow pit, to a thickness of not less than 75 mm.
- The topsoil must be keyed into the re-profiled surfaces to ensure that they are not eroded or washed away.
- The top-soiled surface shall also be left fairly rough (ie not smoothed down) to enhance seedling establishment, reduce water run-off and increase infiltration.

Revegetation

- Topsoil will be left to revegetate naturally unless the process does not occur unaided or if significant topsoil erosion occurs.
- The prepared surfaces shall be irrigated regularly for the initial 30 day period and monitored for natural re-growth.
- If necessary, planting or seeding shall be undertaken if natural vegetation did not begin to establish after 30 - 60 days (specialist guidance shall be sought to determine the exact requirements).
- During rehabilitation, specific consideration must be given to the slopes as these areas are more prone to erosion before the new vegetation can establish;
- No alien species shall be planted at any time in this area, and any invasive alien plants that establish during rehabilitation should be manually removed;

Residue deposits

- Waste material of all description inclusive of receptacles, scrap, rubble and tires will be removed entirely from the prospecting area and disposed of at a recognized landfill facility. It will not be permitted to be buried or burned on the site.
- In order to ensure the long-term stability of all rehabilitated areas including the backfilled excavations, monitoring of all areas will take place until a closure certificate has been issued.
- The planting of self-sustaining vegetation will result in the control of erosion and dust and no further rehabilitation is planned.

Additional measures

- No construction equipment, vehicles or unauthorised personnel shall be allowed unto areas that have been rehabilitated.
- Only persons or equipment required for the preparation of areas, application of fertiliser and spreading of top material shall be allowed to operate on these areas.

Closure

- When the holder of the mining permit intends closing down the mining operations, an Environmental risk report shall accompany the application for closure.

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

The decommissioning phase will entail the rehabilitation of the mining site. Upon cessation of the mining activities, the area will be fully rehabilitated. The perimeter walls of the opencast pit will be sloped at 1:3 to the pit floor to prevent soil erosion or stepped by creating benches of not more than 3 meters. The rehabilitation of the coal pit will comply with the minimum closure objectives as prescribed by DMR and detailed below, and therefore is deemed to be compatible:

(e) Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.

The financial provision for the environmental rehabilitation and closure of any mine/ mining and its associated operations forms an integral part of the MPRDA. Sections 4 1(1), 41(2), 41(3) and 45 of the MPRDA deals with the financial provision for rehabilitation and closure. During 2012 the DMR made updated rates available for the calculation of the closure costs, where contractor's costs are not available these are used in assessments.

The "Guideline Document for the Evaluation of Financial Provision made by the Mining Industry" was developed by the DMR in January 2005, in order to empower the personnel at Regional DMR offices to review the quantum determination for the rehabilitation and closure of mining sites. With the determination of the quantum for closure it must be assumed that the infrastructure has no salvage value (clean closure).The closure cost estimate (clean

closure) was determined in accordance with the DMR guidelines and is based, where possible, on actual costs provided by a third party contractor.

(f) Confirm that the financial provision will be provided as determined.

The financial provisions will be provided as determined.

Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including

b) Monitoring of Impact Management Actions
c) Monitoring and reporting frequency
d) Responsible persons
e) Time period for implementing impact management actions
f) Mechanism for monitoring compliance

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	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
Mining site establishment	Disturbance of primary vegetation. Hazardous substance spillage. Noise and dust generation	Pre-site establishment, with no go areas and approval by EO and ecological specialist - Hazardous substance handling, storage and spill management audit. Complaint register	Project environmental officer. Site manager	Prior to site establishment. (once off) During operations and closure. (monthly) During operations and closure (continuous)
Mining site establishment, moving and rehabilitation	Disturbance of primary vegetation. Contamination of ground and surface water. Disturbance of heritage Resources. Land use conflicts Noise and dust	Pre-site establishment, with no go areas and approval by EO and ecological specialist. The following portion will then be excluded/buffered as the Gauteng Visual assessment. Pre-site establishment risk	Project environmental officer. Site manager	Prior to site establishment. (once off) During operations and closure. (bi-monthly) Prior to site establishment Prior to site establishment (once off) During operations and closure

	generation Rehabilitation sustainability	Assessment Pre-site establishment risk assessment. Complaint register. Rehabilitation closure report.		(continuous) Post closure
Entire operational site	All activities and impacts identified.	Auditing all site activities in compliance with the management commitments.	Project environmental officer.	During life of project. (monthly)

Indicate the frequency of the submission of the performance assessment/ environmental audit report.

Performance Assessment Reports (PAR), as required by the NEMA EIA Regulations 2014, will be prepared and submitted monthly to DMR and/or as often as requested. In addition, the appointed ECO would undertake monthly site inspections during the drilling periods, after rehabilitation has been completed the site will be monitored as per the Rehabilitation Closure and Liability Plan. Copies of the monthly site audit reports will be compiled and submitted only on DMR's requested.

An Environmental audit will be undertaken as stipulated in the Environmental Authorisation. The audit will be conducted by an external consultant throughout the life of prospecting as required under NEMA. This is conducted to assess the adequacy and compliance to the EMP, EA and the relevant legislation. The reports will be submitted to the DMR.

Environmental Awareness Plan

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

All employees will be provided with environmental awareness training to inform them of any environmental risks which may result from their work and the manner in which the risks must be dealt with in order to avoid pollution or the degradation of the environment. Employees will be provided with environmental awareness training before prospecting operations start. All new employees will be an Inducted on environmental awareness which will be provided to all employees by a reputable trainer.

Daily and weekly meetings will be held with employees to discuss all environmental issues. An environmental awareness training manual will be developed for the prospecting project.

Environmental awareness and training is an important aspect of the implementation of the EMP. The onus is on the different parties involved in the various stages of the life cycle of the project to be environmentally conscious. Hence, it is suggested that all members of the project team are familiar with the findings of the site-specific EA and the EMPr. For instance, the contractor is responsible for the lack of environmental knowledge of his/her crew members. The contractor could forward internal environmental awareness and training procedures to the project manager and environmental officer for comment prior to the commencement of the project. Likewise, the above is applicable to the programming, design, operations and maintenance, and decommissioning teams. Environmental awareness ensures that environmental accidents are minimized and environmental compliance maximised.

Section 39 (3) (c) requires that an applicant who prepares an Environmental Management Programme or Environmental Management Plan must "develop an environmental awareness plan describing the manner in which the applicant intends to inform his or her employees of any environmental risks which may result from the work and the manner in which the risks must be dealt with in order to avoid pollution and degradation of the environment". Environmental Awareness is required not only for management and employees (as described in Section 39 (3) (c) but also for visitors to the site.

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

The above section gives an overview of the manner in which the risks will be dealt with in order to avoid pollution. Approved documents such as EA, and EMP will be used as reference documents for any impacts related to the project. Training of employees in relation to environmental awareness will touch base on issues such;

- Access, including use of roads, tracks, gates, etc.
- Control measures required to manage no go areas.
- The handling, storage and disposal of waste.
- Weed control.
- Fire prevention.
- Sediment and erosion control.

- Control measures to be implemented with regards to the management of water, noise and dust.
- General Health and Safety Matters
- Training, as detailed above, will address the specific measures and actions as listed in the EMPr and also conditions of the EA. In this way the prospecting team will be provided the knowledge required to conduct the prospecting activities without resulting in environmental non-compliance. Secondly, informing the prospecting team of the EMPr will also assist the team in identifying if an impact is likely to occur / has occurred and communicate this appropriately to the Environmental Manager.

In order for appropriate action to be taken, proper communications network and reporting protocol must be established, with the prospecting team and the site manager reporting all environmental issues to the Environmental Manager and the all social issues to the General Manager.

Specific information required by the Competent Authority

(Among others, confirm that the financial provision will be reviewed annually).

The financial provision will be reviewed annually.

UNDERTAKING

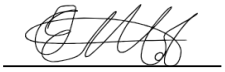
The EAP herewith confirms

g) the correctness of the information provided in the reports X☐

h) the inclusion of comments and inputs from stakeholders and I&APs ; X☐

i) the inclusion of inputs and recommendations from the specialist reports where relevant; X☐and

j) that the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected. parties are correctly reflected herein.X ☐



Signature of the environmental assessment practitioner:

BOSWA ENVIRONMENTAL CONSULTING

Name of company:

18 MARCH 2022

Date:

-END-

APPENDIX A: CV

APPENDIX B1:

NOTIFICATION LETTER

APPENDIX B2:

PROOF OF REGISTERED MAIL

APPENDIX B3:

SIGNED REGISTER OF RECEIVED NOTIFICATION LETTER

APPENDIX B4:

PROOF OF SENT EMAIL

APPENDIX C: SITE NOTICE

APPENDIX D: NEWSPAPER ADVERT

APPENDIX E: CUURENT LAND-USE MAP

APPENDIX F: FINAL SITE MAP

APPENDIX G: COMPOSITE MAP

APPENDIX H:

LETTER FROM DEPARTMENT OF AGRICULTURE, LAND REFORM AND RURAL DEVELOPMENT

AND

TITLE DEED FOR THE FARM

APPENDIX G: REGULATION 2(2) MAP

APPENDIX G: ATTENDANCE REGISTER FOR MEETING WITH THE TRIBAL COUNCIL