DRAFT ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATION IN TERMS 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 IN TERMS OF THE MINERAL AND PETROLEUM RESOURCE DEVELOPMENT ACT 2002 (MPRDA) AS AMENDED.

NAME OF APPLICANT : Lephalale Mining (Pty) Ltd

REFERENCE NUMBER : NC 30/5/1/1/2/ 13343 PR

FARM NAME : Blok AA 689

MAGISTERIAL DISTRICT: Kuruman

COMMODITY : Iron ore, Manganese ore, REE, Jaspilite, Copper ore, Lithium, Diamonds, General Sand, Silica sand, Aggregate, Shale, Kaolin, Dimension stone, and General Clays

DATE : July 2023

STANDARD DIRECTIVE

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

Unless the Environmental Authorisation 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, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1) (c) the competent Authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of applications. It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or a permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

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

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SOURCES

1. Council for Geoscience (C J Vorster),2007
2. Statistics South Africa(census), 2011
3. http://www.samsamwater.com/climate,2016

LIST OF FIGURES

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1. IDENTIFICATION OF THE APPLICATION IN RESPECT OF WHICH THE ENVIRONMENTAL MANAGEMENT PLAN IS SUBMITTED.

Table 1-1: Details of the applicant

ITEM	COMPANY CONTACT DETAILS
Company Name	Lephalale Mining (Pty) Ltd
Full Name and	C Motsepe
Tel no	079 492 1944
Fax no:	086 599 3318
E-mail address	cmotsepe@law.co.za
Physical address	82 Maude Street Sandton Johannesburg 2031

Table 1-2: Details of the EAP

ITEM	CONSULTANT CONTACT DETAILS
Name	TPR Mining Resources (Pty) Ltd
Tel no	012 3456321
Fax no:	086 599 3318
Cellular no	079 244 2470
E-mail address	info@tprmining-resources.co.za
Physical address	27 Geringer Street, Witbank Mpumalanga Province 1035

Project team

EAP: Ms Pheladi Mphahlele

Qualification: Bachelor of Earth Sciences in Mining and Environmental Geology

Project Manager: Mr. Thato Ramoraswi

Qualification: BEnvSc (Environmental Science), Cert Waste Management

2. Location of the overall activity

Table 2.1: Details of the affected site

Farm name	Blok AA 689
Application area(Ha)	46, 800Ha
Magisterial district	Kuruman
Distance and direction from nearest town	Approximately 35 km south east of Kuruman town along the R31 connecting to r372 route to Grasrug.
21 digit Surveyor general code for each farm portion	C04100000000068900000

3. INTRODUCTION

Lephalale Mining (Pty) Ltd have applied for an Environmental authorisation for prospecting right on portions 9, 10, 13, 16, 33, 34, 36, 46, 50, 52, 57, 61, 65 and 72 of farm Blok AA 689, situated within the jurisdiction of Ga-Segonyana Local Municipality of John Taolo Gaetsewe District in Northern Cape Province.

The proposed prospecting area will be explored in three phases namely; literature review, Site observation, field mapping and drilling. The type of drilling to be used has minimal impact on the environment.

Literature review is the first stage of prospecting wherein scientists need to conduct a research about the location, geology and the suitable prospecting method by means of books, journals, internet, article etc. This is done in order to gain an overview of the study area and gathering as much information for reference.

Site observation takes place when scientist personally goes to site and discovers the functioning of the site. Scientist can gain first-hand knowledge of the geology, vegetation, Land-use activities and operations that occurs around the study area.

Field mapping include the description of the geologic features and structural geometry of a deformed field area, simultaneously conducting geophysical survey.

Drilling phase will involve drilling of the positioned boreholes using a diamond core drilling technique. A sump will be constructed at each drilling site for the storage of water used to cool the drill rig. The sump will be constructed to be one square meter in size and have a maximum depth of one metre. Soils removed from the sump (1 cubic meters) will be placed adjacent the drilling site and used for rehabilitation of the site after drilling.

Boreholes will be drilled at pre-planned sites. The boreholes will be drilled to intersect all the expected Iron ore, Manganese ore, REE, Jaspilite, Copper ore, Lithium, Diamonds, General Sand, Silica sand, Aggregate, Shale, Kaolin, Dimension stone, and General Clays seams and will be logged by the geologist. The Iron ore, Manganese ore, REE, Jaspilite, Copper ore, Lithium, Diamonds, General Sand, Silica sand, Aggregate, Shale, Kaolin, Dimension stone, and General Clays samples will be sent to the laboratory for quality analyses. This data will form the basis for the geological modelling and financial evaluation.

This activity is contemplated under NEMA ACT (107 of 1998), as amended and section 16(4) of the Mineral Petroleum Resource Development Act 2002 (Act 28 of 2002) as amended.

3.1 Project locality

The area where prospecting will take place is located approximately 35 km south east of Kuruman along the R31 connecting to r372 route to Grasrug.

Site Co-ordinates of the application area

No:	X	Y
1	-27.6509	23,6557
2	-27.7135	23.7135
3	-27.7197	23.5297
4	-27.7425	23.4715
5	-27.8959	23.5561
6	-27.8343	23.6469
7	-27.7999	23.7932

8	-27.7329	23.7817
9	-27.7047	23.7852
10	-27.6959	23.7482
11	-27.6562	23.7518

4. Locality Map of the proposed farm Blok AA 689

See attached Locality **Appendix A**

4.1 Description of the Scope of the proposed overall activity

4.1.1 Listed and specified activities

Table 4.1: listed activities

Name of activity E g. for prospecting drill 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)**
Drill site (indicated by circular dots)	10Ha	X	GNR 983(Activity 20)
Ablution facility(mobile hired toilets closer to each drill site)	$0.5M^2$		
Equipment storage (outside prospecting site)			
Sample storage (outside prospecting site)	not applicable		
Site office (No site office to be established)	not applicable		
Access route(Pre-existing access routes will be used)	100m		

4.2 DECRIPTION OF THE ACTIVITIES TO BE UNDERTAKEN

4.2.1 Minerals to be prospected

Lephalale Mining (Pty) Ltd intends to prospect for Iron ore, Manganese ore, REE, Jaspilite, Copper ore, Lithium, Diamonds, General Sand, Silica sand, Aggregate, Shale, Kaolin, Dimension stone, and General Clays utilising Diamond core drilling

and ore sampling. Drilling will be conducted on specified drilling points that are logged by the geologist.

4.2.2 Methods to be used for prospecting

Invasive methods

Invasive methods will include diamond core drilling which is preferred when prospecting for Iron ore, Manganese ore, REE, Jaspilite, Copper ore, Lithium, Diamonds, General Sand, Silica sand, Aggregate, Shale, Kaolin, Dimension stone, and General Clays and associated minerals. Core drilling is done in order to ascertain the stratigraphy and reef horizon of the ore body.

Non-invasive methods

Non-invasive methods includes ground magnetic survey and produces minimal impact on the environment. The ground magnetic survey will assist in identification of plotted sites within the boundary of the farm where drilling will take place, this type of survey is used to determine the required data for mapping of the ore body. Geophysical survey and field reconnaissance will also be undertaken in order to obtain detailed data of the ore to be prospected. Both the invasive and non-invasive will be utilized during the prospecting activities.

4.2.3 Environmental Attributes

The environmental attributes will be determined through the baseline assessment. A baseline assessment will be undertaken to describe the environment that is likely to be affected during prospecting. The baseline assessment will include the local setting and infrastructure, climate, topography, soil and land capability, land use, biodiversity (including threatened and endangered species, plants of medicinal value and conservation areas), surface water, groundwater, geology, noise, air quality, places of cultural interest and sensitive landscapes (including wetlands, heritage sites and land claims), the socio-economic setting and waste.

4.2.4 Identification of impacts and risks

The environmental risk analysis will be performed to identify potential environmental impacts associated with the prospecting project.

4.2.5 Consideration of alternatives

No possible alternative has been envisage at the current moment, if things change in future such information will be made available, However should the prospecting right be granted that will assist the applicant to consider applying for either a mining permit or a mining right depending on the outcome of the drilling results.

4.2.6 Process to assess and rank impacts

Various ranking include probability, duration, scale and magnitude.

Once these factors have been ranked for each impact, the significance of the two aspects, occurrence and severity, will be assessed using the following formula:

SP (Significance points) = (Magnitude + Duration + Scale) x Probability

The maximum value is 100 significance points (SP). Risks are identified as potentially significant (High, >60 SP), Moderate (30 – 60 SP) or insignificant (Low, <30 SP).

In some instances risks can be rated as uncertain or unknown. Risk management strategies will be identified for the potentially significant risks, while the uncertain risks will be re-evaluated after a data collection and analysis programme.

4.2.7 Contribution of specialists reports

Vegetation sensitivity specialists can assist in determining any protected species within the prospecting area including protected terrestrial areas. Such information will assist in remediation phases and rehabilitation. Geohydrological studies can aid in developing monitoring and mitigation measures to reduce contamination of underground water during drilling phase, archaeological investigation of ancient habitation or graves.

4.2.8 Determination of impact management objectives and outcomes

- Fire management plan: To ensure that the prospecting area is prepared in the event of a fire breaking out.
- Boreholes drilling management: All drilling rigs will be fitted with appropriate dust and noise suppression equipment like water sprays and mufflers.

5. Policy and Legislative Context

Table 5.1: listed activities

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
National Environmental Management Act 107 of 1998,GNR 983 Listing Notice 1, Activity 20	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)
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 prospecting 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(NHA)	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 prospecting 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 prospecting right has been lodged with the

		Department of Mineral Resources in terms MPRDA (28 of 2002)section 16
National Water Act(Act 36 of 1996)NWA	Department of Water Affairs	Application for a Water-use licence will be applicable should any water resources is disturbed within the prospecting area.
Conservation of Agricultural Resource Act(Act 43 of 1993)CARA	Department of Agriculture and Fisheries	Protection of agricultural resources from any prospecting activities will be practised.

5.1 Need and Desirability of the proposed activities

According to the geological characteristics of the proposed prospecting area. The farm Blok AA 689 is situated 35 km of Kuruman along the R31 connecting to R372 route to Grasrug. The type of prospecting to be conducted has minimal impact on the environment as it will only involve geophysical survey, drilling and sampling of ores, to determine the quantity and grading of the ore.

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.

5.1.1 Socio economic

Mining contributes to the local GDP of the Kuruman and Khathu towns and local areas, with the existing mining operations of the commodities applied for. The distribution of Iron ore, Manganese ore, REE, Jaspilite, Copper ore, Lithium, Diamonds, General Sand, Silica sand, Aggregate, Shale, Kaolin, Dimension stone, and General Clays reserves reserves is in abundance around the areas of Kuruman and Khathu. This will attract foreign investment to the local town and nearby communities through transportation, beneficiation.

Introduction of mining operations will attract businesses to invest as there is already mining developments taking place due existence of the commodities

existing around the farm area. The town of kuruman and khathu consist of marginal residential site and few streets with retail and entertaining facilities. Introduction of mining operations will attract businesses to invest within the surrounding area, as a result bring development of parks, shopping Malls recreation facilities. This will improve social cohesion for the local communities.

The Ga-Segonyana Local Municipality comprises of a total population of 93 651 whereby the working age are about 63,2% while the non-working are 33,7%. It is estimated that youth unemployment in the municipal area is 43,2 (Statistics South Africa, 2011). So with the approval of the prospecting project, the youth unemployment still has a chance to be reduced. Mining operation will boots local SMMEs and business, which will in turn reduce unemployment rate around the area.

5.1.2 Location suitability

The farm area is characterised by grassland, reddish ground cover, fences, agricultural and livestock farming activities. There is low–residential concentration within the proposed farm area, which provides suitable establishment of prospecting activities. The commodity which is proposed to be prospected is geologically distributed within and around the farm area.

5.2 Motivation for the overall preferred site, activities and technology alternatives

5.2.1 Preferred site

Due to the remote prospecting area, the potential impacts on the surrounding environment associated with prospecting is deemed of low significance. It is proposed that all prospecting related temporary infrastructure will be contained within the boundary of the prospecting area. As no permanent buildings will be established on site the layout / position of the temporary infrastructure will be determined by the prospecting progress and available space within the applied hectares of prospecting area.

Lephalale Mining (Pty) Ltd will make use of temporary infrastructure during the prospecting operations. Prospecting will only to be done on vacant areas, close to access road and grasslands as the area comprises of shrubs and grasslands, where no flora will need to be removed or disturbed. Workers will be transported to and from the site daily. The Kaapvaal Craton consists of mostly of the applied commodities.

5.2.2 Technology alternatives

The proposed exploration programme will be carried out in two phases. The first phase involves a desktop study in order to identify target sites for exploration drilling. This will include a review of available information, creation of geological and financial model and the identification of target sites for sampling.

The second phase of exploration will require the drilling of a first borehole to a certain depth in (m). Assuming the targeted seams are encountered during drilling, Cores will be raised and sections inserted into sampling canisters. The samples will then be taken to a laboratory for testing and analysis.

5.2.3 Summary of exploration programme to be undertaken. Desktop study:

This programme aims to assess historical data and surrounding properties. Properties and previous work done on the property will comprise of the following key activities:

- Historical data
- Previous prospecting activities
- Prospecting activity
- Challenges relating to exploration and mining
- Depth
- Thickness of the ore body
- Size of the ore body

5.2.4 Geological Mapping

After conducting a desktop study of the property the next subsequent activity will entail a field mapping the area to determine various rocks and minerals that have an economic potential a detailed mapping programme needs to be undertaken so as to identify the rock and mineral where there is ore mineralization present.

This might include the following mapping techniques such as:

- Identifying various rock and mineral lithologies.
- Mapping geological structures that might be of economic importance.
- Mapping alteration processes that might be of economic importance such as weathering, leaching, dissolution and enrichment processes

5.2.5 Structural Mapping

The programme will determine the dip of the ore body and the strike of the ore body. Furthermore, structure such as faulting and folding will be mapped out from the mapping exercise all areas that need to be drilled will be properly sited on site.

5.2.6 Location of Suitable boreholes

Drilling

Diamond core drilling will be used to test the delineated targets and to recover core sample for geochemical testing. Diamond core drilling (HQ diameter), logging (geotechnical, geological and cutting and geochemical sampling of the core. Initially, 800 metres will be planned to be drilled across 4 drillholes with each drillhole comprising 200 metres. However, it should be agreed upon that the end of hole (EoH) of each borehole would be determined by the project geologist who had the best oversight of local geology and drilling progress.

- Diameter (0,036mm)
- Depth (800 m)

Table 5-2: calculations of the size (area) of a borehole

A	**∏**	**r^2**	**m**
Area	pie	radius	metres
$A = \prod r^2$ **$A = \prod \times (0{,}018m)^2$** **$A = 1.01 \times 10^{-3}\ m^2$ (size of each borehole)**			

5.2.7 Types of equipments that is going to be used during the operation

Drilling of holes- Standard Diesel powered drilling rig will be used for the holes. Site visit - Standard 4x4 Bakkie.

6. Description of the process followed to reach proposed preferred alternatives within the site

6.1.1 Details of the development footprint alternatives considered

ANALYSIS OF ALTERNATIVES

In terms of the NEMA EIA Regulations one of the criteria to be taken into account by the competent authority when considering an application is “any feasible and reasonable alternatives to the activity which is the subject of the application and any feasible and reasonable modifications or changes to the activity that may minimise harm to the environment”. Alternatives are defined in the Regulations as “different means of meeting the general purpose and requirements of the activity”. It is therefore necessary to provide a description of the need and desirability of the proposed activity and any identified alternatives to the proposed activity that are feasible and reasonable, including the advantages and disadvantages that the proposed activity or alternatives will have on the environment and on the community that may be affected by the activity.

6.1.2 Property alternative

The prospecting sites will be determined by the location of the ore body using dataset collected during geophysical surveys, which will aid in identifying sensitive environments which will be avoided.

6.1.3 Technology alternative

There are available drilling types that are used for prospecting activities namely

- **Percussion drilling**

It is a manual drilling technique in which a heavy cutting or hammering bit is attached to a rope or cable is lowered in the open hole or inside a temporary casing.

- **Rotary core drilling**

It is a drilling technique that uses sharp and rotational drill bits to create holes in the earth’s crust.

- **Multi-combination rigs**

It is a drilling technique that uses both the percussion and rotary drilling techniques.

Trenching can also be an alternative prospecting method but at the same time produces significant environmental impact on the site where prospecting will be conducted.it involves excavation of a deep narrow hole as opposed to a drill rig which will utilize about a 100m^2 in size.

6.1.4 No-go alternative

The no-go alternative will hinder development within and around the area and will not provide sufficient evidence of possible mine development within the farm properties as it was investigated from previous studies done.

7. Details of the Public Participation process followed

7.1 Confirmation of consultation

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

The interested and affected parties have been confirmed to this matter. Site notices were placed on and around the site in accessible areas. A newspaper advertisement will be published on the **Khathu Gazette/ Noordkaap Bulletin** newspaper to inform interested and affected parties of the prospecting activities. (See attached **Appendix D**).

Consultation will be done with the relevant landowner regarding the proposed prospecting during the consultation site visits. 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 landowners. See **Appendix D**

7.2 Record of the public participation and the results thereof

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 prospecting area. Site Notices and Newspaper advert will be placed to allow members of the surrounding community to comment on the proposed prospecting application. **See Appendix D**

7.3 The details of the engagement process

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

The following information was provided to the landowner, interested and affected parties through site notices, newspaper advertisement, emails and telephones:

Lephalale Mining (Pty) Ltd is planning as part of the prospecting work to conduct drilling operations on the logged positions of the geologist which will be rehabilitated. The aim of the prospecting is to determine whether there is any viable Iron ore, Manganese ore, REE, Jaspilite, Copper ore, Lithium, Diamonds, General Sand, Silica sand, Aggregate, Shale, Kaolin, Dimension stone, and General Clays to be extracted in the long term. Should the prospecting study provide enough information in terms of a feasible long term mining project, an application will be made to the Department of Mineral Resources and Energy for an either a Mining permit or right. Should this be the case, the option of purchasing some of the properties can be investigated and negotiated with the various owners.

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

Table 1.10.1: 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?
Landowners 9-Burgershope 10-Gezina Trust 13-Goodhope Boerdery 16-Van Rooyen Eiendome Trust 33-D and L Trust 34-Lombaard Stella 36-Pretorius Zelma Gertruida 46-Pretorius Jacobus Wilhelmus 50-Kriekbult Boerdery 52-Wessels Trust 57-Goodhope Boerdery 61-Pretorius Jacobus Wilhelmus 65-‘’ 72-Groenvlei Trust		Emails were sent	Still waiting for response

Department of Agriculture, Environmental Affairs, Rural Development and Land Reform	162 George Street, Kimberlite Building, Kimberley, 8301	Emails were sent	We are still waiting for response
Department of Water and Sanitation	28 Central Road, Beaconsfield, Kimberly, 8301 053 830 8800/ 7600	Emails were sent	We are waiting for responses
Department of Roads and Public Works	1 st Pauls Rd, Colville, Kimberley, 8301 053 839 2100	Email were sent	We are waiting for responses
SAHRA	www.sahris .co.za	Emails and documents were sent	We are still waiting for response
Ga-Segonyama Local Municipality	Cnr Voortrekker and School Streets, Kuruman, 8460 053 712 9300		
Department of Environmental Affairs and Nature Conservation	6236 Kgosimothibi Street, Mothibistad, 8460 Tel: 087 630 0352		
Department of Agriculture, Forestry and Fisheries			

7.3.3 List of views raised by consulted parties regarding the existing cultural, socio-economic or biophysical environment.

No comments received thus far

7.3.4 List of views raised by consulted parties on how their existing cultural, socio-economic or biophysical environment potentially will be impacted on by the proposed prospecting or mining operation

We are still awaiting for the interested and Affected Parties views.

7.3.5 Other concerns raised by the aforesaid parties.

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

See attached **Appendix D.**

7.3.7 Information regarding objections received.

No objections have been registered to date.

7.4 The manner in which the issues raised were addressed

The interested and affected parties will be given an opportunity to raise their concerns through public participation within the prescribed timeframes to allow the landowner, Interested and Affected Parties sufficient time to respond and raise issues. The raised issues will be addressed by the EAP before submission of the final BAR. See attached emails **Appendix D**

8. 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	Issued 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**				
9-Burgershope 10-Gezina Trust 13-Goodhope Boerdery 16-Van Rooyen Eiendome Trust 33-D and L Trust 34-Lombaard Stella 36-Pretorius Zelma Gertruida 46-Pretorius Jacobus Wilhelmus 50-Kriekbult Boerdery 52-Wessels Trust			Still waiting for response		**Appendix D**

57-Goodhope Boerdery 61-Pretorius Jacobus Wilhelmus 65-‘’ 72-Groenvlei Trust					
Lawful occupier/s of the land					
	X	N/A			
Landowners or lawful occupiers of adjacent properties					
N/A					
Municipal Councillor					

N/A					
Municipality					
Ga-Segonyana Local Municipality	X		Still waiting for response		**Appendix D**
Organ of state(Responsible for infrastructure that may be affected Roads department, Eskom, Telkom, DWA					
Department of Water and Sanitation			No comments received thus far		
Department of Roads and Public Works			No comments received thus far		
Communities					
N/A					
Department of Land Affairs					
Department of Rural			Still waiting for response		**Appendix D**

Development and Land Reform(Land Restitution Support)	X				
Traditional Leaders					
N/A	X				
Department of Environmental Affairs					
Department of Environmental Affairs and Nature Conservation	X		Still waiting for response		**Appendix D**
Other Competent authorities affected	N/A				
SAHRA	x		Still waiting for response		**Appendix D**
Other affected parties					
Department of Agriculture, Forestry and Fisheries	X		Still waiting for response		
Interested parties	N/A				

9. Environmental Attributes associated with the alternatives

9.1 Baseline environment

9.1.1 Type of environmental affected by the proposed activity

(a) Climate

The Northern Cape is generally hot and dry. Maximum summer temperatures often exceed 40°C. During winter, the average daytime temperatures are mild and night time temperatures may drop below 0°C. There are four climatic zones in the Northern Cape: hot desert, cold semi-arid, cold desert and hot semiarid. Kuruman (where the project area is located) is classed as a cold semiarid area. Rainfall data from the South African Weather Stations (SAWS), due to the semi arid nature of the area, evaporation levels exceed annual rainfall. Wind direction in Kuruman is predominantly from the north east. The main sources of air pollution in the Northern Cape are biomass burning and mining, followed by industry and motor vehicles. Biomass burning is a major contributor of carbon monoxide (CO) whereas mining contributes particulate matter and total suspended particles (TSP). Long range atmospheric transport of air pollutants from the industrialised Highveld and biomass burning in southern and central Africa may influence ambient air quality over parts of the Northern Cape.

(b) Hydrology

The project area is located in quaternary catchment D41K, within the Lower Vaal River Water Management Area (WMA) and Drainage Basin D (Orange River basin). The Lower Vaal WMA is located downstream of the Bloemhof Dam and upstream of Douglas Weir. It extends to the headwaters of the Harts, Molopo and Kuruman River in the north and the Vaal River Downstream of Bloemhof in the south. The Lower Vaal WMA covers a catchment area of 51,543 km2. The Lower Vaal WMA can be subdivided into three sub catchments; Harts, Vaal downstream of Bloemhof and Molopo. The quaternary catchment is located within the Molopo sub-area. Due to the low rainfall, flat topography and sandy soils over much of the WMA, little usable surface runoff is generated in the water management area. The runoff is highly variable and intermittent. Although occasional runoff occurs in the upper reaches of the Molopo River, no record exists of flow having reached the Orange River (according to the Overview of Water Resources Availability and Utilisation, 2003). The estimated runoff for the Molopo sub area is 197 million m3/a. The prospecting area is situated next to the Kuruman river but does not contain rivers within its boundaries.

Terrestrial Ecology The greater project area falls within the Savanna Biome, within the Eastern BAR and EMPR for prospecting right on remaining extent on farm Eildon 456 Kuruman Rd 32 Kalahari Bushveld Bioregion and the Inland Saline Vegetation Bioregion. Only one vegetation type is associated with the project area, namely the Kathu Bushveld vegetation type, which is listed as Least Threatened in terms of Section 52 of NEMBA). The Ecosystem protection levels in Kathu Bushveld ecosystems are not protected as depicted in Figure 9 (less than 5% of the biodiversity target is met in formal protected areas). The proposed prospecting area is located in the Griqualand West Centre of Endemism. CBA's are terrestrial and aquatic features in the landscape that are critical for retaining biodiversity and supporting continued ecosystem functioning and services. CBA's need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. Ecological support areas (ESA's) are areas that are not essential for meeting biodiversity representation targets/thresholds but which nevertheless play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration. There are no CBA's or ESA's within the prospecting area – the surrounding areas are classified as "Other Natural Areas" while the prospecting area itself is bare / transformed by historic mining activities as per the Land Use and Land Cover. Noise The prospecting area is located within the Kuruman town part of the south next to the industrial area. The typical noise rating in the area and is expected to be that for rural districts / suburban districts with road traffic. According to SANS 10103:2008, the continuous noise rating level is thus likely between 35 dB(A) at night to 45 /50 dB(A) during the day. Soil and Terrain Regional soils for the prospecting area are ferralic arenosols. Arenosols develop during the weathering of quartz-rich material. The soils have a loamy sand or coarse-grained texture and occur at a depth of at least 50 cm from the surface. The soil typically has less than 35% rock fragments by volume. The soil type is generally suitable for extensive stock grazing but could be used for arable crops if well irrigated. Quartz and feldspars are the dominant minerals in arenosols with lesser micas, pyroxenes, amphiboles, olivines, and heavy minerals (such as zircon, garnet, tourmaline, etc). Arenosols generally lack structure, they are not sticky when wet and loose grains when dry. A cemented layer may occur at some depths. Arenosols is a World Reference Base soil type, in terms of South African classification, arenosols would classify as 'plinthic', 'oxidic' or 'cumulic' soil groups. As per the distribution of these soil types, oxidic and cumulic soils are known to occur in the project region, with oxidic soils generally being in greater abundance. Cumilic soils are generally young soils with an orthic topsoil but weakly developed subsoil and formed in colluvial, alluvial or aeolian environments. Oxidic soils are generally iron enriched through weathering with an orthic topsoil layer. The soils within the region of the prospecting area can be

broadly categorised into groupings associated with the different types of vegetation (Mucina and Rutherford, 2006). The Kathu Bushveld vegetation type are hosted on aeolian red sand, surface calcrete and deep (>1.2m) sandy soils of Hutton and Clovelly soil forms

(c) Geology and Mineral Potential

The manganese deposits are confined to the Hotazel Formation of the Griqualand West Supergroup of the middle Proterzoic age. The base of the Hotazel Formation consists of a bright-red banded iron-formation bed (varieng from massive to fine grained specularite and/or euhedral magnetite cystals) overlying volcanic glass breccias and lavas of the Ongeluk Formation. The banded iron-formation units grade into microcrystaline kutnohoritic ovoid-rich braunite rock. The kutnohorite in this area is concentrated in voids, which represent partially compacted, early diagenetic concreations in hematite and braunite rock. The braunite rock bed of the lower section of the lowest of the three sedimentary cycles present in the Hotazel Formation, is between 5 and 45m thick. This is the major ore unit of the Kalahari manganese field with a manganese content varying between 20 and 48 weight per cent. The middle manganese-bearing unit (cycle 2) is a maximum of 2m thick and in not economically viable. The top manganese ore body was mined in previous years. It rarely exceeds 5m thickness. Grey hematitic and manganese minnesotaite rocks are found between the lower and the middle manganese ore bodies.

About 1300 million years ago a widespread hydrothermal event occurred in the north-western portion of the Kalahari manganese field which reached temperatures up to 450oC in the Wessels, N'Chwaning and Black Rock Mines. This event decarbonated and desilicated portions of the Hotazel Formation to the north-west and thus upgraded the manganese content of the ore. Furthermore the hydrothermic event is of great significance for from the collectors point of view as a wide range of rare as well as unusual mineral combinations where produced.

(d) Fauna and Flora

Veld type SVcb 23 which is the largest part of the area of study is described by Mucina and Rutherford (2006) as least threatened, but with one third of the remaining vegetation regarded as degraded, would probably be regarded as susceptible. The largest veld-types are as follows: False Grassveld, Sourish Mixed Bushveld, Sour Bushveld, Mixed Bushveld, North-Eastern Mountain Sourveld and a relatively small area of Lowveld Sour Bushveld.

9.1.2 Description of the current land uses

The study area comprises of buildings, grassland, agricultural and livestock farming, Since the area consist of the above mentioned, such will be avoided during the drilling phase of the programme as drilling will be undertaken 100m away from the features. The applicant intends to prevent impacts on the sensitive areas such as flora and fauna.

9.1.3 Description of specific environmental features and infrastructure on the site

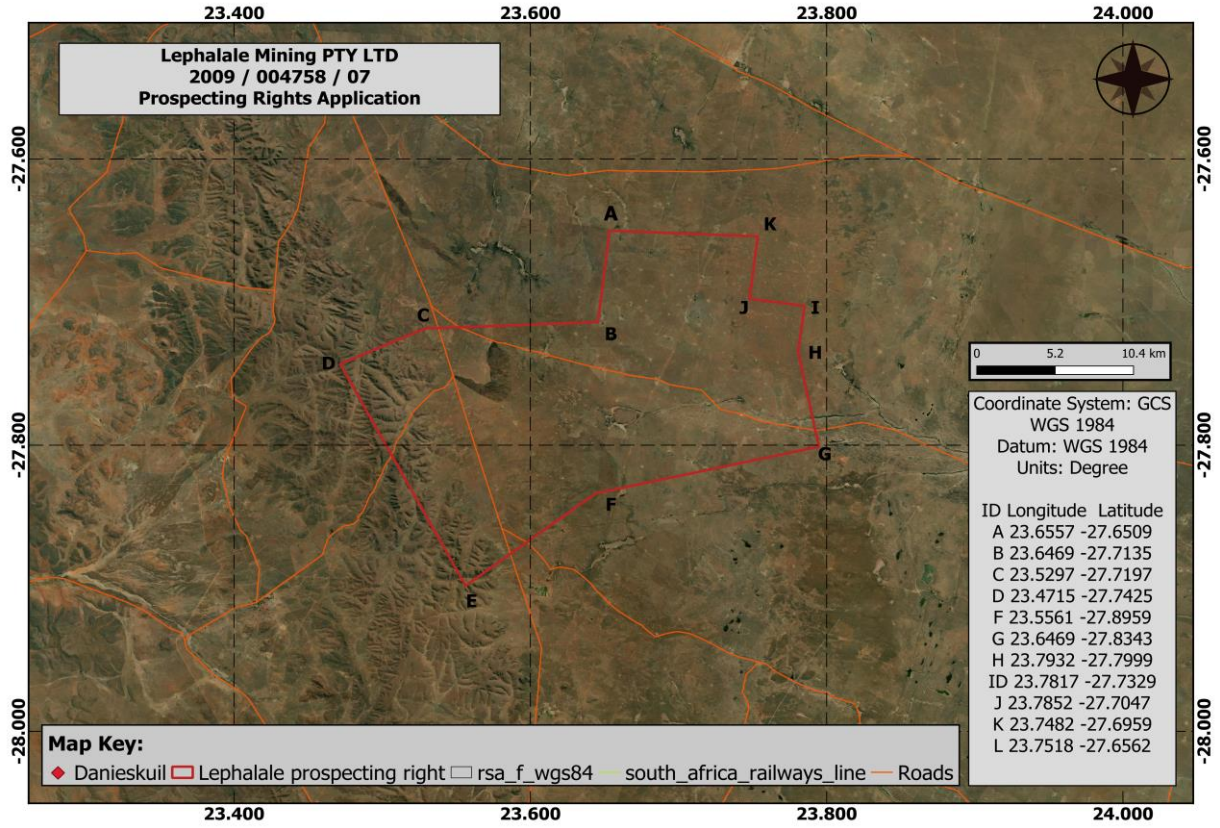

Figure: 9.2: Aerial map

9.1.4 Environmental and Current land use Maps

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

10.1 POTENTIAL IMPACTS OF THE PROPOSED PROSPECTING OR MINING OPERATION ON THE ENVIRONMENT, SOCIO-ECONOMIC CONDITIONS AND CULTURAL HERITAGE.

10.1.1 The main prospecting activities (e.g. access roads, topsoil storage sites and any other basic prospecting design features)

Topsoil

Topsoil shall be removed from all areas where physical disturbance of the surface will occur. Topsoil is to be replaced by direct return where feasible (i.e. replaced immediately on the area where construction is completed, rather than stockpiling it for extended periods. Topsoil shall be adequately protected from being blown away or being eroded.

Land Capability

Land capability will be negatively impacted on an area where soil is disturbed. The significance is low, the disturbance of grazing land will be restricted (kept to a minimum) to the planned prospecting site only and useful infrastructure needs to be identified.

Management action is required to ensure the rehabilitation plan is expanded to include mitigation measures. Develop closure documentation to record the rehabilitation plan and post-closure features. Will identify and negotiate with the post-closure land user, which useful post-closure structures must remain. All unsafe area to be safe as designs and approved rehabilitation closure plan.

Surface Water

Surface water is likely to be impacted on during this phases, despite stringent precautions. This would also be the case during the prospecting activities in most cases however; the nature of pollutants/ spillage would not lead to toxicity just soils (Suspended solids) and vegetative waste.

Ground Water

It is not expected that the prospecting activity will impact on the groundwater quality. The drilling machine that we will use is a reverse circulation rig that does not contaminate ground water.

Air Quality

It is not expected that amount of dust will be generated during the drilling phase. The impact will be insignificant and will be controlled with water carts where

needed. The majority of the prospecting is undertaken in a wet state with little possibility of dust or air quality impacts.

10.1.2 Plan of the main activities with dimensions

Please refer to the Prospecting Work Programme for a plan depicting all possible activities that will take place as part of the prospecting.

10.1.3 Description of construction, operational, and decommissioning phases.

- **Construction Phase**

Detailed site survey and investigation will involve demarcating sensitive and protected areas by geophysical survey of the proposed area by a suitably qualified person. A Handheld proton magnetometer will be used to perform the magnetic survey over the proposed prospecting.

All exploration boreholes sites will be staked by the suitably qualified person. The sites will thereafter be plotted on a plan drawn to an appropriate scale.

- **Operation Phase**

Prospecting phases are designed to be completed in annual periods allowing for compilation of results in statutory reporting. Each part of each phase is dependent on the success of the previous set of work (Please refer to the Prospecting Works Programme for details on these various phases). Programmes are by their nature not rigid and may be varied in response to results, which would result in an adjustment of expenditure as set out in the proposed budget.

The diamond drilling will be utilised to drill boreholes on a predetermined grid, during drilling of the each borehole, a sump of approximately 1.0 × 1.0 m will be excavated for storing water from the drilling operation. The top and sub-soil removed from the sump and drilling boreholes will be stockpiled in close proximity to the sump. The sump will be backfilled manually by a spade, once the drilling and sampling of boreholes is completed. The samples on the core taken from the desired horizons will be sent to the laboratory for analysis hence; concurrent rehabilitation of the disturbed areas will be undertaken as drilling takes place.

- **Decommissioning Phase**

Decommissioning of an area commences after the cessation of prospecting in the area and terminates with closure. In the intervening period between the

commencement of decommissioning and closure of aftercare and or maintenance may be imposed. A closured certificate will be applied for, once the primary decommissioning activities of demolition, rehabilitation and re-vegetation have been completed. The re-vegetation area must be self- sustaining. The drill sites are rehabilitated. Drilling material, liquid spills and refuse are cleared and transported to the relevant municipal dump site.

During final rehabilitation, Except for farm roads, no trucks and infrastructures related to the prospecting operation will remain in place after the decommissioning phase. Where tracks have resulted in more damage, such tracks will be ripped at 90o to the inherent slope, and seeded with the recommended seed mix. The sumps will be rehabilitated in such a manner to return the area to as close as possible to its pre-drilling environment.

Post closure, the prospecting area will consist of the re-vegetated areas with vegetation cover comparable to the surrounding areas. No prospecting related infrastructure will remain on the prospecting site. The area will conform to the pre-prospecting topography. The areas affected by the prospecting will be stable and erosion free.

Feasibility study will involve compiling the final geological report, reserve determination, pre-feasibility studies, mining feasibility study, market research, sales agreement etc.

After closure phase, the rehabilitated area will be monitored on a quarterly basis to ensure that the site returns to an acceptable state, in the event that is not happening naturally, the area will be seeded. After the decommissioning of the site and if it can be determined that the site is stable, an environmental authorisation for the decommissioning of the site and a closure certificate will be applied for in terms of the relevant laws.

10.2 Listed activities (in terms of the NEMA EIA regulations)

The proposed prospecting of Iron ore, Manganese ore, REE, Jaspilite, Copper ore, Lithium, Diamonds, General Sand, Silica sand, Aggregate, Shale, Kaolin, Dimension stone, and General Clays ;

Activity 20" ***Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or In Listing Notice 3 of 2014, required to exercise the prospecting right.***

10.2.1 Identification of potential impacts

(Refer to the guideline)

Table 3-1 below shows potential impacts per activity and listed activities.

Table 10-1: Potential Impacts

Activity	Impact
• Drilling programmes	• Loss of Topsoil • Impact on vegetation • Dust from roads and land • Waste Disposal • Noise • Water use

Site of geological importance will be logged by the geologist. Sensitive grassland, dusters of indigenous trees and shrubs or similar climbing that may contain a large biodiversity of threatened and endangered species will be avoided. Farmlands actively used for sheep farming preferably will be avoided especially where the drilling would be located. Access road to and around the farm regarded as preferential drilling sites where the drilling position must be structured in manner that will still allow traffic to continue normally. Heritage resources, including archaeological or paleontological site may not be disturbed without a permit from the heritage specialist.

10.2.2 Potential cumulative impacts

Loss of vegetation, during the commencement of prospecting activities, site clearance will be conducted only on positions of the borehole logged by the geologist.

10.2.3 Potential impact on heritage resources

Potential heritage sites will be identified during the planning phase to ensure that such areas are avoided. Each prospecting site will be visited prior to any work starting to identify possible heritage sites. Local knowledge will be used to identify and confirm heritage sites. Where boreholes are sited in proximity to heritage sites and depending on the proximity to the drilling site, appropriate measures such as flagging, pegging or installation of temporary fencing will be undertaken to ensure that the site is not impacted on during prospecting. The prospecting programme will be designed to avoid disturbance of heritage sites.

Potential impacts on communities, individuals or competing land uses in close proximity

There are no impacts on communities, individuals or competing land uses in close proximity to the prospecting areas, due to the limited impact of the drilling machines at any specific point in time.

We will ensure that during the prospecting activities we do not disturb the heritage site, trees, vegetation and other sensitive area in the property applied for. The interested and affected parties have identified that access roads should be the site were the drilling of hole will take place. Were the land is used for farming should be avoided. Animals should be kept protected at all times.

(If no such impacts are identified this must be specifically stated together with a clear explanation why this is not the case)

10.2.4 Confirmation that the list of potential impacts has been compiled with the participation of the landowner and interested and affected parties,

The Basic Assessment Report will be forwarded to the landowner, interested and Affected Parties for review and comments and will be given 30 days commenting period.

See attached **Appendix D**.

10.2.5 Confirmation of specialist report appended.

(Refer to guideline)

There are no individual specialist reports that were conducted as part of the Prospecting period of the project but if they will be any, confirmation will be sent as soon as it is available.

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

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

The undertaking of a screening level environmental risk assessment consist of the identification of all possible environmental risks, including those which appear to be insignificant based on the input from existing data, and the qualitative ranking of the impacts identified.

The significance of the identified impacts on the various environmental components as part of the closure phase will be determined using the approach outlined below. This incorporates two aspects for assessing the potential significance of impacts (terminology from the Department of Environmental Affairs Guideline document on EIA Regulations, April 1998), namely occurrence and severity, which are further sub-divided as on table 3.2 below:

Table 11-1: Occurrence and Severity

Occurrence		Severity	
Probability of occurrence	Duration of occurrence	Magnitude (severity) of impact	Scale / extent of impact

In order to assess each of these factors for each impact, the following four ranking scales will be used:

Table 11-2: Methodology for Impact Assessment

Probability		Duration	
5	Definite/don't know	5	Permanent
4	Highly probable	4	Long-term
3	Medium probability	3	Medium-term
2	Low probability	2	Short-term
1	Improbable / None	1	Immediate
Scale		Magnitude	

5	International National Regional	10	Very high/don't know
4	Local	8	High Moderate Low
3	Site only	6	Minor
2		4	
1		2	

Once these factors have been ranked for each impact, the significance of the two aspects, occurrence and severity, will be assessed using the following formula:

SP (Significance points) = (Magnitude + Duration + Scale) x Probability

The maximum value is 100 significance points (SP). Risks are identified as potentially significant (High, >60 SP), Moderate (30 – 60 SP) or insignificant (Low, <30 SP).

In some instances risks can be rated as uncertain or unknown. Risk management strategies will be identified for the potentially significant risks, while the uncertain risks will be re-evaluated after a data collection and analysis programme.

Table 11-3: Impact 1 – Loss of top soil

Activity			Impact	
Drilling Programmes			Loss of Topsoil	
Magnitude	Duration	Scale	Probability	Significance
2	1	1	5	Low (30)

Table 11-4: Impact 2 – Impact on vegetation

Activity			Impact	
Drilling Programmes			Impact on vegetation	
Magnitude	Duration	Scale	Probability	Significance
2	1	1	2	Low(8)

Table 11-5: Impact 3 – Dust from Road

Activity			Impact	
Drilling Programmes			Dust from Road and Land	
Magnitude	Duration	Scale	Probability	Significance
2	2	2	3	Low (18)

Table 11-6: Impact 4 – Waste Disposal

Activity			Impact	
Drilling Programmes			Waste Disposal	
Magnitude	Duration	Scale	Probability	Significance

2	2	2	4	Low (24)

Table 11-7: Impact 5 – Noise

Activity		Impact		
Drilling Programmes		Noise		
Magnitude	Duration	Scale	Probability	Significance
2	2	2	4	Low (24)

Table 11-8: Impact 6 – Water uses

Activity		Impact		
Drilling Programmes		Water Uses		
Magnitude	Duration	Scale	Probability	Significance
2	2	2	4	Low (24)

Assessment of potential cumulative impacts

Table 11-9: Impact 1 – Dust from road and land

Activity		Impact	
Drilling Programmes		Dust from Road and Land	
Magnitude	Duration	Scale	Probability
2	2	2	3
Significance			
Low (18)			

Table 11-10: Impact 2 – Noise from drilling programme

Activity		Impact	
Drilling Programmes		Noise from Drilling Programme	
Magnitude	Duration	Scale	Probability
2	2	2	3
Significance			
Low (18)			

Review or assessment of cumulative impact analysis will be done early in the process. Information that will be presented will be commensurate with the impact of the project. Greater detail will be provided for potentially serious impact, in all phases.

Proposed mitigation measures to minimise adverse impacts.

Significant cumulative impacts will be identified that may affect resources of concern and suggest measures that will avoid and minimize adverse effect to the environment.

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

Table 3-12 overleaf shows the List of actions, activities, or processes that have sufficiently significant impacts to require mitigation.

Table 11-11: List of actions, activities, or processes that have sufficiently significant impacts to require mitigation

Significant Impact	measures	Negative impacts on the environment be mitigated or managed
Dust	Low	Vehicle will be instructed to drive at low speeds Access roads will be swept regularly Prospect activities will mainly occur during season of low wind gust
Noise pollution	Low	All rigs are fitted with silencers to minimize noise Rigs will not be allowed to operate at night close to communities
Minor Exhaust Smoke	Medium	The machine will be services regularly to avoid minor smoke
Topsoil disturbance	Low	Topsoil is normally not disturbed in the process. Where topsoil is removed it is stored for later replacement i.e. for digging of drill sumps.
Oil spills	Low	Any spillage onto the ground will be dug and disposed of in designated landfill operation

Associated list of appropriate technical or management options

The best technical option is rehabilitation and the best management option to rehabilitation is adherences to a couple of important aspects by management to ensure concurrent rehabilitation to take place and the plan is continuously to reflect the latest development.

The following management options will be taking place on site, irrespective of the significance of the ratings above:

Topsoil

Topsoil shall be removed from all areas where physical disturbance of the surface will occur. The topsoil removed, shall be stored in a bund wall on the high ground side of the mining/prospecting area.

Dust control on the access roads

The liberation of dust into the surrounding environment shall be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents The speed of trucks and other vehicles must be strictly controlled to avoid dangerous conditions, excessive dust or excessive deterioration of the road being used.

Noise

Work will only be performed during daylight hours. Proper design and maintenance of equipment, including silencers and mufflers. Regular checks on the noise emissions of equipment in operation should be performed. All equipment to be used during the construction and operational phases is to be kept in good working condition. This is of particular importance for the exhaust systems of the diesel earthmoving equipment. Should complaints about the noise be received from the community, the mine needs to assess the situation and make appropriate recommendations to reduce the noise impacts on nearby residents and, where necessary, a noise specialist.

Establishing the drilling site

Drilling sites shall be sited on a practical basis after consultation with the landowner. The area required for long-term drilling sites shall also be determined after consultation with the landowner and kept to a minimum. Activities shall be restricted to the agreed area. In order to contain non-biodegradable oil and fuel spills, drip pans or PVC lining shall be provided for mobile drills and drip pans or a thin concrete slab and/or with a PVC lining shall be installed before stationary drill

rigs (long term) are erected. In the case of a need for a water supply pipeline to be laid to a site, it shall be done in consultation with the landowner and in such a manner that the surface and natural vegetation are not unduly disturbed.

Proper and frequent maintenance shall be done to minimize unnecessary spillage. In the case of long-term drilling operations, each drill hole shall have adequate measures to prevent pollution of groundwater, drainage systems or topsoil by effluent during the drilling operation. Separate pits shall be excavated and constructed for waste water and grease and oil polluted fluid. When excavating these pits, the topsoil and the subsoil shall be stored separately. These pits shall be lined with an impermeable layer of concrete or PVC to prevent pollution. The pit shall be surrounded by an earth wall of at least 50mm in height and be constructed to withstand the impact of heavy rainfall. The contents of pits and drip pans must be disposed of at a recognized facility. Any spill should be cleaned up immediately by removing the spill together with the polluted soil and disposing of it at a recognized dumping facility. On completion of prospecting, the drilling site shall be rehabilitated. Pits shall be pumped dry and the contents disposed of as described above. Linings must be removed and disposed of in the same manner. After all foreign matter has been removed from the pits, the excavations shall be backfilled with subsoil, compacted and levelled with previously stored topsoil. No foreign matter such as cement or other rubble shall be introduced into such backfilling.

All boreholes shall be covered and made safe by means of a concrete cap, unless otherwise determined. On cultivated land, where practicable, a concrete cap shall be installed at least 1 metre below the surface. Boreholes shall be backfilled and compacted with appropriate inert material and soil. No foreign matter such as rubble or waste material shall be introduced into the hole. Where drilling sites (long-term operation) have been denuded of vegetation/grass or where soils have been compacted or crusts formed, the surface shall be ripped or ploughed and if necessary appropriately fertilized to allow vegetation to grow rapidly. If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, it may be required that the soil be analysed and any deleterious effects on the soil arising from the prospecting operation, be corrected and the area be seeded with a seed mix to a certain specification.

Waste disposal

Designated areas will be planned and established for the disposal and temporary storage of all wastes on site. The necessary bins will be provided for the collection of waste. Domestic waste will be removed form site weekly by an independent waste disposal contractor to a registered or licensed disposal facility. Any hazardous waste will be stored separately in approved waste containers and

removed from the site by an independent waste disposal contractor to a registered or licensed disposal facility. Waste from the drilling operation will be place within the dumping area as indicated on the Plan and removed by subcontractors for further utilisation. Responsible waste management practices will be implemented

Surface Water

A 100m buffer zone will be placed around the existing water resources within the prospecting right boundary. No drilling or any other activity will take place within this buffer zone. The surface water resource will only be crossed at designated established crossing areas. No run-off water from the drilling programme will be allowed to run into the surface water resource.

Review the significance of the identified impacts

(After bringing the proposed mitigation measures into consideration)

All the significance impact identified has a low rating.

12. The positive and negative impacts that the proposed activity and alternatives will have on the environment and the community that may be affected

12.1 Positive impacts

12.1.1 Economic development

- The Project will create an income stream for the business that operates within the proposed area and the surrounding areas and the beneficiaries of the project especially the Kuruman and Grasrug residents as well as those of the municipalities around.
- Contribution of the business to the coffers of Tax of the Government of the Republic of SA.
- Acceleration of infrastructural developments in the area and the other rural under developed areas.

12.1.2 Job Creation

- If the prospecting is granted, the applicant will lodge an application for a mining right or permit which will stimulate the following

- Communities will benefit from the selection, appointment of casual employment that will take place as a result of construction of the project.
- This employment will be executed in line with the necessary skills required during construction, from the beginning to the completion of construction. Labour-force requirements include (artisans, engineers, builders, plumbers, construction engineers, electricians, various trades men, etc.).

Permanent jobs shall be available at the completion of the Project, when the township is operational such as domestic work within households

12.2 Negative impacts

There are minimal negative impacts that will be envisaged at this phase, due to the nature of the activity to be conducted.

For drilling phase

- Loss of Topsoil
- Impact on vegetation
- Dust from roads and land
- Waste Disposal
- Noise
- Water use

- Reduction of arable land for agricultural activities

13. Mitigation measures that could be applied and the level of risk

Significant potential impacts that were identified for the prospecting phase includes the following

- Loss of vegetation
- Soil erosion
- Spillage of drill fluid
- Disturbance of daily farming activities affecting production yield of the farm.

Mitigation measures that could be applied

- Dust suppression
- Revegetation to prevent soil erosion
- Avoiding watercourse and wetlands using buffer zones
- Conduct drilling on duration provided by the landowner.

14. Motivation where no alternative sites were considered

There has been a large increase in mining activities in Ga-Segonyana Local Municipality. This has been brought about by investor confidence in mining and positive commodity prices. Iron ore, Manganese ore, REE, Jaspilite, Copper ore, Lithium, Diamonds, General Sand, Silica sand, Aggregate, Shale, Kaolin, Dimension stone, and General Clays mining is also an enormous economic contributor to the area, and promotes economic growth and employment creation in the town of Kuruman . The majority of towns within the municipality used to be an activity node rendering a service mainly based on the railway, catering for the surrounding farming community and Iron ore, Manganese ore, REE, Jaspilite, Copper ore, Lithium, Diamonds, General Sand, Silica sand, Aggregate, Shale, Kaolin, Dimension stone, and General Clays mining industry.

The prospecting methods to be used will minimize potential impacts to the preferred site. Although the applicant has applied for a size approximately **46,800 Ha area**, it is only the specified drilling points covering an extent of **10 Ha** that will be disturbed. Some of the prospecting methods will provide that drip pans be used in order to contain non-biodegradable oil and fuel spills for mobile drills to reduce spillages.

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

It is the most suitable site to prospect for Iron ore, Manganese ore, REE, Jaspilite, Copper ore, Lithium, Diamonds, General Sand, Silica sand, Aggregate, Shale, Kaolin, Dimension stone, and General Clays on the proposed site. Geological setting of the area indicates that there is abundance of Iron ore, Manganese ore, REE, Jaspilite, Copper ore, Lithium, Diamonds, General Sand, Silica sand, Aggregate, Shale, Kaolin, Dimension stone, and General Clays reserve deposits around the area. Residences are located far from the proposed prospecting area, as a result impact on human beings will be minimal.

The prospecting area to be utilised is minimal and only specified site for drilling will be used or disturbed. Sensitive areas such as archaeological and cultural heritage features, watercourses, vegetation and infrastructures will be avoided with buffers. As indicated above prospecting phase will not require any permanent infrastructure to be constructed on site, as a result small portion of the site will be disturbed and those areas impacted will be rehabilitated.

16. Description of the process undertaken to identify, assess, rank the impacts and risks the activity will impose on the preferred site.

The prospecting methods that will be applied for drilling are non-invasive and invasive as such, there is minimal expectations of impacts for the proposed activity on the preferred site. Prospecting phase due its nature of operation provides impacts on a small scale and those impacts identified will be adhered to and monitored during and after the project phase.

17. Assessment of each identified significant impact and risks

Table 17.1

Name of Activity	Potential impact	Aspects affected	Phase	Significance	Mitigation type	Significance (if mitigated)
Site Clearance	Dust generation	Air quality	Establishment phase	Minimal negative impact	Dust suppression	Negligible negative
	Loss of topsoil	Soils	Establishment phase	Minimal negative impact	Soil stripping	Negligible negative
	Loss of fauna & flora	Fauna & flora	Establishment phase	Minimal negative impact	Limited infrastructure footprint	Negligible negative
	Sedimentation of wetlands	Wetlands	Establishment 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	Minimal negative impact	Adhering to operating hours	Negligible negative
	Soil compaction and erosion	soils	Decommission phase	Minimal negative impact	Vegetation, restrict access	Negligible negative

Drilling of prospecting boreholes	Sedimentation of wetlands	wetlands	Decommission phase	Minimal negative impact	Buffer zones	Negligible negative
	Contamination of groundwater	Groundwater	Decommission phase	Minimal negative impact	Consent from landowners from water usage	Negligible negative
Rehabilitation	Sedimentation of surface watercourses	Surface water	Decommission phase	Minimal negative impact	Rehabilitation of sumps	Negligible negative
	Soil compaction & erosion	Soils	Decommission phase	Minimal negative impact		Negligible negative
	Dust generation	Air quality	Decommission phase	Minimal negative impact	Dust management plan, vegetation	Negligible negative

18. Summary of specialists reports

Table 18.1

List of studies undertaken	Recommendations of specialists reports	Specialists recommendations that have been included in the EIA report	Reference to applicable sections where specialists recommendation shave been included in the EIA report
Soil Impact Assessment	Significance of impacts & Mitigation measures	x	Individual specialist reports were not conducted due to the minimal impacts of the proposed activities
Fauna & flora	Significance of impacts & Mitigation measures	X	Individual specialist reports were not conducted due to the minimal impacts of the proposed activities
Wetlands Impact Assessment	Significance of impacts & Mitigation measures	X	Individual specialist reports were not conducted due to the minimal impacts of the proposed activities

Surface water impact assessment	Significance of impacts & Mitigation measures	X	Individual specialist reports were not conducted due to the minimal impacts of the proposed activities
Groundwater impact assessment	Significance of impacts & Mitigation measures	X	Individual specialist reports were not conducted due to the minimal impacts of the proposed activities
Heritage impact assessment	Significance of impacts & Mitigation measures	X	Individual specialist reports were not conducted due to the minimal impacts of the proposed activities

19. Environmental impact statement

19.1 Summary of the key finding of the environmental impact assessment

Table 19.1

Project phase	Receiving environment	Impact description	Pre-mitigation significance	Post-significance
Establishment phase	social	Nuisance impacts due to heavy vehicles	Insignificant negative	Insignificant negative
	Soil, land capability	Loss of topsoil resources and capability	Minor negative	
	Fauna & flora	Loss of fauna & flora	Minor negative	
	Surface water	Sedimentation& contamination of surface water	Minor negative	
	Groundwater	Groundwater contamination	Negligible negative	
Operational phase	social	Nuisance impact due to drilling, earthworks, heavy vehicles	Minor negative	
	Soil ,land-use& capability	Soil compaction	Minor negative	
	wetland	Contamination of wetlands	Minor negative	
	Surface water	Contamination of surface watercourses	Minor negative	
Decommission phase	Air quality	Elusive dust generation	Minor negative	
	Soil ,land-use &land capability	Soil contamination, restoration of land capability		
	Fauna & flora	Destruction of suitable habitat		
	Surface water	Contamination & sedimentation of surface watercourse		

19.2 Final site Map

See attached final site Map **Appendix A**

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

Impacts resulting from establishment phase

- Clearance of site through removal of vegetation and topsoil
- Exposed area become prone to soil erosion
- Wetland deterioration

Impacts resulting from operation phase

- Nuisance of heavy vehicles
- Dust generation by heavy vehicles

20. 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

21. 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.

22. Description of any assumption, uncertainties and gaps in knowledge

The prospecting phase 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.

23. Opinion as to whether the proposed activity should or should not be authorised

23.1 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 end result of the proposed activity is to determine type, amount and value of the commodity applied for due to the demand of that commodity to the global market and the economic benefits notwithstanding the recommendations and measures to be put in place to monitor impact response and minimisation.

23.2 Conditions that must include in the authorisation

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

24. Period for which the environmental authorisation is required

The prospecting right will expire in five years' time, similarly the authorisation should active until the right expires, as contents of the authorisation will no longer serve value when prospecting phase has ended that is after including rehabilitation has been concluded.

25. 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

26. Financial provision

In accordance with the requirements of regulation 54(i) of the Mineral and Petroleum Resource Development Act, 2002 (Act 28 of 2002) Lephalale Mining (Pty) Ltd has calculated the environmental closure liability for the proposed project according to the financial provision.

26.1 Explain how the aforesaid amount was derived

26.2 Quantum calculations

(Provide a calculation of the quantum of the financial provision required to manage and rehabilitate the environment, in accordance with the guideline prescribed in terms of regulation54 (1) in respect of each of the phases referred to)

The Guidelines as prescribed by the Department indicates that a rate per hectare is required in terms of the class of mine (C class) as well as the environmental sensitivity of the mine.

26.2.1 Commodity type and saleable mineral by-product

According to Tables B.12, B.13 and B.14

Commodity type	Iron ore, Manganese ore, REE, Jaspilite, Copper ore, Lithium, Diamonds, General Sand, Silica sand, Aggregate, Shale, Kaolin, Dimension stone, and General Clays
Saleable mineral by-product	Iron ore, Manganese ore, REE, Jaspilite, Copper ore, Lithium, Diamonds, General Sand, Silica sand, Aggregate, Shale, Kaolin, Dimension stone, and General Clays

26.2.2 Risk ranking

According to Tables B.12, B.13 and B.14

Primary risk ranking (either Table B.12 or B.13	C (Low risk)
Revised risk ranking (B.14)	N/A

26.2.3 Environmental sensitivity of the prospecting area

According to Table B.4

Environmental sensitivity of the prospecting area	Low

26.2.4 Level of information

According to Step 4.2:

Level of information available	Limited

26.2.5 Identify closure components

According to Table B.5 and site-specific conditions

Component No.	Main description	Applicability of closure components (Circle Yes or No)	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)		No
2(A)	Demolition of steel buildings and structures		No
2(B)	Demolition of reinforced concrete buildings and structures		No
3	Rehabilitation of access roads	Yes	
4(A)	Demolition and rehabilitation of electrified railway		No
4(B)	Demolition and rehabilitation of non-electrified railway lines		No
5	Demolition of housing and facilities		No
6	Open rehabilitation including final voids and ramps	Yes	
7	Sealing of shafts, adits and inclines		No
8(A)	Rehabilitation of overburden and spoils	Yes	
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing)		No
8©	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich)		No
9	Rehabilitation of subsided areas		No
10	General surface rehabilitation, including grassing of all denuded areas	Yes	
11	River diversions		No
12	Fencing		No
13	Water management (Separating clean and dirty water, managing polluted water and managing the impact on groundwater)		No
14	2 to 3 years of maintenance and aftercare		No

26.2.6 Unit rates for closure components

According to Table B.6 master and multiplication factors for applicable closure components.

Component No.	Main description	Applicability of closure components (Circle Yes or No)	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)		
2(A)	Demolition of steel buildings and structures		
2(B)	Demolition of reinforced concrete buildings and structures		
3	Rehabilitation of access roads	51	1
4(A)	Demolition and rehabilitation of electrified railway		
4(B)	Demolition and rehabilitation of non-electrified railway lines		
5	Demolition of housing and facilities		
6	Open rehabilitation including final voids and ramps	301350	1
7	Sealing of shafts, adits and inclines		
8(A)	Rehabilitation of overburden and spoils	200900	1
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing)		
8©	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich)		
9	Rehabilitation of subsided areas		
10	General surface rehabilitation, including grassing of all denuded areas	159147	1
11	River diversions		
12	Fencing		
13	Water management (Separating clean and dirty water, managing polluted water and managing the impact on groundwater)		
14	2 to 3 years of maintenance and aftercare		

26.2.7 Determine weighting factors

According to Tables B.7 and B.8

Weighting factor 1: Nature of terrain/accessibility	1.1
Weighting factor 2: Proximity of urban area where goods and service are to be supplied	1.05

26.2.8 Calculation of closure costs

Table B.10 Template for level 2: "Rules-based" assessment of the quantum for financial provision (see attached calculation)

The amount that will be necessary for the rehabilitation of damages caused by the operation, both sudden closures during the normal operation of the project and at, planned closure gives a sum total of **R 63 270,47 (see Appendix E)**

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

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

27. Specific information required by the competent authority

27.1 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

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

There will be minimal impact on the socio-economic status of the persons directly affected as the prospecting phase consist of fairly marginal labour to complete the project. Potential negative impacts will be addressed in consultation with the I&APs to avoid violation of any person rights.

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

Heritage sites within the proposed prospecting area were not identified and appropriate measures have been proposed to protect such sites from the impact arising from the project.

27.1.3 Other matters required in terms of section 24(4) a and b of the Act

The report compiled together with the information includes proof of consultations, site visits pictures and minutes etc.

Environmental Management Programme Report

28. Details of EAP

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

29. Description of the aspect of the activity

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

30. Composite Map

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

31. Description of the impact management objectives including management statement

31.1 Determination of closure objectives

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

- Rehabilitation of the prospecting sites
- Reduction of the visual impact of the prospecting sites
- Information provision to the competent authority
- Submit monitoring results to the relevant competent authority

31.2 Volume and rate of water use required

Water usage will be limited to the following activities

- For drill bits to control overheating
- Dust suppression for heavy vehicles

Rate will be determined during the operation depending on the source of water available.

31.3 Has a water use licence been applied for ?

Water use licence has not been applied for due to the fact that site specific drill points are still to be determined. 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)

32. Impact to be mitigated in their respective phase

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

Table 31.1

Activities	Phase	Size and scale	Mitigation measures	Compliance with standards	Time period for implementation
Site Clearance	Dust generation	Air quality	Establishment phase	Minimal negative impact	Dust suppression
	Loss of topsoil	Soils	Establishment phase	Minimal negative impact	Soil stripping
	Loss of fauna & flora	Fauna & flora	Establishment phase	Minimal negative impact	Limited infrastructure footprint
	Sedimentation of wetlands	Wetlands	Establishment phase Operational phase	Minimal negative impact	Buffer zones
	Sedimentation & contamination of surface watercourses	Surface water	Operational phase	Minimal negative impact	Limited infrastructure footprint
	Groundwater contamination	Groundwater	Operational phase	Minimal negative impact	Avoidance and spillage attention
	Noise generation	Noise	Decommission phase	Minimal negative impact	Adhering to operating hours
Drilling of prospecting boreholes	Soil compaction and erosion	Soils	Decommission phase	Minimal negative impact	Vegetation, restrict access
	Sedimentation of wetlands	Wetlands	Decommission phase	Minimal negative impact	Buffer zones

Rehabilitation	Contamination of groundwater	Groundwater	Decommission phase	Minimal negative impact	Consent from landowners from water usage

32.2 Impacts to be mitigated in their respective phases

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

Table 32.1

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	Establishment Phase	Limited to the prospecting 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	. Establishment Phase	100 m2	Ensure topsoil is stored in one dedicated stockpile, less than 1 m high, and within the demarcated prospecting 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;
	Fauna and Flora	Establishment Phase	100 m2	▪ Minimise the size of the prospecting drill sites as far as possible
				Indigenous trees will not be

				removed
				Drainage lines, and indigenous vegetation will be avoided
				Use existing access roads
	Wetlands	Establishment Phase	Local	Ensure site clearing is limited to the designated areas
				All watercourses will be avoided and the stipulated buffer will be implemented
	Surface water	Establishment Phase	Local	Berms must be constructed around the periphery of the prospecting site to separate clean and dirty water
				Water within the prospecting site must be diverted to the water sump

				All watercourses will be avoided and the stipulated buffer will be implemented
	Groundwater	Establishment Phase	Local	All potential hydrocarbon spillages and leaks must be cleaned up immediately and the soils remediated;
				Spillage control kits will be readily available on site to contain the 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	Establishment 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
Drilling of Prospecting Boreholes	Social Nuisance	Operational Phase	Limited	Maintain drilling equipment and, if possible, fit silencing equipment
				Drilling will only take place during daylight hours
				Use a dust suppressant and keep access roads moist
				Cover stockpiles with a plastic liner in windy and rain conditions so as to prevent topsoil from eroding
	Noise	Operational Phase	Site Specific	Maintain drilling equipment and, if possible, fit silencing

				equipment
	Fauna and Flora	Operational Phase	100 m2	Remove alien invasive species as and when they occur
				Maintain drilling equipment and, if possible, fit silencing equipment
				All personnel are to remain on the prospecting drill site only
				to prevent the footprint of the site expanding and further vegetation loss
	Soil	Operational Phase Decommissioning Phase	Site Specific	Immediately cease drilling and contain and cleanup any hydrocarbon spillages as they occur
				Ensure the spill cleanup kits are readily available in the event of a spillage

				Machinery and vehicles must be serviced and maintained off site at a workshop and drip trays must be in place to capture the spillage
	Surface Water	Operational Phase	Local	Topsoil stockpiles will be covered with a plastic liner during windy and rain conditions
				Berms on the periphery of the prospecting site will be inspected daily and maintained to ensure runoff from within the
				prospecting site does not report to the catchment
	Groundwater	Operational Phase	Local	Emergency spill response plan required to handle any unplanned spillages

				Daily inspection of the drill rig must be undertaken prior to the commencement of drilling and routine maintenance▪ must be
				undertaken to prevent the likelihood of fluid dispersing and breakdowns
Decommission phase	Surface Water	Operational Phase Decommission phase	Local	The site and access roads will be kept moist to avoid the creation and disturbance of dust
				The sumps must be pumped empty and the oil and sludge must be disposed of at a registered waste facility
	Soil	Operational Phase Decommissioning Phase	100 m2	Sumps will be backfilled and the site levelled immediately after drilling has concluded

				All compacted areas will be ripped to loosen the soils during rehabilitation
	Fauna and Flora	Decommissioning Phase	100 m2	Remove alien invasive species as and when they occur
				An alien invasive management plan must be established
				All compacted areas will be ripped to loosen the soils during rehabilitation and seeded with an appropriate seed mixture

33. Impact management outcomes

Table 33.1

Activity	Potential Impact	Aspects Affected	Phase
Column 1	**Column 2**	**Column 3**	**Column 4**
Establishment Phase			
	Fugitive dust generation	Air Quality	Establishment Phase
	Loss of topsoil resources and land capability	Soils	Establishment Phase
	Loss of fauna and flora species	Fauna and Flora	Establishment Phase
	Sedimentation of wetlands	Wetlands	Establishment Phase
Operational Phase			
	Sedimentation and contamination of surface water resources	Surface water	Establishment Phase , Operational Phase
	Groundwater contamination	Groundwater	Establishment Phase
	Noise generation	Noise	Establishment Phase, Decommissioning Phase
	Soil contamination and degradation	Soil	Operational Phase, Decommissioning Phase

Drilling of Prospecting Boreholes	Alternation of visual environment	Topography and Visual Environment	Operational Phase
	Soil compaction	Soils	Operational Phase
	Sedimentation of wetlands	Wetlands	Operational Phase
	Sedimentation of surface water resources	Surface Water	Operational Phase
	Contamination of groundwater and reduction in groundwater quantity	Groundwater	Operational Phase, Decommissioning Phase
	Elusive dust generation	Air Quality	Decommissioning Phase

34. Impact management actions

Table 34.1

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 1.1	The potential impacts associated with each activity are outlined in Table 1.3	The aspects affected as a result of the potential impact are outlined in Table 1.5	The mitigation types of each of the potential impacts are outlined Table 1.4	The time periods for each of the potential impacts are outlines in Table 1.4	The compliance with the standards for the potential impacts are outlined in Table 1.1

35. Financial provision

35.1 Determination of the amount of financial provision

35.1.1 Alignment of rehabilitation with the closure objectives

(Describe and ensure that the rehabilitation plan is compatible with the closure objectives determined in accordance with the baseline study as prescribed).

The following closure objectives will be applicable for rehabilitation:

- Land disturbed will be rehabilitated to a stable and permanent form suitable for subsequent land use. The final land use will be agriculture, forestry or subsistence farming, depending on where the prospecting site is located within the project area.
- There will be no adverse environmental effect outside the disturbed area and the affected area will be shaped to ensure effective drainage.
- The disturbed area will not require greater maintenance than that in or on surrounding land after closure.
- It is required that all exploration holes be re- habilitated, which is conducted on an ongoing basis.
- Boreholes sunk in agricultural lands will have the casings removed, or cut to a minimum depth of 2m below surface, then a plug inserted at a minimum of 5m below surface and filled with concrete to 2m below surface.
- The remainder of the hole will be filled with top soil.
- Boreholes outside agricultural lands will be rehabilitated similarly and marked with a concrete beacon.

35.1.2 Confirm specifically that the environmental objectives in relation to closure have been consulted with the landowners

The landowners together with the I&APs have been consulted with regard to the closure objectives as they initially requested the closure objectives before allowing access to the proposed site, which will be provided to them on request.

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

The prospecting sites will be rehabilitated immediately following the commencement of the drilling activities. The rehabilitation process in summarised as follows:

- The drill rig and core will be removed from site
- The sumps will be pumped empty and the oil and sludge disposed of at a registered disposal facility
- The waste water will be removed from site and treated at a registered water treatment facility;
- All waste will be removed from site and disposed of accordingly;
- The sump liner will be removed and reused at another site, following the inspecting of the liner, or disposed of at a registered disposal facility;
- The sumps will be backfilled and levels;
- The site will be levelled and ripped to ensure there is no compaction.
- The topsoil will be spread over the site and the site vegetated with indigenous vegetation; and;
- The site will be monitored for the success of the rehabilitation;
-

35.1.4 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 prospecting 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.

35.1.5 Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guidelines

Quantum calculations

(Provide a calculation of the quantum of the financial provision required to manage and rehabilitate the environment, in accordance with the guideline prescribed in terms of regulation54 (1) in respect of each of the phases referred to)

The Guidelines as prescribed by the Department indicates that a rate per hectare is required in terms of the class of mine (C class) as well as the environmental sensitivity of the mine.

In terms of the area where the prospecting will be taking place, the land can be classified as:

- Biophysical: Low – Medium
- Social: Medium
- Economic: Medium

In accordance with the above, the rate per hectare is therefore prescribed as indicated.

Table 1.9: Environmental sensitivity of mine area

	Low	Medium	High
Rate per hectare to determine the quantum (rands)	2000	5000	8000
Minimum amount	10 000.00		

Provision to be made

The calculation of financial as stated above is based on the exploration to be conducted as part of the exploration work programme. The exploration will be conducted with a phased approach. After the desktop study and geological analysis of phase 1 of the exploration work programme, one borehole will be drilled. Upon notice of successful results from the drilling of the first borehole, we will make the decision to commence with the rest of the exploration work programme. The EMP as well as the financial provision for the rehabilitation of the Project area will be adjusted accordingly.

Exploration work programme will commence with Phase 1 which does not involve drilling or any other invasive exploration activities. There will be significantly less requirements for rehabilitation in the first year of the exploration programme, and financial provision that should be made is there less. It is recommended that the financial provision to cover the first year of exploration be set out at R10 000.

35.1.6 Confirm that the financial provision will be provided as determined

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

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

35.1.7 Monitoring of Impact Management Actions

List of Identified Impacts Requiring Monitoring Programmes

The identified impacts that require monitoring programmes includes the following:

- Site clearing and establishment:
- Removal of vegetation; and
- Soil erosion.
- Drilling:
- Soil erosion;
- Dust and noise;
- Water generated; and
- Groundwater levels and quality.
- Heritage landscape;
- Hydrocarbon spillages;
- Domestic waste; and Fires.
- Wetlands, pans and dams will be avoided during the prospecting activities

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 prospecting activities have been completed, RPM 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.

35.1.8 Monitoring and reporting frequency

Monitoring and reporting frequency were discussed on the monitoring sections.

35.1.9 Responsible Persons

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

35.1.10 Time Period for Implementing Impact Management Actions

This was discussed on the impact management action section table

35.1.11 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.

36. 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 prospecting phase and on a two yearly basis during operation.

37. Environmental Awareness Plan

37.1 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.

37.2 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 table 8-1 overleaf shows general prospecting activity risk table

Table 1.10: General prospecting activity risks table

Risk	Cause	Controls / Mitigation
Veld fires	Smoking and discarding matches in the field	Maintain visual awareness of surroundings; smoking only in designated areas; keep a fire extinguisher on Site
Property damage	Reckless driving; driving over bushes and shrubs; driving over	Follow existing roads and / or tracks; maintain visual
Damage to field equipment and tools	Vehicles getting stuck in loose sands	Follow existing roads and / or tracks; maintain visual
Stock / agricultural produce theft / hunting by employees	Trespassing of employees onto agricultural land	Staff will not live on site, will be supervised at all times

Erosion of site	Trampling by employees and vehicles	Personnel will be restricted to 25 metre radius of each borehole, away from gullies, wetlands and river banks
Damage to vegetation	Off-road driving to borehole sites	Where off-road driving is necessary, attempts to follow fence lines and animal tracks will be made at every possible opportunity
Erosion of existing roads	More frequent use of roads	Speed limits of 40km/h will be maintained at all times by vehicles, dust suppression monthly
Noise disturbance to residents and indigenous fauna	Drilling operations and vehicle traffic	Drilling times will be minimised and kept to working hours when residents are at work / school (away from sites)

37.3 Environmental awareness training

(Describe the general environmental awareness training and training on dealing with emergency situations and remediation measures for such emergencies).

As part of the construction phase for the project, induction training will be conducted on all people involved in the prospecting project including geologists, drilling crew and relevant technical services, prior to the commencement of any work. Training will involve all the relevant components of the EMP including:

- Access, including use of roads, tracks, gates, etc.
- Control measures required to manage excluded and exempted areas.
- The handling, storage and disposal of waste.
- Weed control.
- Fire prevention.
- Sediment and erosion control.

- Control measures to be implemented with regards to the management of water, noise and dust.
- Rehabilitation of borehole sites and access tracks.

38. 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.

39. 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
- The acceptability of the Project in relation to the finding of the assessment and level of mitigation proposed.

_____

Signature of the Environmental Assessment Practitioner:

Ms. Pheladi Mphahlele (EAPASA member)

Name of Company**:**

TPR Mining Resources (Pty) Ltd

26 July 2023

Date: _____

39.1 The following Appendixes are attached

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