



No: 29J Woltemade Street
Witbank
Mpumalanga Province
1035
Tel: 087 980 5800
Fax: 086 599 3318
Email: info@tprmining-resources.co.za

**DRAFT BASIC ASSESSMENT REPORT
AND
ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT**

DMR REF NO: MP 30/5/1/1/3/ 13763 MP

PREPARED FOR MALAC MINING SERVICES (PTY) LTD

PREPARED BY TPR MINING RESOURCES (PTY) LTD

"Makhura A Ngwana kego Rongwa"



DRAFT BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATION INTERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT 1998 (NEMA), AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT 2008 (NEMWA) IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS INTERMS OF THE MINERAL AND PETROLEUM RESOURCE DEVELOPMENT ACT 2002 (MPRDA)AS AMENDED

NAME OF APPLICANT: Malac Mining Services (Pty) Ltd

POSTAL ADDRESS: P O Box 1993

Dwarsriver

Polokwane

0812

FILE REFERENCE NUMBER SAMRAD: MP 30/5/1/1/3/ 13763 MP



IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resource Development Act as amended, the Minister must grant Mining or Mining right if among others the mining will not result in unacceptable pollution, ecological degradation or damage to the environment”.

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

In terms of section 16(3)(b) of the EIA Regulations, 2017, 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 authorization 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 Authorization being refused.

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



unambiguously represents the interpretation of the applicant.

OBJECTIVE OF THE 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 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 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.

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PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1. CONTACT PERSON AND CORRESPONDENCE ADDRESS

1.1 Details of the EAP

Table 1-1: Details of the EAP

Name	TPR Mining Resources (Pty) Ltd
Tel no:	087 980 5800
Fax no:	086 599 3318
E-mail address	info@tprmining-resources.co.za
Postal address	No. 29J Woltemade Street Witbank 1035

1.2 Expertise of the EAP

TPR Mining Resources (Pty) Ltd is a mining environmental consulting firm established in 2015 by a group of young professionals with extensive experience in mining environmental management. It originated in Limpopo Province and has grown to offer consulting services in Mpumalanga, North West, Gauteng and Northern Cape Provinces.

1.2.1 Project Team Members

Environmental Consultant: Mr. Thato Ramoraswi.

Qualification: BEnvSc (Bachelor of Environmental Science)

Environmental Assessment Practitioner: Ms. Pheladi Mphahlele

Qualification: BESMEG (Bachelor of Earth Sciences in Mining and Environmental Geology)

NB: Please see attached CV for Expertise



2. LOCATION OF THE OVERALL ACTIVITY

The area where mining operation will be situated is approximately 38 km along the N12 route from Delmas to Phola, on portion of holding 38 on kendal forest holdings of the farm Heuvelfontein 215 IR within Victor Khanye Local Municipality, District of Nkangala in the Mpumalanga province. Table 2-1 depicts site coordinates while table 2-2 shows the description of the locality.

Table 2-1: Site Co-ordinates of the application area

Latitude	Longitude
A. 26.02598 S	28.95193 E
B. 26.02618 S	28.95492 E
C. 26.95517 S	28.02735 E
D. 26.95230 S	28.02782 E

Table 2-2: Locality Description

Farm name Portion of holding 38 on kendal forest holdings of the farm Heuvelfontein 215 IR

Application area(Ha)	5 Ha
Magisterial district	Delmas
Distance and direction from nearest town	Approximately 38 km north east of Delmas along N12 to Phola
21 digit Surveyor general code for each farm portion	T0IR0000000021500038

3. LOCALITY MAP

Refer to Figure 3-1 below and Appendix A for the locality Map of the application area



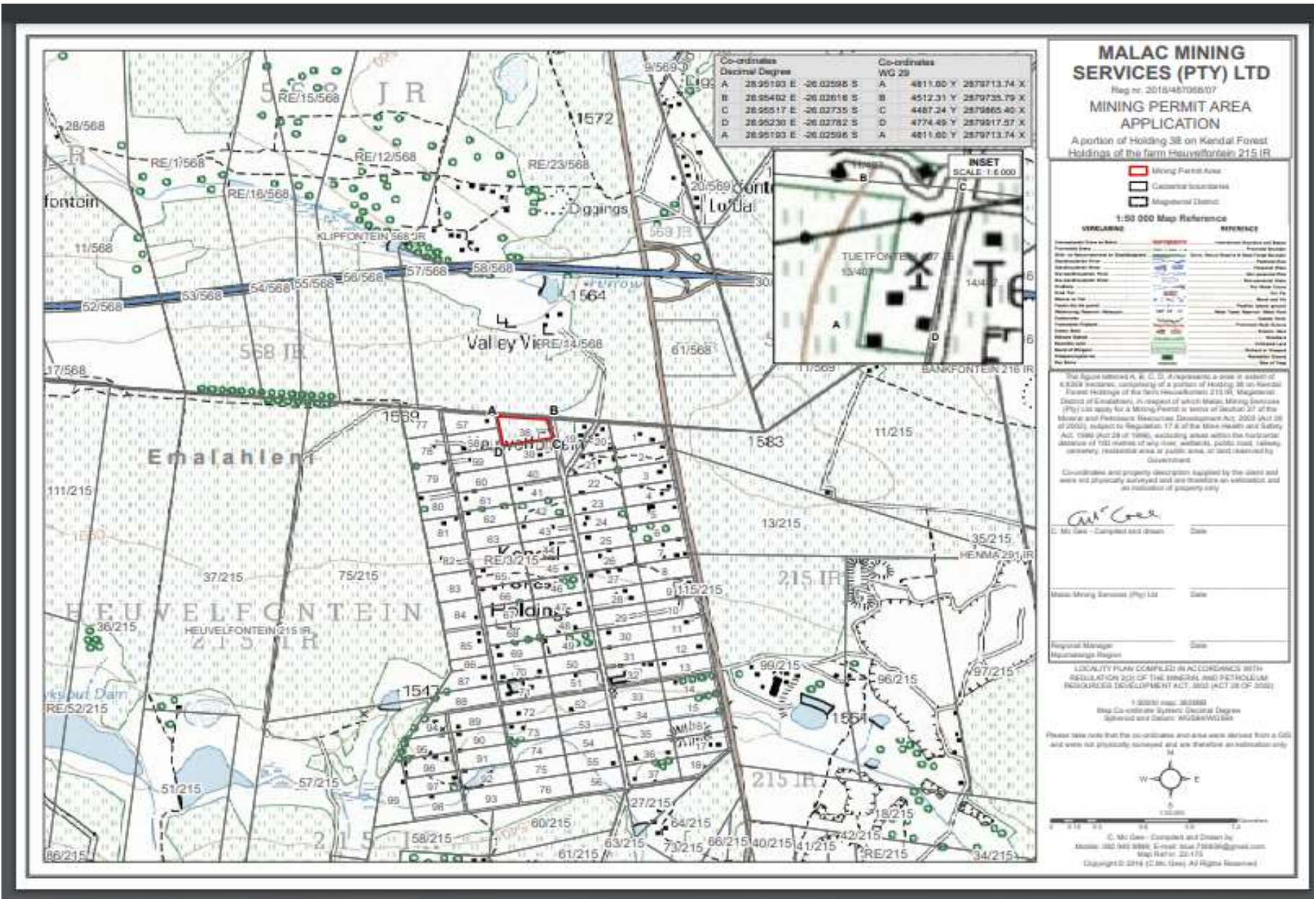


Figure 3-1: Locality Map

4. DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY

4.1 Listed and specified activities

The legal requirement for Environmental Authorisation for a Mining Permit came into effect after the promulgation of the NEMA 2014 EIA Regulations on the 8th December 2014. Prior to this, Mining Permits were subjected to the provisions of the MPRDA (2002). In this regard, a Mining Permit and Environmental Authorisation are required in terms of the MPRDA (2002) and NEMA 2014 EIA Regulations (as amended), respectively. The applicable NEMA listed activities anticipated to be triggered by this project are outlined in Table 4.1.

Table 4-1: Listed and preferred activities

Name of activity E g. for mining, excavation site, site camp	Aerial extent of the activity Ha or m ²	Listed activity mark with an X where applicable or affected.	Applicable listing notice (GNR 983,984.985)
Mining site (indicated by circular dots)	5Ha	X	GNR 983 Listing Notice No:1 (Activity 21)
Pit area (strip 1,2,)	3Ha	X	GNR 983 Listing Notice No:1 (Activity 21)
Rom Stockpile	0,2Ha	X	GNR 983 Listing Notice No:1 (Activity 21)
Waste Rock stockpile	0,25Ha	X	GNR 983 Listing Notice No:1 (Activity 21)
Topsoil stockpile	0,17Ha	X	GNR 983 Listing Notice No:1 (Activity 21)
In-pit stormwater drainage and stormwater drainage	0,124Ha	X	GNR 983 Listing Notice No:1 (Activity 21)
Pollution Control Dam	0,05Ha	X	GNR 983 Listing Notice No:1 (Activity 21)



			21)
Mobile office, toilets & sanitation	1 Ha	X	GNR 983 Listing Notice No:1 (Activity 21)
Hauling and Mobile Screening	0,25Ha	X	GNR 983 Listing Notice No:1 (Activity 21)
Access road (Existing road)	100m	X	GNR 983 Listing Notice No:1 (Activity 21)

4.2 Description of the activities to be undertaken

Mining Method

A coal mining operation can be viewed as being made up of some, or all, of the following sub-activities:

- Site Clearance
- Maintenance of Access road
- Removal of topsoil and overburden and stockpiling.
- Establish mobile office, mobile toilets & sanitation
- Excavation of an open cast (including strip 1, 2)
- Blasting
- Construction of dirty water trench
- Construction of pollution control dam
- Temporary stockpiling of material (Topsoil stockpile, overburden and ROM)
- Mobile Crushing and Screening of Ore
- Loading and hauling to the stockpile area and
- Rehabilitation

4.3.2 Description of Site Activities

The type of mineral to be mined is Coal. The method that will be employed is a very basic form of open cast mining, and a 5 ha area will be demarcated for mining activities. Blasting and subsequent mining of the orebody utilising a truck and shovel operation will be conducted. The mined ore will be crushed and screened utilising a mobile crushing and screening plant. A front-end loader will be utilised to load the material into haulage trucks and transported to the end-



user. The project infrastructure and activities will include site clearance, removal of topsoil and overburden and stockpiling, site establishment, including the establishment of an access route, mobilisation of equipment and preparation of area for mining, excavation of an open pit, blasting, loading zone, loading and dust control, crushing and screening of ore, hauling and transporting of ore, ablation facilities and waste storage area and rehabilitation of site.



Figure 4.1: An illustration of a Coal Mining method

4.3.2.1 Site Clearance

Site clearance is the first step that must be conducted on-site to remove all the vegetation that exist and to ensure that the area impacted is kept to an absolute minimum. The mining activities need to be designed with closure in mind. Top soil stockpile areas must be demarcated as no-go areas. Site clearance/ preparation mainly deals with the stripping and stockpiling of topsoil prior to the mining activities commencing as this might affect the quality and quantity of available valuable topsoil resources.

4.3.2.2 Access Roads

Access roads exist on site. Any additional temporary roads created to gain access to site will be rehabilitated on completion of the Mining Permit operations, to the satisfaction of the relevant landowner.

4.3.2.3 Water Supply

It is anticipated that water will be brought to site. The water will be sourced from the Local contractors and it will be trucked in. An on-site water storage tank will be required for potable water supply to employees and workers. Additional water will also be required for dust suppression in order to prevent dust pollution on the untarred temporary roads

4.3.2.4 Establish mobile offices, ablution and Sanitation

Ablution facilities will be required on site. This may involve the installation of drum or tank type portable toilets. The toilets should be emptied twice every week through the services of a registered sewage waste service provider. The ablution facilities must be provided at a ratio of 15 :1, i.e. 15 people per 1 toilet. A temporary site office area may be erected on site. The office must be established distant from the water drainage lines.

4.3.2.5 Construction of dirty water trenches

Dirty water trenches are constructed to remove groundwater and surface water from the mining site. Normally it is done by pumping or evaporation. It is also conducted before excavation for footings and will help to lower the water table that might cause problems during excavations.



Figure 4.2: Illustration of dirty water trench

4.3.2.6 Waste

Waste generated from the mining areas will include minimal construction and domestic waste, some hydrocarbon and explosive waste and sewage. These will be collected and disposed of as



BAR and EMP for mining permit on portion of holding 38 on kendal forest holdings of the farm

Heuvelfontein 215 IR

part of the waste management plan and/or will be managed by contractors. Waste will be recycled as far as possible. Portable toilets will be used at the mining areas.

4.3.2.7 Temporary stockpile of material

Various stockpiles will be required on site. Long-term stockpiles will include topsoil, subsoil, soft overburden and hard overburden stockpiles, all of which will be erected as close as possible to the final void to aid in infilling and rehabilitation of final voids. In addition, the mine will have product and ROM stockpiles which will be temporary in nature.

4.3.2.8 Crushing and Screening of ore

Crushing is a dry process which involve particle size reduction of large material into smaller rocks. Equipment's used for crushing of coal jaw crusher or cone crusher. Screening is a practice of taking granulated ore material and separating it into multiple grades by particle sizes so coal will be screened and stockpiled in the mining area.



Figure 4.3: An illustration of Crushing and Screening

4.3.2.9 Loading and Hauling to the stockpile area

This is where a bucket or front end loader will be utilized to carry out the coal to the haul units. Hauling may be conducted by trucks or wagon. This is when the coal is driven to the stockpile area.

4.3.2.10 Site rehabilitation

When mining of coal ceases, mine facilities and the site is reclaimed and closed. The goal of mine site reclamation and closure should always be to return the site to a condition that most resembles the pre-mining condition. Mines that are notorious for their immense impact on the environment often made impacts only during the closure phase, when active mining operations ceased. These impacts can persist for decades and even centuries.



Figure 4.4: Illustration of rehabilitated mining area

Phase	Activity	Expertise Required	Duration
Construction	Logistical consultation with land owner. Construction of Access road Establish mobile office and security dwellings Establish mobile ablution facility Construction of clean water trench Construction of dirty	Project Manager Contractor	2 Months



	water trench Construction of pollution control dam Establish mobile screening Construction of berm		
Operational	Clearance of vegetation Mining area (including strip 1, 2 & 3) Temporary stockpiling of material (Topsoil stockpile, overburden and ROM) Loading and hauling to the stockpile area and Rehabilitation	Project Manager Surveyor	20 months

Decommission and closure	Removal of mine infrastructure Rehabilitation of excavations and disturbed land Re-vegetation of land Closure report and application for closure certificate	Contractor Environmentalist	2 Months
Post closure monitoring	Monitor rehabilitation sustainability and liaising with land owner on matters requiring action.	Project manager	2 years

5. POLICY AND LEGISLATIVE CONTEXT

A description of the policy and legislative context within which the development is proposed is displayed in table 5-1 overleaf.



Table 5-1: Policy and legislation Context

Applicable legislation and guidelines used to compile these report	Reference where applicable	How does this development comply with and respond to the legislation and policy context
National Environmental Management Act 107 of 1998, GNR 983 Listing Notice 1, Activity 21	Government gazette No: 10328, 04 December 2014, No 38282, Department of Environmental Affairs	An application for Environmental Authorisation has been lodged in terms of the NEMA Act (107 of 1998) EIA Regulations, 2014 as amended
National Environmental Management: Biodiversity Act (No 10 of 2004), Sections 57, 65-69, 71, 73 and 75	Department of Environmental Affairs	An application for a permit for removal of indigenous plant has not been lodged, if by any means there is existing indigenous plants within the proposed mining area, an application will be lodged with the department of environmental Affairs prior to removal
National Heritage Resources Act (No 25 of 1999), Section 34– 36	South African Heritage Resource Agency	An application for a permit to demolish old structures that are more than 60 years old or presence of graves has not been lodged, if there is presence of archaeological remains within the proposed mining area, such will be done in accordance with prescribed legislation.
Mineral Petroleum Resource Development Act 28 of 2002 (MPRDA)	Department of Mineral Resources	An application for a mining permit has been lodged with the Department of Mineral Resources in terms of section 27 of the MPRDA (28 of 2002)
National Water Act (36 of 1998)	Department of Water affairs	Any watercourses that will be affected by the proposed mining activity which triggers a listed activity in terms of section 26 will be lodged.

6. NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

The socio-economic status of the area where mining will take place requires such establishment for mining, which will in turn contribute to the local economy through creation of job opportunities. The type of commodity proposed to be mined is in high demand due to established Coal-powered electricity power station around Mpumalanga



province. The proposed mining of Coal will be established approximately 38 km north east of Delmas along the N12 route connecting to an unnamed route to Phola location on portion of holding 38 on kendal forest holdings of the farm Heuvelfontein 215 IR.

6.1 Socio economic

Delmas is a small maize farming town situated east of Johannesburg in Mpumalanga, South Africa. The town is located some 19 km north-east of Springs and 73 km south-east of Pretoria. The farms in the region produce few mining activities, [maize](#), [wheat](#), [potatoes](#) and [chickens](#) and much of its economy originated from this sources. AFGRI runs a chicken abattoir in the town. Delmas is an important railway junction on the Springs to eMalahleni rail-line, a line that connects to the Port of Richards Bay. It is also strategically situated in respect of rail and road freight transport as well as tourism hence it taps from several sources of revenue. The town is fully serviced and contains tertiary social services which meet local, municipal as well as regional needs.

6.2 Location suitability

The Witbank Coalfield was first exploited in 1895 and became the most significant production area in South Africa supporting a large number of collieries. Six coal seams (numbered 1 through 6 from the base upwards) are contained in a 70-thick succession comprising dominantly of sandstone with subordinate siltstone, mudstone and shale (Vryheid Formation). The partings between the seams are remarkably constant although seam splitting is common. The distribution and attitude of the No.1 and No.2 Seams is largely determined by the pre-Karoo topography and all seams are controlled by the present-day erosion surface. Generally, the No.1, 2, 4 and 5 Seams are considered economic based on seam thickness and quality. Intrusive dolerite dykes and sills are ubiquitous and devolatilisation of the coal seams can be significant. The area is underlain by thin sequences of sedimentary rocks of the Dwyka Group which represent



re-worked glacial tillite. They rest unconformably on an uneven floor of older pre-Karoo rocks composed of granite, gabbro, diabase and felsite.

The Stratigraphy of the colliery reserve area is typical of the Witbank Coalfield. Four main coal seams are present: they are, numbered in ascending, stratigraphic order, the No.1 Seam, No.2 Seam, No.4 Seam and No.5 Seam. The Landau coal reserves are primarily contained in the No.1, No. 2 and No.4 Seams.

Sediments of shale, siltstone and sandstone overlie and separate the various coal seams. Underlying the lowermost coal seam is a coarse grained diamictite. The overburden thickness and preservation of the coal seams is dependent on the surface topography and the pre-Karoo basement floor. In general, the depth of weathering does not extend deeper than the first couple of metres and the overburden thus comprises hard, competent material. Consequently, the weathering seldom has any significant impact on the slope stability of the highwall or on the quality of the coal seams. The overburden and interburden lithologies do vary across the reserve.

7. MOTIVATION FOR THE OVERALL PREFERRED SITE, ACTIVITIES AND TECHNOLOGY ALTERNATIVES

7.1 Preferred site

The geological characteristics of the farm where mining will take place comprises of coal seams. The coal seam topography is summarised below, with the summary of the lithological profile, to the maximum depth of the coal seam, provided below. The geological profiles are representative of the lithology of the Project area. With reference to the cross-sections, the following aspects of interest include:

Coal Geology:



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The No. 1 Seam rests unconformable on Dwyka sediments, consisting of reworked tillites, diamictites and glacial varves. Due to the basal erosional unconformity, the lower contact of the No. 1 Seam is very undulating contributing to a substantial variation in seam thickness. The upper contact of the No. 1 Seam with the overlying coarse arenites is mostly erosional. The erosional contact contributes further to the varying seam thickness. The erosional unconformity becomes more pronounced as the coal seam approaches the palaeo-geographical highs.

It is expected that The Number 1 coal seam is well developed in the prospecting area and represents the main economical target

The No. 2 Seam is developed about 5 meters above the No. 1 seam and consists of a relatively thick sequence of carbonaceous shale, and mixed coal. The coal seam is expected to be reasonably developed in the prospecting area and also represents an economical prospecting target.

No 3, 4 and 5 Coal seams

The upper coal seams are not expected to be preserved in the area due to erosion

7.2 Activities and Technology alternatives

The mining method which is safe and environmental friendly is opencast mining method with the strip mining type which encourages the con-current rehabilitation of the site. Only technological assessment can be made due to the fact that preferred site is determined by the availability of the mineral of interest.

Activities – It will be open cast mining including the following activities;

- Construction of dirty water trench
- Construction of Pollution control dam

Technology alternatives – the applicant proposes to mine utilizing the following;

- Bulldozer
- Hydraulic excavator
- Dump trucks
- Motor grader
- Water bowzer



8. DESCRIPTION OF THE PROCESS FOLLOWED TO REACH PROPOSED PREFERRED ALTERNATIVES WITHIN THE SITE

8.1 Details of the development footprint alternatives considered

Due to the size of the mining area; some of the activities to be undertaken will rotate with the mining direction. In that, only the clean water and dirty water trenches are permanently placed around the mining operation including the pollution control dam. Other activities will such as mobile offices, mobile security houses, mobile ablution and mobile screening machinery will definitely rotate with the operation. The mining direction has been dictated by the depth of the coal. In that, the mining operation will commence on the shallow side and continue through con-current rehabilitation (strip mining) in order to ensure that all the coal deposit is mined out.

8.2 The type of activity to be undertaken

- Maintenance of Access road
- Construction of berms
- Construction of Pollution Control dams
- Construction of dirty water trench
- Establish mobile offices
- Establish mobile toilets
- Box cut
- Pit mining area (strip 1,2,)
- Rehabilitation

8.3 The design or layout of the activity

The layout plan outlined depicts activities to be constructed within the mining area. (See attached appendix C)



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- Maintenance of roads
- mobile offices
- Stockpiles area
- Box cut
- Pit mining area (strip 1,2)

8.4 The technology to be used in the activity

Open cast mining method is the best applicable method through strip mining type in order to allow the con-current rehabilitation to be implemented.

8.5 The operational aspects of the activity and Stockpile

- Electricity (Diesel Generator)
- Roads (Mine and Provincial)
- 1X Komatsu D155 Bulldozer
- 1 X Volvo 460 Hydraulic Excavators
- 2 X Volvo A30 Articulated 6X6 Dump truck
- 1 X Front end loader 966 CAT

8.6 The option of not implementing the activity

The option of not approving the activities will results in not creating job opportunities and experience illegal miners.

8.7 Details of the public participation process followed

8.7.1 Confirmation of consultation

The interested and affected parties were confirmed to this matter. Site notices were placed on and around portion of holding 38 on kendal forest holdings of the farm Heuvelfontein 215 IR along the N12 route and a newspaper advertisement was placed



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on the **13th January 2023** on the **Highveld Chronicle** newspaper to inform interested and affected parties of the opencast mining activities, any possible concerns in terms of possible impacts were communicated directly to the proponent. As directed on the acceptance letter from the competent authority, the applicant has informed and requested comments from landowner and to date we have not received response.

8.7.2 Record of the public participation and the results thereof

8.7.2.1 Identification of interested and affected parties

Landowner and their contact details were identified through a Title Deed search and through the public participation for the properties falling within the proposed mining area. Site notices were put on site to allow members of the surrounding community to comment on the proposed mining application. **See Appendix D**

8.7.3 The details of the engagement process

8.7.3.1 Description of the information provided to the community, landowners, and interested and affected parties

The landowner of the affected property, the community, interested and affected parties will be consulted, and the following information will be provided.

Malac Mining Services (Pty) Ltd is planning to establish mining operations on a 5 Ha area on portion of holding 38 on kental forest holdings of Heuvelfontein 215 IR approximately 38 km along the N12 route from Delmas to Phola. The mining operation will be done on a two year period upon renewal for another three years depending on the availability of the coal deposits applied for, as per Minerals and Petroleum and Resource Development Act, 2002 (Act 28 of 2002).



Mining method to be used will be opencast as determined by the shallow depth of the Coal deposits. The applicant will engage with the landowner and members of the community during the initiation phase of the operation with regard to positive and negative impacts to be introduced as result of the proposed mining operation.



8.7.3.2 List of which parties identified in above that were in fact consulted, and which were not consulted

Table 8-1: Landowners and I&APs of the proposed area have been consulted.

Name of Interested /affected parties	Contact Details	How did the Consultations take place?	What were His /her concerns about the operation?
Truter Boedery (Pty) Ltd Landowner	Email:	Emails were sent	Still waiting for comments
Mpumalanga Tourism and Parks Agency (affected party)	Khumbelo Makhuvha (Land advisory unit) Email: khumbelomakhuvha940@gmail.com , Thabile.Mnisi@mtpa.co.za	Emails and document were submitted	Still waiting for comments
Victor Khanye Local Municipality	6 Delmas 2210 Tel: 013 665 6000 masangon@victorkhanyelm@gov.za	Emails and Documents were submitted	Received comments.
Department of Rural Development and Landform (Land claims Commission)	Cnr OR Tambo & Mandela street Die Heuwel Witbank 1035 Email:Thomas.sambo@dalrrd.gov.za	Emails were sent	Still waiting for comments



Department of Water & Sanitation	61 Lanham Street Bronkhorstspuit 1020 013 591 8903 MatsiD@dws.gov.za	Emails and Documents were submitted	Still waiting for comments
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8.7.3.3 List of views raised by consulted parties regarding the existing cultural, socio-economic or biophysical environment

(a) Socio-economic and Biophysical environment

We have consulted with the interested and affected parties and no views were raised yet and we are still awaiting for their response.

8.7.3.4 Confirmation that minutes and records of the consultations are appended.

See attached **Appendix D** for proof of consultation.

8.7.3.5 Information regarding objections received.

Currently there are no objections registered.

8.7.3.6 The manner in which the issues raised were addressed

The landowner, interested and affected parties will be given an opportunity to raise their concerns and addressed by the EAP through meetings, emails and telephonically.



8.8 SUMMARY OF ISSUES RAISED BY I&APS

Table 7-2 below depict the table summarising comments and issues raised, and reaction to those responses.

Table 8-2: Summary of issues raised by I&APs

Interested and Affected parties List the names of persons consulted in this column Mark with an X where who must be consulted were in fact consulted		Date comments received	Issues raised	Eap 's response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues or responses were incorporated
Affected parties					
Landowner/s	X				
Truter Boerdery (Pty) Ltd	X				Appendix D
Lawful occupier/s of the land					
	N/A				
Landowners or lawful occupiers of adjacent properties					
	N/A				
Municipal Councillor					

	N/A					
Municipality						
Victor Khanye Local Municipality	X			Still waiting for response		Appendix D
Organ of state (Responsible for infrastructure that may be affected Roads department, Telkom, DWA)	N/A					
Communities						
N/A						
Department of Land Affairs						
Department of Rural Development and Land Reform (Office of the Land claims Commissioner)	X			Still waiting for comments		Appendix D
Traditional Leaders						
N/A	X					
Department of						



Environmental Affairs					
Nkangala District Environmental Management	Impact	X		Still waiting for comments	Appendix D
Other competent authorities affected		X			
Department of Water & Sanitation Mpumalanga region				Still waiting for comments	Appendix D
Other affected parties					
Mpumalanga Tourism and Parks Agency Khumbelo Makhuvha (Land Advisory Unit)		X		Still waiting for comments	Appendix D
SAHRA				Still waiting for comments	Appendix D
Interested parties		N/A			

8.9 ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES

8.9.1 Baseline environment

8.9.1.1 Type of environmental affected by the proposed activity

Topography

Topography is a static feature of the physical landscape, and it can be described as the altitude as well as the change in altitude over distance (Schulze et al 1997). Topography influences climate and hydrological responses on a macro- and a micro scale, for instance the higher the altitude, the lower the temperature. The mean altitude of the Mpumalanga Province is 1 262 m above sea level. However, the altitude by itself cannot present a complete description of terrain characteristics. It also does not analyse the landforms or examine landscape influences, hydrological responses and agricultural potential.

The landscape of the Victor Khanye Local Municipality is characterised by flat to gentle topography of grassland and cultivated land. Steeper slopes are found to the north of Delmas in the direction of the Bronkhorstspruit Dam (VKLM, 2018). The proposed area lies in a typical Highveld area. The land has a soft rolling topography and in some areas shorter interfluves. These areas are represented by long gentle slopes with wind deflated pans. The colliery lies on a catchment divide. There is therefore a rise of land in the centre of the colliery running more or less north to south with gentle slopes downwards to the west and to the east. The presence of pans in the area also indicates lower lying areas relative to the rest of the environment.

Hydrology

The average dry weather flow is very low and is only about 5% of the MAR. However, this can be expected since the lowest rainfall period has similar low values. It is also an indication that little stream flow contribution could be expected from groundwater during winter. Potential flood peaks were calculated and presented in the approved EMP. The flood lines represent natural conditions with respect to the flood peaks determined and with respect to the flood lines themselves i.e. the influence of farm dams were ignored as insufficient data was available

to include the dams. Including the effect of dams on the flood peaks would reduce the width of the flood lines and allowing for the effect of the dams there would be a slight widening of the flood lines at the point where the stream enters the dam.

Noise

The study area is located in an area characterised by farming and other mining operations. Noise in the area is likely to be dominated by vehicular noise along major road routes. Other noise generators will include farming equipment, mines (equipment, plants, blasting), and industries.

Air Quality

The study area falls within the Highveld air quality priority area. This area straddles the Gauteng and Mpumalanga provinces and experiences increased concentrations of PM10, SO₂ 55 and NO_x 56 mostly due to the contribution of power generation and mine located in this area, but also due to other sources such as the petrochemical industry, vehicular emissions, metallurgical process and fires (DEA, 2011).

Climate

The Mpumalanga Province has a sub-tropical climate with hot summers and mild to cool winters. The average daily temperature in January (summer) is 24°C, while in June (winter) the average daily temperature is 14.8°C. The average annual rainfall is 767 mm, with approximately 10 times more rain falling in summer than in winter (Stats SA, 2002). The average maximum temperature in the Victor Khanye Municipality ranges between 25°C and 29°C. The rainfall range expected in this area is between 600 mm and 8000 mm per annum (VKLM, 2018). Mean monthly and annual rainfall of the study area is located in the B20A and B20E quaternary catchments. Therefore, the location of the proposed site is within the B2A and B2B Rainfall Zones as defined by the Water Research Commission (WR2012).

Geology and Mineral Potential

The Heuvelfontein reserve is located along the northern extent of the Karoo Basin and comprises of sediments of the Late Carboniferous Dwyka Group and the Early Permian Vryheid Formation, with the latter forming the central litho-stratigraphic unit of the Eccca Group. The Eccca sediments consist predominantly of sandstone, siltstone, shale and coal. Combinations of these rock types are often found in the form of interbedded siltstone, mudstone and coarse-grained sandstone. Typically, coarse-grained sandstones are a characteristic of the sediments in the Witbank Area.

Locally, the reserve has an underlying NNW to SSE lens, or eye shaped pre-Karoo depositional basin, of which the concave outer rims are discernible from the inferred magnetic material constituting the relatively shallow basal ridges. The pre-Karoo valleys are clearly reflected in the Karoo deposition across the area as thematically highlighted in the contoured floor elevations of the Vryheid Formation, as well as the No. 1 and No. 2 coal seam elevations and depths. The coal bearing strata dip towards the inside of the basins and generally mirror the basal floor where they are continuous across the basal ridges defining the rims of the basins. The coal seam topography is summarised below, with the summary of the lithological profile, to the maximum depth of the coal seam, provided below. The geological profiles are representative of the lithology of the Project area. With reference to the cross-sections, the following aspects of interest include:

The lowest seam topography occurs along the central length of the lens shaped deposition valley to the east of the eastern rim of this basin in the following valley;

The main depositional basin is clearly discernable in the west to east geological cross sections.

The coal seams in these sections are intersected by present day topography along the western boundary of the Project area. The slope of the coal seams along this intersection is along the inside of the basin to the north of the Project. Further south, the slope runs in the opposite

direction where the seams are continuous across the western basal ridge and mirror the basal floor;

Intersections identified in the exploration boreholes across the main deposition valley indicate that the basement consists predominantly of felsites. A number of igneous and dolerite intersections were recorded along the western rim of the basin, however; boreholes that intersect both the Dwyka sediments and basement rocks indicate that the average thickness of the Dwyka sediment is 1.69 m, with a range of between 0.01 m and 19.84 m; and

The geological weathered profile includes the following:

The soil profile is approximately 7.7 m in depth; The weathering depth ranges between 11m and 30 m, with an average of 19.7 m; and The highly weathered zone is approximately 11.4 m in thickness and is followed by a slightly weathered/fractured zone.

Vegetation

The proposed site is situated in the Eastern Highveld Grassland and the Rand Highveld Grasslands. Both of these vegetation units fall within the Mesic Highveld Grassland Bioregion of the Grassland Biome (Mucina & Rutheford, 2006). These vegetation units are considered endangered as they are poorly conserved. These vegetation units have been mostly transformed by cultivation, plantations and urbanisation.

8.9.1.2 Description of the current land uses

The portion of holding 38 on kendal forest holdings of the farm Heuvelfontein 215 IR is located approximately 38 km north east of Delmas along the N12, most of the areas are characterised by low-lying areas. Mining operations will be conducted on a 5Ha area within portion 38 of the farm. The surrounding of the farm consists of agricultural farming on the west, mining operations and N12 route on the north, mining operation on east and farmlands, Mzimkulu Mine Office, Kuhle Premium Fuels and residential houses on the southern side of the proposed mining permit application. Flora and fauna (African grass-owl) species that may be impacted by the proposed mining activity will be avoided.

8.9.1.3 Description of specific environmental features and infrastructure on the site

The proposed mining area is surrounded by mining operations, residential sites, cultivated farmlands and grasslands. The area also enjoys access from the N12 route on the northern side connecting to an un-named road to site, which will be used as an access road for transporting the product to the end user. Below is the aerial image of the surroundings;



Figure 8.2: Aerial Map of the site

8.9.1.4 Environmental and Current land use Map

Refer to Appendix A of this Report for the Environmental and Current Land Use Map

8.10 Impacts and risks identified including the nature, significance, consequences, extent, duration and probability of the impacts, including the degree of these impacts

8.10.1 Assessment of impacts and identified risk of open-cast mining activities

Table 8-1 overleaf shows a list of the potential impact 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 consultation with affected parties together with the significance, probability, and duration of the impacts, the extent to which they may cause irreplaceable loss of resources, and can be avoided, managed or mitigated.

Table 8-3: Impact Assessment

Activity	Environmental Impact	Environmental aspect	Measures to prevent, mitigate, minimize or manage the impacts
CONSTRUCTION PHASE			
Access road	Noise	Movement of vehicles during the creation of road	Equipment and vehicles equipped with standard exhaust systems which minimize the amount of emissions Mining-related machine and vehicles must be serviced on a regular basis to ensure noise suppression mechanisms are effective e.g. installing exhaust mufflers. Noisy machinery to be used during daylight hours preferably. Grievance mechanism to record complaints should be kept on site and investigated. Noise monitoring to take place.
	Air	Dust caused by Clearance of vegetation	Dust suppression measures such as spraying with water Dust monitoring must be undertaken in accordance to monitoring program
	Water	Disturb the smooth flow of surface water	Water monitoring program will take place and management of water will be conducted and contained within the mining area
	Soil	Clearance of vegetation	Managed and monitored



Mobile toilets	Noise	None	None
	Air	None	None
	Water	None	None
	Soil	None	None
Construction of dirty water trench	Noise	To prevent the noise emanating from construction machinery from impacting on the sensitive receptors	Mining-related machine and vehicles must be serviced on a regular basis to ensure noise suppression mechanisms are effective e.g. installing exhaust mufflers. Noisy machinery to be used during daylight hours preferably. Grievance mechanism to record complaints should be kept on site and investigated. Noise monitoring to take place.
	Air	Dust Clearance of vegetation and topsoil	Dust suppression measures such as spraying with water



	Water	<p>Disturb smooth flow of surface water</p> <p>To protect existing users of surface water impacts on water quality</p>	<p>Area of disturbance must be in line with the mine plan provided to minimize the loss of catchment area</p> <p>The area excavated should have berms that are vegetated in order to separate dirty and clean water systems, and an erosion control measure</p>
	Soil	<p>Clearance of vegetation and topsoil</p>	<p>The soil will be managed accordingly with the mining area</p>
Construction of Pollution control dams	Noise	<p>To prevent the noise emanating from construction machinery from impacting on the sensitive receptors</p>	<p>Mining-related machine and vehicles must be serviced on a regular basis to ensure noise suppression mechanisms are effective e.g. installing exhaust mufflers. Noisy machinery to be used during daylight hours preferably. Grievance mechanism to record complaints should be kept on site and investigated. Noise monitoring to take place.</p>
	Air	<p>Dust</p> <p>Clearance of vegetation</p>	

	Water	Prevent contamination of surface and ground water	The area excavated should have berms that are vegetated in order to separate dirty and clean water systems, and an erosion control measure
	Soil	Clearance of vegetation and topsoil	The soil will be managed accordingly within the mining area
Waste facilities	Noise	None	None
	Air	None	None
	Water	Prevent contamination of surface water by disposing on the wet land	Storage facility with bonding must be constructed Debris will be removed and disposed off in approved sites
	Soil	None	Place waste receptacles at strategic points Monitor housekeeping behaviour and insist on corrective action Waste will be disposed off in approved sit

OPERATIONAL PHASE			
Preparation of mining area(Box cut, strip 1,2)	Noise	Prevent the noise emanating from the construction machinery from impacting on the sensitive receptors	The operation will comply with the provisions of the Mine Health and Safety Act, 1996 (Act 29 of 1996) and its regulations as well as other applicable legislation regarding noise control .Employees will be equipped with ear plugs and other protective gear. All vehicles will be equipped with silencers and maintained in a roadworthy condition
	Air	Dust	Dust suppression measures such as spraying with water
	Water	Land degradation, land-use and capability	Siltation of surface water resources will be minimized by road wetting. The areas excavated should be have berms that are vegetated in order to separate dirty and clean water systems while enhancing the maximization of clean and minimization of dirty areas and water systems respectively, and as an erosion control measure. The stockpiles must be vegetated to prevent erosion and subsequent siltation of clean and dirty water streams as well as surface water resources. Upslope diversion and down slope silt containment structures will be constructed. Monitoring of surface water resource pre-mining and during construction must be implemented in order to be used during operation, decommissioning and post-closure

			as per the monitoring programme
	Soil	Limit the soil disturbance outside the mining area	Movement of vehicles will be restricted to designated areas.
Waste facility	Noise	None	None
	Air	None	None
	Water	Water pollution	Container will be placed on a designated area, waste will be disposed in approved site
	Soil	None	Place waste receptacles at strategic points Monitor housekeeping behavior and insist on corrective action Waste will be disposed off in approved site
Overburden, stockpile topsoil, ROM	Noise	To prevent the noise emanating from the construction machinery from impacting on the sensitive receptors	A noise barrier in the form of a berm should be constructed on proposed area of disturbance (as per current mine plan) so that it is situated between the main noise source and sensitive noise receptor, as close to the noise sources as possible. The berm will help with the attenuation of noise

			produced by the mining activities
	Air	Reduction of dust fallout levels and particulate matter	Vegetation needs to be encouraged on all soil stockpiles to reduce dust levels.
	Water	Contamination	Prevent soil erosion and keep water channel clean, monitor groundwater Siltation of surface water resources will be minimized by road wetting. The areas excavated should be have berms that are vegetated in order to separate dirty and clean water systems while enhancing the maximization of clean and minimization of dirty areas and water systems respectively, and as an erosion control measure
	Soil	Reduction of area of soil compaction	Ensure all activities occur within designated areas. Compile accurate soil map showing classification, thickness, fertility status. Remove and stockpile topsoil in berms or heaps less than 2 – 3 m high. Do not use as storm water control feature. Vegetate with diverse grass mix to control erosion. Wetland soils should only be stockpiled at heights of 1 – 2 m. Subsoil stockpiles can be bigger but must be protected against erosion similar to topsoil stockpile
Loading and hauling of material	Noise	Movement of vehicles	
	Air	Dust	Dust suppression by watering
	Water	Water pollution	Operate outside 100 m distance from stream or any water body Control and manage storm water

			Prevent soil erosion and keep water channel clean, monitor groundwater
	Soil	Reduction of area characterised by soil compaction	All vehicles must remain on haul roads and within demarcated area
DECOMMISSIONING AND CLOSURE PHASE			
Activity: De-establishment / removal of infrastructure	Noise	Movement of vehicles	<p>The operation will comply with the provisions of the Mine Health and Safety Act, 1996 (Act 29 of 1996) and its regulations as well as other applicable legislation regarding noise control</p> <p>Employees will be equipped with ear plugs and other protective gear. All vehicles will be equipped with silencers and maintained in a roadworthy condition</p>
POST CLOSURE			
Ground water monitoring	Water (ground water)	Contamination of ground water	<p>Existing boreholes will be utilized to monitor the quality of the underground two years after closed</p> <p>Sealing of the pit at mine closure to prevent decant at pit, allow groundwater levels to recover and baseflow to be reinstated. Water will then be discharged via the natural/present ways (e.g. springs). The water quality of the springs must be monitored; and</p> <p>The monitoring programme and data should be reviewed by an independent hydrogeologist annually and routinely amended if necessary;</p>

			<p>Investigate the vertical profile of hydraulic conductivities specifically in relation to the coal seams in shallow and deep coal seam areas including coal seam, seam roof and -floor; Carry out a recharge investigation to quantify specifically (i) stream loss on high ground and (ii) direct infiltration; Conduct further geochemical testing, including testing of country rock and field testing, to provide more confidence in the current results which are not statistically robust. Subject to the results of these tests, it is recommended that the mine residue management strategy be reviewed, when necessary.</p>
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8.11 Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of environmental impacts and risks

8.11.1 Definitions and concepts:

(a) Environmental significance

The concept of significance is at the core of impact identification, evaluation and decision-making. The concept remains largely undefined and there is no international consensus on a single definition. The following common elements are recognized from the various interpretations:

- Environmental significance is a value judgment

The degree of environmental significance depends on the nature of the impact

- The importance is rated in terms of both biophysical and socio-economic values

Determining significance involves the amount of change to the environment perceived to be acceptable to affected communities.

Significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. Intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of acceptability) (DEA (2002) Impact Significance, Integrated Environmental Management, Information Series 5)

The concept of risk has two dimensions, namely the consequence of an event or set of circumstances, and the likelihood of particular consequences being realized (Environment Australia (1999) Environmental Risk Management).

(b) Impact Description

It provides the assessment impacts related to mining for the operational phase. The potential geological impact is the collapse of overlaying strata and creation of voids due to the historical high extraction of open-cast mining. Furthermore, due to the extraction of the aggregate seam and the removal of associated geological material for the open –cast passages and through fare, voids are created. This results in a permanent effect on geology.

The predicted surface subsidence within historical areas of high extraction will vary between 0.8 and 1.5m. Undisturbed strata or bord and pillar mining areas area highly unlikely to experience subsidence. As in the case of geology, topography is also permanently changed by open-cast high extraction mining. The general landform of the areas within which high extraction mining has taken place will not change from the existing gently sloping landform. In the short term some localised changes to drainage patterns will occur, however on a micro level topography will be punctuated by surface undulations or humps, surface cracking and the formation of sub-surface cracks.

(c) Impact

The positive or negative effects on human well-being and / or the environment.

(d) Consequence

The intermediate or final outcome of an event or situation or it is the result, on the environment, of an event.

(e) Likelihood

A qualitative term covering both probability and frequency.

(f) Frequency

The number of occurrences of defined event in a given time or rate.

(g) Probability

The likelihood of a specific outcome measured by the ratio of a specific outcome to the total number of possible outcomes.

(h) Environment

Surrounding in which an organization operates, including air, water, land, natural, resources, flora, fauna, humans and their interrelation (ISO 14001, 1996).

(i) Methodology

The environmental significance assessment methodology is based on the following determination:

- Environmental Significance = Overall Consequences x Overall Likelihood

(j) Determination of Overall Consequence

Consequence analysis is a mixture of quantitative and qualitative information and the outcome can be positive or negative. Several factors can be used to determine consequence. For the purpose of determining the environmental significance in terms of consequence, the following factors were chosen: Severity/Intensity, Duration and Extent/Spatial Scale. Each factor is assigned a rating of 1 to 5, as described in the tables below.

(k) Determination of Severity / Intensity

Severity relates to the nature of the event, aspect or impact to the environment and describes how severe the aspects impact on the biophysical and socio-economic environment.

Table 8-3 will be used to obtain an overall rating for severity, taking into consideration the various criteria.

Table 8-8-4: Rating of Severity

Type of criteria	Rating				
	1	2	3	4	5
Quantitative	0-20%	21-40%	41-60%	61-80%	81-100%
Qualitative	Insignificant / non-harmful	Small potentially harmful	Significant / harmful	Great / harmful	Disastrous Extremely harmful
Social/community response	Acceptable/I&AP satisfied	Slightly tolerable/possible objections	Intolerable/sporadic complaints	Unacceptable Widespread complaints	Totally unacceptable/possible legal actions
Irreversibility	Very low cost to mitigate/high potential to mitigate impacts to level of insignificance/easily reversible	Low cost to mitigate	Substantial cost to mitigate/potential to mitigate impacts/potential to reverse impacts	High cost to mitigate	Prohibitive cost to mitigate/little or no mechanism to mitigate impact irreversible
Biophysical (Air quality, water quantity and quality, waste production, fauna and flora)	Insignificant change deterioration or disturbance	Moderate change/deterioration or disturbance	Significant change/deterioration or disturbance	Very significant change/deterioration or disturbance	Disastrous change/deterioration or disturbance

(I) Determination of Likelihood:



The determination of likelihood is a combination of Frequency and Probability. Each factor is assigned a rating of 1 to 5 as described below and in tables 8-4 and 8-5.



(m) Determination of frequency

Frequency refers to how often the specific activity related to the event, aspect or impact is undertaken.

Rating of Frequency:

Table 8-8-5: Frequency rating

Rating	Description
1	Once a year or once/more during operation
2	Once/more in 6 months
3	Once/more a month
4	Once/more a week
5	Daily

(n) Determination of probability

Probability refers to how often the activity or aspect has an impact on the environment.

Rating of probability:

Table 8-8-6: Probability rating

Rating	Description
1	Almost never/almost impossible
2	Very seldom/highly unlikely
3	Infrequent/unlikely/seldom
4	Often/regularly/likely/possible
5	Daily/highly likely/definitely

(o) Overall likelihood

Overall likelihood is calculated by adding the factors determined above and summarized below, and then dividing the sum by 2.

Table 8-8-7: Example of calculating overall likelihood

Consequence	Rating
Frequency	Example 4
Probability	Example 2
SUBTOTAL	6
TOTAL LIKELIHOOD (Subtotal divided by 2)	3



Determination of overall environmental significance.

8.12 Potential impact of each main activity in each phase, and corresponding significance assessment

(a) Stripping and stockpiling of topsoil:

Visual intrusion associated with the establishment of the mining area.

Rating: Low Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	3	1	2	4	1	2.5	5

Dust nuisance caused by the disturbance of soil

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	3	2	2.6	4	3	3.5	9.1

Noise nuisance caused by machinery stripping and stockpiling the topsoil

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	3	2	2.3	4	3	3.5	8.1

Infestation of the topsoil heaps by weeds or invader plants

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	4	1	2.3	4	2	3	6.9

Loss of topsoil due to incorrect storm water management

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	1	2.6	4	3	3.5	9.1

Contamination of area with hydrocarbons or hazardous waste material

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	3	1	2.3	4	3	3.5	8.1

(b) Excavations:

Visual intrusion associated with the excavation activities

Rating: Medium-High

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	5	2	3	5	5	5	15

Dust nuisance due to excavation activities

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	2	3	5	4	4.5	13.5

Noise nuisance generated by excavation equipment

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	4	2	2.6	4	4	4	10.4

Contamination of surface or groundwater due to effluent runoff from excavation area

Rating: Medium

			Consequence			Likelihood	Significance
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Severity	Duration	Extend		Probability	Frequency		
3	4	2	3	4	3	3.5	10.5

Unsafe working conditions for employees

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	1	2.6	3	3	2	5.2

Negative impact on the fauna and flora of the area

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	1	2.6	5	3	4	10.4

Potential damage or cultural or heritage aspects

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	1	1	1.6	1	1	1	1.6

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	1	2.6	4	3	3.5	9.1

(c) Stockpiling and Transporting of material

Visual intrusion the associated with the stockpiled material and vehicles transporting the material

Rating: Medium-high

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	2	3	5	5	5	15

Loss of material due to ineffective storm water handling



Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	1	2.6	4	3	3.5	9.1

Weed and invader plant infestation of the area due to the disturbance of the soil

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	1	2.6	4	2	3	7.8

Dust nuisance from stockpiled material and vehicles transporting the material

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	2	3	4	5	4.5	13.5

Degradation of access roads

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	2	3	4	4	4	12

Noise nuisance caused by vehicles

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	4	2	2.6	4	5	4.5	11.7

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	1	2.6	4	3	3.5	9.1

Weed and invader plant infestation of the area to the disturbance of the soil

Rating: Low-Medium



			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	1	2.6	4	2	3	7.8

Dust nuisance from stockpiled material and vehicles transporting the material

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	2	3	4	5	4.5	13.5

(d) Sloping and Landscaping:

Visual intrusion associated with sloping and landscaping activities

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	2	2	2	4	1	2.5	5

Soil erosion

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	5	1	3	4	2	3	9

Health and safety risk posed by un-sloped areas

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
4	5	1	3.3	4	5	4.5	14.9

Dust nuisance caused during sloping and landscaping activities

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	4	1	2.5	3.3

Noise nuisance caused by machinery

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	4	1	2.5	3.3

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	4	1	2.5	3.3

(e) Replacing the Topsoil and Re-Vegetation of the disturbed area

Visual intrusion associated with the replacing of the topsoil and re-vegetation of the mining area.

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	2	1	1.5	2

Loss of reinstated topsoil due to the absence of vegetation

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	3	1	2	3	1	2	4

Infestation of the area by weed and invader plants

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	3	1	2	4	2	3	6

8.12.1 Assessment of potential cumulative impacts

The proposed mining activity will entail establishment of a mining area within a natural environment. The disturbance of the natural areas will however be contained within the boundaries of the site.



The cumulative impacts associated with the establishment of the industrial area could be the following:

Additional traffic on the local roads during construction and operational phases.

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	4	2	2.6	4	4	4	10.4

The influx of people in the area during construction and operational phases

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
1	4	1	2	4	5	4.5	9

Additional water supply to the areas

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
1	4	1	2	5	5	5	10

8.13 THE POSITIVE AND NEGATIVE IMPACTS THAT THE PROPOSED ACTIVITY AND ALTERNATIVES WILL HAVE ON THE ENVIRONMENT AND THE COMMUNITY THAT MAY BE AFFECTED

8.13.1 Positive impacts

The area applied for constitutes numerous mining activities which all apply similar mining method including the mining type. As a result, the mining commence at the shallow areas of the coal deposit and continue with con-current rehabilitation applied at the same time.

Mining activities will be commissioned only within the 5ha area as planned on site, which appears that alternatives were not possible. In many cases, the mine design take into consideration the control on the storm water as well as the groundwater which also dictates the mining operation.

8.13.1.1 Economic development

The Project will create an income stream for the business that operates within the proposed farm area and the beneficiaries of the project especially the Victor Khanye local municipality residents as well as those of the municipalities within the Nkangala District Municipality. Acceleration of infrastructural developments in the area and the other rural under developed areas.

8.14 MITIGATION MEASURES THAT COULD BE APPLIED AND THE LEVEL OF RISK

8.14.1 Proposed mitigation measures to minimize adverse impacts.

8.14.1.1 List of actions, activities, or processes that have sufficiently significant impacts to require mitigation

(a) Stripping and stockpiling of topsoil:

- Visual intrusion associated with the establishment of the mining area.
- Dust nuisance caused by the disturbance of the soil
- Noise nuisance caused by machinery stripping and stockpiling the topsoil
- Infestation of the topsoil by weed or invader plants
- Loss of topsoil due to incorrect storm water management
- Contamination of area with hydrocarbons or hazardous waste materials

(b) Excavations:

- Visual intrusion associated with the excavation activities
- Dust nuisance due to excavation activities
- Noise nuisance generated by excavation equipment

Contamination of surface or groundwater due to effluent runoff from excavation area

- Unsafe working conditions for employees
- Negative impact on the fauna and flora of the area
- Contamination of the area with hydrocarbons or hazardous waste materials

(c) Stockpiling and Transporting of material

- Visual intrusion associated with the stockpiled material and vehicles transporting the material
- Loss of material due to ineffective storm water handling
- Weed and invader plant infestation of the area due to the disturbance of the soil
- Dust nuisance from the stockpiled material and vehicles transporting the materials
- Degradation of access roads
- Noise nuisance caused by vehicles
- Contamination of area with hydrocarbons or hazardous waste materials

Sloping and landscaping

- Visual intrusion associated during stockpiling and landscaping activities
- Soil erosion
- Health and safety risk posed by un-sloped areas
- Dust nuisance caused during sloping and landscaping activities
- Contamination of area with hydrocarbons or hazardous waste materials

Replacing the Topsoil and Re-Vegetating of the disturbed area:

- Visual intrusion associated with the replacing of the topsoil and re-vegetation of the mining area.
- Loss of reinstated topsoil due to the absence of vegetation
- Infestation of the area by weed and invader plants

8.14.1.2 Concomitant list of appropriate technical or management options

(Chosen to modify, remedy, or stop any action, activity or process which will cause significant impacts on the environment, socio-economic conditions and historical and cultural aspects as identified. Attach detail of each technical or management option as appendices)

(a) Visual Mitigation:

- The site is screened by alien trees and the permit holder will need to protect the trees on the road side to mitigate the visual impact.



- The site needs to have a neat appearance and be kept in good condition at all times.
- Upon closure the site needs to be rehabilitated and sloped to ensure that the visual impact on the aesthetic value of the area is kept to a minimum

(b) Dust Handling

- The liberation of dust into the surrounding environment should be effectively controlled by the use of, inter alia, water spraying and /or other dust-allaying agents.
- The site manager should ensure continuous assessments of all dust suppression equipment to confirm its effectiveness in addressing dust suppression.
- Speed on the access roads should be limited to 30km/h to prevent the generation of excess dust.
- Roads must be sprayed with water or an environmentally friendly dust-allaying agent that contains no PCB's (e.g DAS products) if dust is generated above acceptable limits.
- All stockpiles should be thoroughly soaked to ensure dust suppression on the site

(c) Noise Handling:

- The applicant should ensure that employees and staff conduct themselves in an acceptable manner while on site, both during work hours and after hours
- All mining vehicles should be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act.

(d) Management of weed and invader plants:

- A weed and invader plant control management plan should be implemented at the site to ensure eradication of all listed plants in terms of Conservation of Agricultural Act (Act no 43 of 1983)
- Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used:
 - "The plants can be uprooted, felled or cut off and can be destroyed completely"

- The plants can be treated with an herbicide that is registered for use in connection therewith and in accordance with directions for the use such as herbicide”
- The temporary topsoil and overburden stockpiles need to be kept free of weeds

(e) Storm water Handling:

- Storm water should be diverted around the topsoil heaps, stockpile areas and access roads to prevent erosion and loss of material,
- Runoff water should also be diverted around the stockpile areas with trenches and contour structures to prevent erosion of the work areas.
- Mining should be conducted only in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water Affairs and any other conditions which that department may impose.
- Clean water (rain water) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water system.
- Dirty water must be prevented from spilling or seeping into clean water system
- The storm water management plan must apply for the entire life cycle of the mine and over different hydrological cycles (rainfall patterns)
- The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management plan.

(f) Management of Health and Safety Risks:

- Workers should have access to the correct personal protection equipment (PPE) as required by law
- All operations should comply with the Occupational Health and Safety Act.

(g) Waste Management



- No processing area or waste pile may be established within 100m of the edge of any river channel or other water bodies.
- Any vehicle repairs may only take place within the temporary service bay service bay area and all waste products must be disposed of in a 200 litre closed container/bin found inside the emergency service area.
- Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility
- Spills must be cleaned up immediately to the satisfaction of the Regional Manager by removing the spillage together with the polluted soil by disposing of the at a recognized facility
- Suitable covered receptacles should be available at all times and conveniently placed for the disposal of waste
- Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc, should be stored in a container with a closable lid at a collecting point and collected on a regular basis and disposed of at a recognized landfill site. Specific precautions should be taken to prevent refuse from being dumped on or in the vicinity of the mine area. Biodegradable refuse generated should be handled as indicated above.

(h) Management of Access Roads

- Newly constructed access roads (if applicable) must be adequately maintained so as to minimize dust, erosion or undue surface damage.
- Storm water should be diverted around the access roads to prevent erosion,
- Erosion of access road: Vehicular movement must be restricted to existing access routes to prevent crisscrossing of tracks through undisturbed areas.

(i) Topsoil Handling

- Where applicable the first 300m of topsoil should be removed in strips and stored at a demarcated and signposted stockpile area. Stockpiling of topsoil must be done to protect it from erosion, mixing with overburden or other material. The topsoil must be used to cover the rehabilitated area and improve the establishment of natural vegetation.
- The temporary topsoil stockpiles of each removed strip should be kept free of weeds.

- Topsoil stockpiles should be placed on a levelled area and measures should be implemented to safeguard the piles from being washed away in the event of heavy rains/storm water.
- Topsoil heaps should not exceed 2m in order to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen.
- Storm and runoff water should be diverted around the stockpile area and access roads to prevent erosion.

(j) **Protection of fauna and flora:**

- The site manager should ensure that no fauna is caught, killed, harmed, sold or played with.
- Workers should be instructed to report any animals that may be trapped in the working area.
- No snares may be set or nests raided for eggs or young
- No plants or trees may be removed without the approval of the ECO.
- A search and rescue exercise should be conducted prior to any mining taking place at the site, to ensure that all protected and or sensitive plants is removed from the mining area.

8.15 Review the significance of the identified impacts.

(After bringing the proposed mitigation measures into consideration)

(a) Stripping and stockpiling of topsoil

Visual intrusion associated with the establishment of the mining area

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	2	1	1.6	3	1	2	3.2

Dust nuisance caused by the disturbance of the soil

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	3	2	2.5	3.3



Noise nuisance caused by machinery stripping and stockpiling the overburden

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	3	2	2.5	3.3

Infestation of the topsoil heaps by weeds or invader plants

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	2	1	1.6	3	2	2.5	4

Loss of topsoil due to incorrect storm water management

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	1	1	1.6	2	1	1.5	2.4

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	1	1	1.6	3	2	2.5	4

(a) Excavations:

Visual intrusion associated with the excavation activities

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	4	1	2.3	4	5	4.5	10.4

Dust nuisance due to excavation activities

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	2	1	1.6	3	2	2.5	4



Noise nuisance generated by excavation equipment

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	4	1	2.3	2	3	2.5	5.8

Contamination of surface or groundwater due to effluent runoff from excavation area

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	1	2	2	2	1	1.5	3

Unsafe working conditions for employees

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	1	1	1.6	2	1	1.5	2.4

Negative impact on the fauna and flora of the area

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	2	2	2	2.6

Potential damage to cultural or heritage aspects

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	1	1	1.6	3	2	2.5	4

(b) Stockpiling and Transporting of Material

Visual intrusion associated with the stockpiled material and vehicles transporting the material

Rating: Low

			Consequence			Likelihood	Significance
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Severity	Duration	Extend		Probability	Frequency		
2	3	1	2	4	5	4.5	9

Los of material due to ineffective storm water handling

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	1	1	1.6	2	1	1.5	2.4

Weed and invader plant infestation of the area due to the disturbance of the soil

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	2	1	1.6	3	2	2.5	4

Dust nuisance from stockpiled material and vehicles transporting the material

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	2	2	2	2.6

Degradation of access roads

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	2	1.6	3	2	2.5	4

Noise nuisance caused by vehicles

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	4	1	2.3	3	3	3	6.9

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		



3	1	1	1.6	3	2	2.5	4
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(c) Sloping and landscaping

Visual intrusion associated with sloping and landscaping activities

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
1	2	1	1.3	2	1	1.5	2.4

Soil erosion

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	2	1	1.5	2

Health and safety risk posed by un-sloped areas

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	3	1	2	2	1	1.5	3

Dust nuisance caused during sloping and landscaping activities

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	3	1	2	2.6

Noise nuisance caused by machinery

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	4	1	2.5	3.3

Contamination of area with hydrocarbons or hazardous waste material

Rating: Low

			Consequence			Likelihood	Significance
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Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	3	1	2	2.6

(d) Replacing the Topsoil and Re-Vegetation of the disturbed area:

Visual intrusion associated with the replacing of the topsoil and re-vegetation of the mining area

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	2	1	1.5	2

Loss of reinstated topsoil due to the absence of vegetation

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	2	1	1.6	3	1	2	3.2

Infestation of the area by weed and invader plants

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	3	2	2.5	3.3

All impacts are deemed to be of low significance due to the establishment of the proposed mining area in a formerly disturbed area. The above mentioned mitigation measures will however be implemented to ensure that the activity is managed to have the lowest possible impact on the surrounding environment. Removal of vegetation during the operation can also expose land to erosion, particularly during the rainy season. Given proper mitigation this is a short term impact of low – medium significance.

8.16 Motivation where no alternative sites were considered

The mining (open-cast) methods to be used will minimize potential impacts to the preferred site. Although the applicant has applied for a 5 Ha area, it is only the specified excavated points that will be disturbed. The excavation methods to be used will provide reduction of spillages.



8.17 Statement motivating the alternative development location within the overall site

The geology of the Huevelfontein farm area comprises sedimentary lithologies of the coal-bearing Vryheid Formation of the Ecca Group, Karoo Supergroup. These lithological units consist of shale, shaly sandstone, grit, sandstone, conglomerate and coal. The sequence was laid down on a highly irregular basement resulting in great variations in thickness in the stratigraphic units.

9. DESCRIPTION OF THE PROCESS UNDERTAKEN TO IDENTIFY, ASSESS, AND RANK THE IMPACTS AND RISKS THE ACTIVITY WILL IMPOSE ON THE PREFERRED SITE.

The type of mining method to be used that will be applied for is opencast mining, are non-invasive as such, there is minimal expectations of impacts for the proposed activity on the preferred site. The following steps best describes the process:

Risk Classification

The risks associated with the mining were assessed and ranked according to their environmental significance. The ranking process coded each activity as high, moderate or low risk in accordance with the following process:

The activities were assessed against two criteria: the likelihood of environmental harm occurring and the level of the environmental impacts.

The likelihood of environmental impact was determined by assessing the following:

- Past environmental performance
- Current environmental performance
- Potential contributing factors

The level of environmental impact was assessed by considering factors such as the quantity and toxicity of the material and the sensitivity of the receiving environment.

Environmental Non-Compliance Matrix(Compliance colour coding)

Level of Non-Compliance	Certain	Likely	Less Likely
Moderate - High			
Low - Moderate			
Compliant			



9.1 Assessment of each identified significant impact and risks

Table 9-1: Assessment of each identified significant impact and risks

Name of Activity	Potential impact	Aspects affected	Phase	Significance	Mitigation type	Significance (if mitigated)
Site Clearance, removal of topsoil, initial strip	Dust generation	Air quality	Construction phase	Minimal negative impact	Dust suppression	Negligible negative
	Loss of topsoil	Soils	Construction phase	Minimal negative impact	Soil stripping	Negligible negative
	Loss of fauna & flora	Fauna & flora	Construction phase	Minimal negative impact	Limited infrastructure footprint	Negligible negative
	Sedimentation of wetlands	Wetlands	Construction phase Operational phase	Minimal negative impact	Buffer zones	Negligible negative
	Sedimentation & contamination of surface watercourses	Surface water	Operational phase	Minimal negative impact	Limited infrastructure footprint	Negligible negative
	Groundwater contamination	Groundwater	Operational phase	Minimal negative impact	Avoidance and spillage attention	Negligible negative
	Noise generation	Noise	Decommission phase/closure phase	Minimal negative impact	Adhering to operating hours	Negligible negative

Establishment of Box cut, strip 1,2	Soil compaction and erosion	Soils	Operational phase	Minimal impact	negative	Vegetation, restrict access	Negligible negative
	Sedimentation of wetlands	Wetlands	Operational phase	Minimal impact	negative	Buffer zones	Negligible negative
	Contamination of groundwater	Groundwater	Operational phase	Minimal impact	negative	Consent from landowners from water usage	Negligible negative
Rehabilitation and closure		Traffic(transport of loading trucks	Operational phase	Minimal impact	negative	Establishment of speed humps,	Negligible negative
	Sedimentation of surface watercourses	Surface water	Decommission phase	Minimal impact	negative	Rehabilitation of sumps	Negligible negative
	Soil compaction & erosion	Soils	Decommission phase	Minimal impact	negative	Backfilling and topsoil levelling	Negligible negative
	Dust generation from trucks	Air quality	Decommission phase	Minimal impact	negative	Dust management plan, vegetation	Negligible negative

10. SUMMARY OF SPECIALISTS REPORTS

Table 10-1: Summary of Specialists Report

List of studies not undertaken	Recommendations of specialists reports	Specialists recommendations that have been included in the EIA report	Reference to applicable sections where specialists recommendation have been included in the EIA report
Soil Impact Assessment	Not applicable	X	Individual specialists report was not conducted
Fauna & flora	Not applicable		Individual specialists report was not conducted
Wetlands Impact Assessment	Not applicable		The existing wetlands are located approximately 5km away from the



			boundary of the proposed mining area
Groundwater impact assessment	Drill ground water monitoring boreholes. Update the ground water flow model		Individual specialist report was not conducted
Heritage impact assessment	Not applicable		Individual specialist reports were not conducted due to the minimal impacts of the proposed activity. There has not been any archaeological features discovered that would prompt assessment of heritage resources that could be impacted by the proposed mining operations.

11. ENVIRONMENTAL IMPACT STATEMENT

11.1 Summary of the key finding of the environmental impact assessment

Table 11-1: Summary of key findings of the EIA

Project phase	Receiving environment	Impact description	Pre-mitigation significance	Post-significance
Construction phase	social	Nuisance impacts due to heavy vehicles transporting construction materials	Insignificant negative	Minor negative
	Soil, land capability	Loss of topsoil resources and capability through removal of topsoil for establishment of Box cut, initial strip	Minor negative	
	Fauna & flora	Loss of fauna & flora through clearance of vegetation for establishment of PCDs, Mobile offices, mobile toilets & sanitation	Minor negative	
	Surface water	Sedimentation & contamination of surface water	Major negative	
	Groundwater	Groundwater contamination	Major negative	
Operational phase(social	Nuisance impact due to earthworks, heavy vehicles and transporting trucks loading ROM	Minor negative	
	Soil ,land-use & capability	Soil compaction	Minor negative	
	wetland	Contamination of wetlands	Minor negative	

Rehabilitation /closure phase	Surface water	Contamination of surface watercourses	Major negative	
	Air quality	Elusive dust generation	Minor negative	
	Soil ,land-use &land capability	Soil contamination, restoration of land capability	Major negative	
	Fauna & flora	Destruction of suitable habitat	Minor negative	
	Surface water	Contamination & sedimentation of surface watercourse	Major negative	



11.2 Final site Map

See attached Final site Map **Appendix A**

11.3 Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives

Phase –activity	Impact/risk	Alternatives
<p>Construction</p> <ul style="list-style-type: none"> - Access road - Mobile structure - Trench - Pollution control Dam <p>Operational</p> <ul style="list-style-type: none"> - area - Hauling and Loading - Stockpiling - crushing and screening <p>Closure</p> <ul style="list-style-type: none"> - Removal of foreign material - Scruping and contouring - Rehabilitation - Retrenchment 	<p>Increased ambient noise levels resulting from mining activities.</p> <p>Potential water and soil pollution impacts resulting from hydrocarbon spills and soil erosion which may impact on environmental resources utilized by communities, landowners and other stakeholders.</p> <p>Potential water and soil pollution impacts resulting from hydrocarbon spills and soil erosion which may impact on ecosystem functioning.</p> <p>Increased vehicle activity within the area resulting in the possible destruction and disturbance of fauna and flora.</p> <p>Poor access control to farms which may impact on cattle movement, breeding and grazing practices.</p> <p>Influx of persons (job seekers) to site as a result of increased activity and the possible resultant increase in opportunistic crime.</p>	<p>Due to the size of the operation, minimal alternative could be identified</p>

12. PROPOSED IMPACT MANAGEMENT OBJECTIVES AND IMPACT MANAGEMENT OUTCOMES

Compilation of the EMPr assist in determining the manner in which impact realised and suggest mitigation, monitoring and management strategies in turn developing greater outcomes of the proposed project

Recommendations that derived from the impact management

- Avoidance of detrimental negative impacts of the sensitive areas
- Prevention of long term effect/impacts from the proposed project
- Restore the proposed areas of interest to its natural form
- Provide sufficient information to strategically plan the mining activities as to avoid unnecessary social and environmental impacts. In that, monitoring boreholes as recommended by Groundwater Study
- Provide sufficient information and guidance to plan mining activities in a manner that would reduce impacts (both social and environmental) as far as practically possible.
- Ensure an approach that will provide the necessary confidence in terms of environmental compliance. Provide a management plan that is effective and practical for implementation.
- Through the implementation of the proposed mitigation measures, it is anticipated that the identified social & environmental Impacts can be managed and mitigated effectively. Through the implementation of the mitigation and management measures it is expected that: Noise impacts can be managed through consultation and through the restriction of operating hours;
- The pollution of soil and water resources can be effectively managed through containment by water management infrastructure.
- Ecological impact can be managed through the implementation of pollution prevention measures, minimizing land clearing, restricting working hours (faunal disturbance) and rehabilitation.
- Concerns regarding access control to farms can be managed through the development and ensuring compliance to an appropriate access control procedure.
- Risks associated with crime can be mitigated through avoiding recruitment activities on site, as well as monitoring and reporting.
- Visual impact can be minimized through giving consideration to site infrastructure placement and materials used

13. ASPECT FOR INCLUSION AS CONDITIONS OF AUTHORISATION

The proposed strategies ranging from mitigation measures, monitoring and management systems should be part of the conditions of the authorisation.

14. DESCRIPTION OF ANY ASSUMPTION, UNCERTAINTIES AND GAPS IN KNOWLEDGE

The type of commodity to be mined being Coal (Thermal Coal), which largely involves a minimal impact approach to the environment, having said that the information provided in this report will assist the competent authority to arrive with an appropriate conclusion to the proposed activity in question.

15. OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

15.1 Reasons why the activity should be authorized or not

The proposed activity should be authorised considering the need and desirability of the activity relevant to the location of the area where the proposed activity is to be conducted on. The type of commodity to be mined will have minimal impact on the environment as measured by the economic benefits notwithstanding the recommendations and measures to be put in place to monitor impact response and minimisation.

15.2 Conditions that must be included in the authorisation

As discussed above the recommendations, mitigation measures proposed in the EMPr will suffice as conditions.

16. PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

The mining permit will expire in 2 years' time with a possible renewal of another 3 years, similarly the authorisation should be active until the permit expires, as contents of the authorisation will no longer serve value when mining has been decommissioned has ended that is after having done closure and rehabilitation has been concluded.

17. UNDERTAKING

Project team confirms that the undertaking that is applicable to the basic assessment report and EMPr is made available at the last section of the report.

18. FINANCIAL PROVISION

In accordance with the requirements of regulation 54(i) of the Mineral and Petroleum Resource Development Act, 2002 (Act 28 of 2002) Malac Mining Services (Pty) Ltd has calculated the environmental closure liability for the proposed project according to the Department of Minerals Resources guidelines. The cost closure is estimated to the total of **R 1 346 153,09 (See Appendix F)**

18.1 Explain how the aforesaid amount was derived

18.1.1 Quantum calculations

Provided is a calculation of the quantum of the financial provision required to manager and rehabilitate the environment, in accordance with the guideline prescribed in terms of regulations 54 (1) in respect of each of the phases referred to) see **Appendix F**

18.1.1.1 Confirm that this amount can be provided for from the operating expenditure

It is hereby undertaken that the amount of **R 1 346 153,09** in the form of a bank guarantee for rehabilitation purposes as required in terms of section 24P of the Act: Financial provision for remediation of.

19. SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

19.1 Compliance with the provision of section 24(4)a and b read with section 24(3) and 7 of the National Environmental Management Act(107 of 1998).The EIA report must include

19.1.1 Impact on the socio-economic conditions of any directly affected persons

The project generate an approximate of about 300 employment opportunities and business opportunities for SMMEs through contracts for construction, operation and also during rehabilitation phases..

19.1.2 Impact on any national estate referred to in section 3(2) of the National Heritage Resource Act

There are no heritage sites identified within the proposed mining area, this was in consultation with the landowners and appropriate measures have been proposed to protect such sites from the impact arising from the project should they be discovered during operation.

20. OTHER MATTERS REQUIRED IN TERMS OF SECTION 24(4)A AND B OF THE ACT

The report compiled together with the information provided included in the attached proof of consultations, site visits etc

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT



1. DETAILS OF EAP

Details of the Environmental Assessment Practitioner has been included in **Part A (section 1)**

2. DESCRIPTION OF THE ASPECT OF THE ACTIVITY

Description of the aspect of the activity has been included in **Part A (section 1)**

3. COMPOSITE MAP

A Map containing all the required information regarding the proposed mining site. **See Appendix A**

4. DESCRIPTION OF THE IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENT

4.1 Determination of closure objectives

The closure objectives for the proposed mining activity include the following:

- Rehabilitation of the mining sites
- Reduction of the visual impact of the mining sites
- Information provision to the competent authority
- Submit monitoring results to the relevant competent authority
- Ensure that all the soil profile is return in accordance with their original horizons.
- Preserve the topsoil and ensure that it keep its fertility in order to retain the vegetation of the area.
- Ensure that all foreign material including carbonaceous material are cleared from the site.
- Contour the area in order to ensure that storm water does not wash the topsoil into the nearby stream.
- Encourage the vegetation growth through watering and seeding the rehabilitated areas.

4.2 Volume and rate of water use required

Water usage will be limited to the following activities

- The project will utilize about 18600 cm³. At a given point that a water use is triggered a licence will be applied for in terms of section 21 of the National Water Act, 1998 (Act 36 of 1998)

4.3 Has a water-use licence been applied for

The use of groundwater will be Generally Authorized in terms of the NWA. Based on the outcomes of discussions with the Department of Water and Sanitation, the potential abstraction of water due to mining activities will be clarified. Should it be deemed necessary, on instruction by the department, to submit a water use license application, this will be undertaken.

4.4 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

Table 4-1: Measures to rehabilitate the environment affected by undertaking any listed activity

No	Activity	Affected Environment	Objectives	Mitigation/Management measure	Frequency of mitigation	Legal Requirements	Recommended Action Plans
1	Recruitment, procurement and employment	Socio-economic	Ensure that recruitment strategies for the mine prioritises the sourcing of local labour, and share in gender equality. Empower the workforce to develop skills that will equip them to obtain employment in other sectors of the economy. Contribute to the sustainable development of a community (not dependent on the mine) surrounding the area of operation	Positive impact will be implemented through LED initiative as part of local development and need to be managed. Ad-hoc, informal recruitment at the gate or through other unapproved channels by setting up recruitment stands in built up areas should be prohibited. Relationships with local government through LED programmes should be developed. Stakeholder database should be established to identify partners and develop collaborative networks	Ongoing	As per LED	The social plans to involve action plans aimed at providing development opportunities and benefits to the affected local communities.
2	Transport of construction material	Soil	Minimization of disturbed area and prevention of compaction of soil	All heavy machinery operators and truck drivers should stay in designated areas	Ongoing	Rehabilitation and closure plan	Life of Mine(LoM)

5. IMPACT MANAGEMENT OUTCOMES

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

Table 5-1: Measures to rehabilitate the environment affected by undertaking any listed activity

Activity	Aspects Affected	Phase	Size and Scale of Disturbance	Mitigation Measure
Column 1	Column 2	Column 3	Column 4	Column 5
Site Clearance	Social Nuisance	Construction Phase (transport of construction materials)	Limited to the mining site	Keep soils moist to suppress possibility of dust; Site clearing to take place during daylight hours only Vehicles and machinery will be properly maintained to minimise operating noise Ensure that dust suppressants are applied to gravel or unpaved roads that are in use;
	Soils	Construction Phase (topsoil removal, overburden)	100 m ²	Ensure topsoil is stored in one dedicated stockpile, less than 1 m high, and within the demarcated mining site and Topsoil stockpiles will be covered with a plastic liner during windy and rain conditions so as to prevent erosion (October to March). Only remove vegetation when and where necessary;
Coal removal and stockpiling	Fauna and Flora	Construction Phase (establishment of Box cut, initial strip)	100 m ²	Minimise the size of the excavated sites as far as Possible
				Indigenous trees will not be removed
				Drainage lines, and indigenous vegetation will be Avoided
	Wetlands	Construction Phase	Local	Ensure site clearing is limited to the designated areas
				All watercourses will be avoided and the stipulated buffer will be implemented
Water use around site	Surface water	Construction Phase	Local, Continues	All dirty water must be captured and recycling of water must be emphasized and implemented throughout the mine
				Water within the excavated site must be diverted to the water sump. Waste water management plan/procedure

				All watercourses will be avoided and the stipulated buffer will be implemented			
Pollution control dams	Groundwater	Construction phase	Local	All potential hydrocarbon spillages and leaks must be cleaned and soils remediated;			
				Spillage control kits will be readily available on site to contain the mobilisation of contaminants and clean up spills;			
				All vehicles and machinery to be serviced in a hard park area or at an offsite location			
	Noise	Construction Phase	Site Specific	Site clearing to take place during daylight hours only			
				Vehicles and machinery will be properly maintained to minimise operating noise			
				Vehicles will obey speed limits			
	Social Nuisance	Operational Phase	Limited	Maintain excavation equipment and, if possible, fit silencing Equipment			
				excavation will only take place during daylight hours			
				Use a dust suppressant and keep access roads moist			
	Noise	Operational Phase	Site Specific	Maintain drilling equipment and, if possible, fit silencing Equipment			
				Fauna and Flora	Operational Phase	100 m ²	Remove alien invasive species as and when they occur
							Maintain excavation equipment and, if possible, fit silencing Equipment
Fauna and Flora	Operational Phase	100 m ²	All personnel are to remain on the demarcated mining site only				
			to prevent the footprint of the site expanding and further vegetation loss				
Concurrent replacement of overburden and topsoil and revegetation	Soil	Operational Phase Rehabilitation Phase	Site Specific	The replacement of overburden and top soil should be replaced so it follows the original contouring of the land prior to mining. The area would need to be revegetated to decrease the risk of erosion.			
				Machinery and vehicles must be serviced and maintained off site at a workshop and drip trays must be in place to capture the spillage			



Vehicular activity on haul roads and conveying of coal	Air quality	Operational Phase	Local, As and when required	<p>Road surfaces, for example the access road, will be sprayed and treated with water and a dust binding agent. Water will be applied to haul roads three times daily, except during periods of rainfall. All coal haul trucks must be covered. The overland conveyor belt will also be covered and where coal on the conveyor will be sprayed to reduce emissions.</p> <p>The limit value for the 24 hour average for PM10 is 75 ug/m³ and this may not be exceeded 4 times within a year. The limit value for the yearly average for PM10 is 40ug/m³.</p> <p>Berms on the periphery of the mining site will be inspected daily and maintained to ensure runoff from within the mining site does not report to the catchment</p>
	Biodiversity & Aquatic Environment	Operational Phase	Local, As and when required	<p>Wetting of the haul road to suppress dust creation as well as cover haul trucks to prevent dust emissions during transport. The overland conveyor belt will also be covered and where coal on the conveyor will be sprayed to reduce emissions</p> <p>Daily inspection of the excavation must be undertaken prior to the commencement of Excavation and routine maintenance must be undertaken to prevent the likelihood of fluid dispersing and breakdowns</p>
	Final replacement of overburden and topsoil revegetation	Surface Water	Operational Phase Rehabilitation phase	Local
	Soil	Operational Phase Rehabilitation Phase	100 m ²	<p>Sumps will be backfilled and the site levelled immediately after has concluded</p> <p>All compacted areas will be ripped to loosen the soils during rehabilitation</p>
	Fauna and Flora	Rehabilitation Phase	100 m ²	Remove alien invasive species as and when they occur



				<p>An alien invasive management plan must be established</p> <p>All compacted areas will be ripped to loosen the soils during rehabilitation and seeded with an appropriate seed mixture</p>
Post closure monitoring and rehabilitation	Soil, Surface Water, Biodiversity and Wetlands	Rehabilitation Phase	5 Ha area(on-going post mining)	<p>Woody vegetation should be establishment to minimize water i will be applied. Soil will be required to cover the mined area. The quantities of soil required as well as the timing of the operation will depend on the design and operation of these facilities.</p> <p>Surface water runoff controls will be engineered to prevent future soil erosion of the rehabilitated area. Re-vegetation will assist in controlling erosion by wind and water.</p> <p>Monitoring will be ongoing for 3years to determine potential water contamination</p>
Post closure monitoring and rehabilitation	Soil, Surface Water, Biodiversity and Wetlands	Rehabilitation Phase	5 ha area(on-going post mining)	<p>Analyse soils, treat to ameliorate salinity or contamination and dispose of untreatable soil at an approved disposal site. recreate slope form and topsoil with optimal fertilisation based on soil analysis. Implement soil conservation measures. with activities in adjacent areas. Rehabilitation must ensure long-term stability and not compromise post-mining land use objectives. Take into account developments in surrounding areas and design post-mining land use options to support and enhance long-term development options.</p> <p>Ongoing monitoring to establish status of environment post Closure</p>

6. IMPACT MANAGEMENT ACTIONS

Table 6-1: impact management actions

Activities	Potential Impacts	Aspects Affected	Mitigation Type	Time Period for Implementation	Compliance with Standards
The list of activities for the Project are displayed in Table 4-1	The potential impacts associated with each activity are outlined in Table 4-2	The aspects affected as a result of the potential impact are outlined in Table 4-2	The mitigation types of each of the potential impacts are outlined in Table 4-2	The time periods for each of the potential impacts are outlines in Table 4-1	The compliance with the standards for the potential impacts are outlined in Table 4-1

7. FINANCIAL PROVISION

7.1 Determination of the amount of financial provision

7.1.1 Minimum closure objectives that will be adhered to

Environmental risk or Issue	Objective or requirement	Control measure
Storm water control	To prevent and restrict siltation and groundwater pollution	<p>Management Objective: to ensure that no harm to the receiving environment occurs. To comply with the provision of government notice 704 and not reduce the sub catchment yield.</p> <ul style="list-style-type: none"> ➤ Management Criteria: ➤ All clean water collected as runoff from areas up gradient of the mining sites should be separated from the sites by means of berms to divert clean water to the surrounding areas, to allow natural runoff into the nearby stream. ➤ The mining site will be considered a dirty area and demarcated as such.
Soils	Contamination of soils	<p>Management Objective: To prevent contamination of soils.</p> <ul style="list-style-type: none"> ➤ Management criteria: ➤ All topsoil is to be removed from the site prior to stockpiling. ➤ Any contamination of soils should be suitably handled by an appropriately trained person. ➤ Should soils be contaminated in such a

		<p>way as to lead it being classified as waste, it should be disposed of at a suitable disposal site</p>
	<p>Erosion and siltation</p>	<p>Management Objective: to prevent unnecessary loss of soil through bad management.</p> <ul style="list-style-type: none"> ➤ Management criteria: ➤ All surface run-off shall be managed in such a way so as to ensure erosion of soil does not occur. ➤ All surfaces that are susceptible to erosion, shall be protected either by cladding with biodegradable material or to layer of soil being seeded with grass seeded/planned with suitable groundcover. ➤ The applicant should adhere to the requirements of the Department of Agriculture in the design of effective erosion control measures on bare soils.
	<p>Conserving topsoil</p>	<p>Management Objective: To prevent loss of valuable topsoil.</p> <ul style="list-style-type: none"> ➤ Management criteria: <p>The top layer of all areas to be excavated for the purpose of mining must be tripped and stockpiled , in areas where this material will not be damaged, removed or compacted. This stockpiled material shall be used for the rehabilitation of the</p>



		<p>site upon completion sampling in areas as deemed necessary.</p> <ul style="list-style-type: none"> ➤ When stripping of topsoil takes place, the grass component shall be included in the stripped topsoil. This soil will contain a natural grass seed mixture that may assist in the re-growth of grass once the soil is used for back filling and rehabilitation
<p>Hydrology</p>	<p>Surface water: To prevent contamination of water courses</p>	<p>Management Objective: To prevent contamination of streams by mining activities.</p> <ul style="list-style-type: none"> ➤ Management Criteria: All streams should be monitored before the mining activities commence. <p>There will be no clearing of vegetation or stripping of soils until clean-water diversions (for diversions of runoff from upstream catchment) and dirty water collection facilities has been established</p> <p>There shall be environmental conditions included in the contractual agreement to make successful miner of the necessity to prevent accidental spillages by the implementation of good housekeeping practices.</p>

	<p>Prevent the pollution of groundwater</p>	<ul style="list-style-type: none"> ➤ Management Objective: To ensure groundwater is not polluted by the mining activities – particularly in areas where groundwater is generally shallow. ➤ Management criteria: Chemical toilets and mining activities that may cause negative impact on groundwater quality must be suitably managed and monitored. No waste material shall at any stage be disposed of on site. All solid waste must be removed and transported to a recognised waste disposal site by suitably qualified service provider (contractor). Land use Minimise the impact on land
<p>Land-use</p>	<p>Minimise the impact on land-use to areas specifically used for mining activities</p>	<ul style="list-style-type: none"> ➤ Management Objective: To minimise impact on land use areas demarcated as mining sites. ➤ Management criteria: All mining activities are to take place within the designated footprint areas as per mining standard.
		<ul style="list-style-type: none"> ➤

Floral and Fauna biodiversity and Ecological functioning	To ensure that the mining activities pose no significant harm to the surrounding areas as well as any sensitive species of fauna and flora – if present.	<ul style="list-style-type: none"> ➤ Management Objective: To ensure that no loss of ecological function of the surrounding areas occurs due to mining activities. ➤ Management criteria: All activities associated to the mining activities should occur within their designated areas and there should not be encroachment into the surrounding areas. Any areas to be rehabilitated shall be rehabilitated with no-invasive species
	Prevent the invasion of the areas with invasive species	<ul style="list-style-type: none"> ➤ Management Objective: To eradicate all invasive alien species. ➤ Management criteria: Invasive alien species shall be eradicated as part of the rehabilitation programme. All alien species should be removed prior to flowering season of the relevant species.
Land capability	To retain the floral and fauna assets on site	No floral assets of conservation concern were identified which need to relocate or left in situ.
	None	No management of impacts on and capability can be implemented since the proposed project activities will not degrade the land based on their meagre impacts from a land capability perspective.
Social impact	Air quality	<ul style="list-style-type: none"> ➤ Management Objective: To limit public and staff exposure to unnecessary dust. ➤ Management criteria:



		<p>Dust pollution could occur during both initial stages of mining each strip - especially during the dry months. Regular and effective damping down must be carried out to avoid dust generation that will have a negative impact on the surrounding environment</p>
	<p>Noise impact</p>	<ul style="list-style-type: none"> ➤ Management Objective: To prevent Public and staff exposure to noise. ➤ Management criteria: Mining crew(s) should comply with the DMR and provincial noise requirements <p>All equipment shall be subject to routine maintenance, which will include the checking of noise decibels or emissions. Personnel will be trained in techniques to reduce noise during operation of equipment</p> <p>The applicant will record and respond without delay to complaints about disturbing noise.</p> <p>The applicant should employ an open door policy with the landowners, nearby farmers and any other affected parties regarding issues that impact upon them.</p>
<p>Waste management</p>	<p>To avoid, reuse or recycle material where possible, correctly dispose of unusable waste(s) and do not generate pollution</p>	<ul style="list-style-type: none"> ➤ Management Objective: Comply with existing good waste management practices in terms of NEMA principles. ➤ Management Criteria: Contain all waste within designated dirty areas of



		<p>development – that is, mining sites. Ensure waste storage area does not generate pollution Cover any wastes that are likely to wash away or contaminate storm water.</p>
Archaeological and cultural interest	Sites of archaeological and cultural interest	<ul style="list-style-type: none"> ➤ Management Objective: To avoid disturbing sites of archaeological and cultural interest ➤ Management criteria: If archaeological and cultural materials are recognised during mining, protocol according to SAHRA requirements will be followed
	Graves	<ul style="list-style-type: none"> ➤ Management Objective: To avoid disturbing burial sites. ➤ Management criteria: No graves were identified on the proposed project site.
Sensitive Landscapes	Nature conservation or ecological sensitive areas	<ul style="list-style-type: none"> ➤ Management Objective: Conservation of ecologically sensitive areas. ➤ Management criteria: There are no sensitive areas on the proposed mining project site.
Regional Socio-Economic Structure	Socio-economic benefits of the project	<ul style="list-style-type: none"> ➤ Management Objective: To eventually enhance the socio-economic benefits, and create job opportunities for locals.

		<ul style="list-style-type: none"> ➤ Management criteria: No regional socio-economic benefits are foreseen at mining phase since there shall not be any profit generation
<p>Interested and Affected Parties</p>	<p>To ensure that all stakeholders are informed and aware about the proposed mining</p>	<ul style="list-style-type: none"> ➤ Management Objective: To inform all interested and affected parties about the proposed mining project as the need may arise. ➤ <input type="checkbox"/> Management criteria: The applicant should ensure that all communication channels are available in order for interested and affected parties to voice opinions or raise concerns The applicant should strive to develop a relationship of trust and credibility with interested and affected parties. ➤ applicant should ensure that all information is shared and correspondence with I&APs is fully and accurately documented.

7.1.2 Confirm that the Environmental objectives in relation to closure have been consulted with the landowners

The landowners together with the I&APs are still to be consulted with regard to the closure objectives as they may initially request the closure objectives before allowing access to the proposed site.

7.1.3 Provide a rehabilitation plan that describes and shows the aerial extent of the main mining activities

Rehabilitation of the mine has become an important consideration for government bodies, the general public and mining companies. The development of detail environmental legislation has largely reflected public and in turn government concern that mined sites retain at least a pre mining land capability and that environmental degradation be repaired. Mine design and scheduling assists in determining every activity associated with the proposed project. In that, it is critical to understand the setup of the mining activities to ensure that concurrent rehabilitation is practical and possible.

Site Clearing – Topsoil, subsoil and overburden (2 months)

Concurrent rehabilitation commences with handling the topsoil, subsoil and overburden material within the proposed area. Handling of soil material plays a critical role when conducting concurrent rehabilitation. In that, the quantity of the soil material must be known as well as the area required for storage. This is a key factor in handling the soil material since mining contractor will be shown the location appropriate for storage and possible quantities expected. The management of soil material during mining is important to ensure that the chemical and physical properties are maintained.

Initial mining strip (3-5 months)

The proposed mining operation will commence on the southern side of the property. Topsoil, subsoil and overburden will be placed adjacent accordingly as illustrated on the mining layout. Three cuts will be required as well as the sequential of replacing the soil material. The proposed mining operation will follow the same route depicted in this document to ensure proper concurrent rehabilitation.

Operational Phase (6-8 months)

Following the initial mining strip, no overburden and/or any soil material will be send for storage on the mining area. Overburden – sand will be placed at the bottom of the initial strip and grit parting will then follow.

Final void (4-7 months)

The overburden stockpile which was stored when developing the initial strip will be utilised to backfill the Final void. The material will be loaded into the trucks and discharged into the pit. The Final void is the only risk in terms of environmental liability to the Department of Mineral Resources. On the completion of filling the void, the surface (i.e. overburden and R.O.M stockpile areas) will be scrapped of any coal material and commence with revegetation. During this phase all infrastructure on site will be removed and every surface cleaned.

7.1.4 Explain why the rehabilitation is compatible with the closure objectives

The rehabilitation plan has been compiled in support of the primary closure objective which is to rehabilitate the excavated mining sites to their natural or predetermined state, or to land use that conforms to the generally accepted principles of sustainable development through restoration, remediation, rehabilitation and stabilisation remediation of the impact land to a post-mining land use capable of supporting grazing activities.

7.1.5 Quantum calculations.

(Provide a calculation of the quantum of the financial provision required to manager and rehabilitate the environment, in accordance with the guideline prescribed in terms of regulations 54 (1) in respect of each of the phases referred to)

The calculation of the quantum for financial provision was according to Section b of the working manual.

See attached Quantum calculations (appendix F)

7.1.6 Confirm that the financial provision will be provided as determined

The amount of financial provision will be paid by Malac Mining Services (Pty) Ltd immediately after the Environmental Management Plan has been approved.

8. MECHANISMS FOR MONITORING COMPLIANCE WITH AND PERFORMANCE ASSESSMENT AGAINST THE ENVIRONMENTAL MANAGEMENT PROGRAMME AND REPORTING

8.1 Monitoring of Impact Management Actions

8.1.1 List of Identified Impacts Requiring Monitoring Programmes

8.1.1.1 High level monitoring:

Bi-annual performance assessment must be conducted in line with the MPRDA (Regulation 55).

Establish a structured system of internal and external communication of incidents.

Any changes to the approved EMP which have an impact on interested and affected parties to be communicated to them and the EMP amended accordingly.

Complaints register to be established and kept up to date.

Interested and affected parties concerns to be incorporated into the project implementation.

8.1.1.2 Operational Level monitoring:

On a weekly basis all registers, procedures and records are checked against the prescripts of the EMP. Corrective action must be taken in cases of transgress where necessary.

Internal audits to be conducted by an environmentalist when deemed necessary.

Employees assigned to specific tasks.

Should the mitigation measure not be in line with the prescripts, amendments will be made and the employees will be made aware of the changes and encouraged to adhere to such.

On monthly basis, all site personnel will be inducted at the site and will be taken through the EMP and other relevant legal requirements to familiarize them with same.

Simplified signalling will be placed on site to sensitize the workers of the legal requirements attached to this EMP.

i) Responsible persons

The Site Manager is responsible for oversight of all EMP requirements. He/she may appoint an assistant to conduct internal monitoring of activities.

The latter will be responsible for the monitoring of day-to-day activities related to the mining process and report any environmental incidents to the Site Manager as per procedure to be established by both parties.

Communication lines will be drawn and will cascade from the Site Manager through to the general workers.

8.1.1.3 Roles and Responsibilities for the Execution of the Monitoring Programmes

Supervisors must be appointed to monitor the potential impacts of the above mentioned activities and Project Managers will foresee that all of the management plans are implemented. Once the mining activities have been completed, Malac Mining Services (Pty) Ltd will appoint an independent environmental officer to conduct a site visit to audit the rehabilitation and a report will be compiled and submitted to the DMR.

Table 8-1: Roles and Responsibilities

Monitoring Aspect	Role	Responsibility
Dust Monitoring	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMP</p> <p>Compliance to be monitored by the Environmental Control Officer</p>	<ul style="list-style-type: none"> - Control the liberation of dust into surrounding environment by the use of inter alia, water spraying and / or other dust allaying agents - Limit speed on the access roads to 30km/h to prevent the generation of excess dust. - Spray roads with water or an environmentally friendly dust allaying agent that contains no PCB's (eg DAS products) if dust is generated above acceptable limits. - Assess effectiveness of dust suppression equipment. - Re-vegetate all disturbed or exposed areas as soon as possible to prevent any dust source from being created. - Thoroughly soak all stockpiles to ensure dust suppression on the site.
Noise Monitoring	Site Manager to ensure compliance	<ul style="list-style-type: none"> - Ensure that employees and staff conduct themselves in



	<p>with the guidelines as stipulated in the EMP.</p> <p>Compliance to be monitored by the Environmental Control Officer</p>	<p>an acceptable manner while on site.</p> <ul style="list-style-type: none"> - Ensure that all mining vehicles are equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act.
<p>Management of weed/invader plants</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMP.</p> <p>Compliance to be monitored by the Environmental Control Officer</p>	<ul style="list-style-type: none"> - Implement a weed and invader plant control management plan. - Control declared invader or exotic species on the rehabilitated areas. - Keep the temporary topsoil stockpiles free of weeds
<p>Storm water Monitoring</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMP.</p> <p>Compliance to be monitored by the Environmental Control Officer</p>	<ul style="list-style-type: none"> - Divert storm water around the topsoil heaps, stockpile areas and access roads to prevent erosion and loss of material - Divert runoff water around the stockpile areas with trenches and contour structures to prevent erosion of the work areas. - Conduct mining in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water Affairs, and any other conditions which that department may impose.
<p>Management of health and safety risks</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMP.</p> <p>Compliance to be monitored by the Environmental Control Officer</p>	<ul style="list-style-type: none"> - Ensure that workers have access to the correct PPE as required by law. - All operations to adhere to the Occupational Health and Safety Act
<p>Waste management</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMP.</p>	<ul style="list-style-type: none"> - Ensure that vehicle repairs only take place at the off-site (Applicant Road Camp) - Collect any effluents containing oil, grease or other



	Compliance to be monitored by the Environmental Control Officer	<p>industrial substances in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility</p> <ul style="list-style-type: none"> - - Clean spills immediately to the satisfaction of the Regional Manager by removing the spillage together with the polluted soil and by disposing of them at a recognized facility - - Ensure the availability of suitable covered receptacles at all times and conveniently placed for the disposal of waste - - Store non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc, in a container with a closable lid at a collecting point. Collection should take place on a regular basis and disposed of at the recognized landfill site. Prevent refuse from being dumped on or in the vicinity of the mine area. - - Biodegradable refuse to be handled as indicated above.
Management of access roads	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMP.</p> <p>Compliance to be monitored by the Environmental Control Officer</p>	<ul style="list-style-type: none"> - - Maintain newly constructed access roads so as to minimize dust, erosion or undue surface damage. - - Divert storm water around the access roads to prevent erosion. - - Erosion of access road: Restrict vehicular movement to existing access routes to prevent crisscrossing of tracks through undisturbed areas
Topsoil Monitoring	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMP.</p> <p>Compliance to be monitored by the Environmental Control Officer</p>	<ul style="list-style-type: none"> - - Remove the first 300mm of topsoil in strips and store at the stockpile area. - - Keep the temporary topsoil stockpiles free of weeds. - - Place topsoil stockpiles on a leveled area and implement measures to safeguard the piles from being washed away in the event of heavy rains/storm water. - - Topsoil heaps should not exceed 2m in order to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen. - - Divert storm and runoff water around the stockpile area and access roads to prevent erosion.
Surface	Site Manager to	-



Water Monitoring	<p>ensure compliance with the guidelines as stipulated in the EMP.</p> <p>Compliance to be monitored by the Environmental Control Officer</p>	<p>Conduct quarterly water analysis when water is present in the stream bordering the site.</p>
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8.2 Monitoring and reporting frequency

8.2.1 Committed time frames for monitoring and reporting

Table 8-2: Monitoring and Reporting Frequency

Monitoring Aspect	Time Frames	Reporting
Dust monitoring	Throughout Construction, Operational and Decommissioning Phase	<ul style="list-style-type: none"> - Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control Officer
Noise Monitoring	Throughout Construction, Operational and Decommissioning Phase	<ul style="list-style-type: none"> - Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control Officer
Management of weed/invaser plants	Throughout Construction, Operational and Decommissioning Phase	<ul style="list-style-type: none"> - Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control Officer
Storm water Monitoring	Throughout Construction, Operational and Decommissioning Phase	<ul style="list-style-type: none"> - Daily compliance monitoring by site management



		<ul style="list-style-type: none"> - Quarterly compliance monitoring of site by an Environmental Control Officer
Management of health and safety risks	Throughout Construction, Operational and Decommissioning Phase	<ul style="list-style-type: none"> - Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control Officer
Waste Management	Throughout Construction, Operational and Decommissioning Phase	<ul style="list-style-type: none"> - Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control Officer
Management of access roads	Throughout Construction, Operational and Decommissioning Phase	<ul style="list-style-type: none"> - Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control Officer
Topsoil Monitoring	Throughout Construction, Operational and Decommissioning Phase	<ul style="list-style-type: none"> - Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control Officer

8.3 Responsible Persons

Roles and responsibilities with mining operation to the monitoring programme were discussed on the monitoring section.

8.4 Time Period for Implementing Impact Management Actions

This was discussed on the impact management action section table



BAR and EMP for mining permit on portion of holding 38 on kendal forest holdings of the farm Heuvelfontein 215 IR

8.4.1 Mechanism for Monitoring Compliance

The method of monitoring the implementation of the impact management actions, the frequency of monitoring the implementation of the impact management actions were discussed on the monitoring phase, an indication of the persons who will be responsible for the implementation of the impact management actions, the time periods within which the impact management actions must be implemented and the mechanism for monitoring compliance with the identified impact management actions.

9. INDICATE THE FREQUENCY OF THE SUBMISSION OF THE PERFORMANCE ASSESSMENT/ENVIRONMENTAL AUDIT REPORT

A performance assessment report for the Project will be submitted on an annual basis to the DMR during proposed mining operation and on a two yearly basis during operation.

10. ENVIRONMENTAL AWARENESS PLAN

10.1 Employee communication process

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

Alarms will be set at all time to ensure that if there is any risk on site it should prevent employees to be endangered. The applicant will inform his or her employees of any risk on a daily basis should any such risk be identified. This will include Health and Safety as well as Environmental Risks.

10.1.1 Description of solutions to risks

(Describe the manner in which the risk must be dealt with in order to avoid pollution or degradation of the environment)

The operations manager must ensure that he/she understands the EMPR document and its requirement and commitments before any mining takes place. An environmental Control Officer needs to check compliance of the mining activities to the management programmes described in the EMPR.



The following list represents the basic steps towards environmental awareness, which all participants in this project must consider whilst carrying out their tasks.

10.1.1.1 Site Management:

- Stay within boundaries of site – do not enter adjacent properties
- Keep tools and material property stored.
- Smoke only in designated areas.
- Use toilets provided – report full or leaking toilets

10.1.1.2 Water Management and Erosion

- Check the rainwater flows around the work areas that are not contaminated
- Report any erosion
- Check that dirty water is kept from clean water.
- Do not swim in or drink from streams

10.1.1.3 Waste Management

- Take care of your own waste
- Keep waste separate into labelled containers – report full bins
- Place waste in containers and always close lid
- Don't burn waste
- Pick-up any litter laying around

10.1.1.4 Hazardous Waste Management (Petrol, Oil, Diesel and Grease)

- Never mix general waste with hazardous waste
- Use only sealed, non-leaking containers
- Keep all containers closed and store only in approved areas
- Always put drip trays under vehicles and machinery
- Empty drip trays after rain
- Stop leaks and spills, if safe

- Keep spilled liquids moving away
- Immediately report the spill to the site manager/supervision locate spill kit/supplies and use to clean-up, if safe
- Place spill clean-up wastes in proper containers
- Label containers and move to approved storage area

10.1.1.5 Discoveries:

- Stop work immediately
- Notify site manager/supervisor
- Includes - Archaeological finds, cultural artefacts, contaminated water, pipes, containers, tanks and drums, any buried structures

10.1.1.6 Air quality:

- Wear protection when working in very dusty areas
- Implement dust control measures:
- Sweep paved roads
- Water all roads and work areas
- Minimize handling of material
- Obey speed limit and cover trucks

10.1.1.7 Driving and noise:

- Use only approved access roads
- Respect speed limit
- Only use turn-around areas –no crisscrossing through undisturbed areas
- Avoid unnecessary load noises
- Report or repair noisy vehicles

10.1.1.8 Vegetation and Animal life:

- Do not remove any plants or trees without approval of the site manager
- Do not collect fire wood
- Do not catch, kill, harm, sell or play with any animal, reptile, bird or amphibian on site
- Report any animal trapped in the work area

- Do not set snares or raid nests for eggs or young

10.1.1.9 Fire management:

- Do not light any fires on site, unless contained in a drum at demarcated area
- Put cigarette butts in a rubbish bin
- Do not smoke near gas, paints or petrol
- Know the position of firefighting equipment
- Report all fires
- Don't burn waste or vegetation

10.1.1.10 Environmental awareness training

- Describe the general environmental awareness training and training on dealing with emergency situations and remediation measures for such emergencies)
- The operations manager must ensure that he/she understands the EMP document and its requirement and commitment before any mining takes place.
- In addition to the meeting to be held with the site employees to inform them of the basic steps towards environmental awareness, the operators of earth moving equipment should be informed of the following requirements:
 - Mining within demarcated areas;
 - No-go areas;
 - Establishment of access roads;
 - Handling of hazards waste;
 - Handling of biodegradable and non-degradable waste;
 - Temporary vehicle maintenance;
 - Mining methods to be followed;
 - Handling and storing of topsoil;
 - Sloping of excavations;
 - Speed control in order to reduce dust;
 - Emergency procedure awareness.
- Labourers should be informed of the following during "toolbox talks":
 - Reporting of unusual observations to management (e.g. fossils, graves, etc.);
 - Reporting of spills to management;
 - Felling or damaging trees for firewood not allowed;
 - Making fires not allowed;
 - Demarcated areas for mining;
 - Establishing of access roads and erection of gates in fence lines;



- Status of gates of property owner;
- Toilet facilities and hygiene measures;
- Handling of waste;
- Emergency procedures awareness.

11. SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

The financial provision for the environmental rehabilitation and closure requirements of Mining operations is governed by National Environmental Management Act, 1998, Act 107 of 1998), as amended, (NEMA) which provides in Section 24P that the holder of a mining right must make financial provision for rehabilitation of negative environmental impacts. The financial provision will be reviewed annually.

12. UNDERTAKING

The EAP herewith confirms

- The correctness of the information provided in the reports
- The inclusion of comments and inputs from stakeholders and I&APs ;
- The inclusion of inputs and recommendations from the specialist reports where relevant; and
- that the information of inputs and 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



Signature of the Environmental Assessment Practitioner:

TPR MINING RESOURCES (PTY) LTD

Name of Company:

16 January 2023

Date:

-END-

13. THE FOLLOWING APPENDIXES ARE ATTACHED

- **Appendix A – Site Map**
- **Appendix B – Photographs**
- **Appendix C – Facility illustrations**
- **Appendix D – Consultation Report**
- **Appendix E – Specialist Reports**
- **Appendix F – Quantum Calculation**
- **Appendix G – Screening Tool Report**
- **Appendix F – Other information**