

# Draft Scoping Report:

Environmental Impact Assessment Process for the proposed development of an Iron- and Vanadium Ore Mine with associated infrastructure / "Geluk Mine" by Rakhoma Mining Resources (Pty Ltd) at Magnet Heights, near Steelpoort, Limpopo Province

DMR Ref: LP 30/5/1/2/3/2/1/10107EM

Report Purpose: *Public Review*



August 2015

Prepared by:



## Purpose of the Scoping Report

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### RAKHOMA MINING RESOURCES PTY LTD (RAKHOMA) SEEKS A MINING LICENSE

Rakhoma has applied for a mining right on the farms Geluk 512KS, Geluk Oos 513KS and Ironstone 847KS in the Magisterial District of Sekhukhune. An application was submitted to Department of Mineral Resources (DMR, Limpopo Region) for a mining right in terms of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act 28 of 2002). (DMR Ref. LP30/5/1/2/2/10107MR). The application covers an area of 3165.32 hectares.

Rakhoma is majority owned by Vanchem Vanadium Products Pty Ltd (Vanchem). Vanchem is a company of the Duferco Group, one of the world's top five Vanadium producers and its assets comprise Vanadium Oxides, Ferro Vanadium and Vanadium Chemicals production facilities. Its vanadium processing plants are located within Emalahleni (Witbank), Mpumalanga Province. It owns and manages 50% of South Africa Japan Vanadium Pty Ltd (SAJV), a joint venture company between Vanchem and Nippon Denko Company Limited which produces Ferro Vanadium exclusively for the Japanese market.

It is the aim of Vanchem through Rakhoma is to secure its own supply of ore by obtaining a mining license. Rakhoma will extract raw ore, Vanadium-bearing titaniferous Magnetite which will then be crushed and screened onsite and sent to Vanchems processing plants at Emalahleni. Production at the proposed mine will be based on Vanchem's ore requirements.

### RAKHOMA SEEKS ENVIRONMENTAL AUTHORISATION

**This is where Naledzi Group Pty Ltd fits in** We are an environmental consultancy undertaking Environmental Impact Assessment Processes in line with national environmental legislation. We have been appointed as the independent environmental assessment practitioner (EAP) to undertake and manage an integrated authorisation process required to obtain all necessary environmental authorisations

Rakhoma will be undertaking a listed activity that requires environmental authorisation through an Environmental Impact Assessment Process in terms of the National Environmental Management Act (NEMA), 1998 (Act 107 of 1998, as amended and the EIA Regulations of 2014 (GNR. 982).

The mine will require a waste management license (WML) under the provisions of the National Environmental Management: Waste Act (Act 59/2008) (NEMWA) as amended. An integrated application for environmental authorisation under NEMA and waste management license application under NEMWA was submitted with DMR. (DMR Ref LP30/5/1/2/3/2/1/10107 EM).

A water use license (WUL) and integrated water and waste management plan (IWWMP) under the provisions of the National Water Act No. 36 of 1998 (NWA) is also required for the mine. The application for WUL and IWWMP will be submitted to the Regional Office of Department of Water and Sanitation (DWS) in Lydenburg to the Olifants Water Management Catchment Agency.

The proposal triggers a full Scoping and EIA process under the EIA Regulations, 2014. The first phase of the EIA process is the Scoping Phase, during which interested and affected parties are given the opportunity to comment on the proposed activities and the proposed scope of the EIA specialist studies. The draft Scoping Report has been prepared in accordance to the NEMA.

The draft Scoping Report (DSR) describes the proposed project, the environment in which the project is to be located and the specialist studies that will be undertaken as part of the Impact Assessment Phase. It also aims to solicit inputs and comments from Interested and Affected Parties (I&AP's) on the proposed project. I&APs are given the opportunity to comment on the proposal and scope for the EIA phase by reviewing the DSR.

*This DSR is considered preliminary and has been compiled based on desktop analysis and a literature review of the study area. It will serve as a start point to communicate project details and further solicit public comments on the project.* Specialist studies will be completed in the meantime, after which the DSR will be updated and then made available for public comment.

A number of information sessions will take place during the scoping phase of the project. The comments received on the DSR and information sessions will be captured in an Issues and Response Report (IRR) which will accompany the final Scoping Report which is submitted to DMR for approval.

This initial scope and public inputs guide the authorising authority in determining whether there are gaps in information and whether additional measures are necessary to assess the potential impacts of the development on the biophysical and social environment. DMR seeks such input to support their decision making process and determine whether all potential issues have been identified or whether further information is required.

## **SUMMARY OF CONTENT OF DRAFT SCOPING REPORT**

- Background and a description of the proposed project;
- An overview of the EIA process, including public participation followed to date;
- A description of the existing environment within the project area based on desktop analysis and a literature review;
- The potential environmental issues and impacts which have been identified based on desktop analysis and literature review; *this will be populated as we progress in public interactions and site specific investigations through specialists desktop analysis*
- List of interested and affected parties identified and consulted to date;
- The preliminary scope of the specialist studies proposed to be undertaken as part of this EIA.

## PUBLIC REVIEW OF THE DRAFT SCOPING REPORT

This Scoping Report (SR) will be available for comment from **14 AUGUST 2015 – 11 SEPTEMBER 2015**. Copies of the report are available at the following public venues:

Venue	Location	Contact
Bahlakwana ba Maphopha Traditional Council Office	Stand 6745 Moshate Section Ga-Maphopha, Ngwaabe	Contact person: Ms Ramontja Tribal Council Administrator Cell: 082 540 9929
Mogashoa-Ditlhakaneng Tribal Council Office	Stand 788 Ga Mogoshoa-Ditlhakaneng Village, Magnet Heights	Contact person: Evah Mamaile Tribal Office Administrator Cell: 072 085 8482
Makhuduthamaga Local Municipality	Stand No 1 Groblersdal Road Jane Furse 1085	Contact: Office of the Speaker Contact Person: Mtilo Makaleng Tel: 013 265 8638
Naledzi Group Pty Ltd	No 141 Thabo Mbeki Street Fauna Park Polokwane 0699	Contact person: Desmond Musetsho / Thendo Matsenene Tel: 015 296 3988

## OPPORTUNITY TO COMMENT ON THE SCOPING REPORT

Interested and Affected parties wishing to comment on the Scoping Report may do so by:

- Comment by email, facsimile or telephone;
- Any written submission

All comments can be sent to the offices of Naledzi Group no later than **11 September 2015**. Direct your comments to:

Contact the Naledzi Group Pty Ltd

Contact Person: **Ms. Marissa Botha**

Suite # 320, Postnet Library Gardens, Private Bag X 9307, Polokwane, 0700

141 Thabo Mbeki Street, Polokwane, 0700

Tel: (015) 296 3988

**Fax: (015) 296 4021**

Cell: **084 226 5584**

Email: [botham@naledzi.co.za](mailto:botham@naledzi.co.za)

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APPENDIX D – NOTIFICATION LETTER & BACKGROUND INFORMATION DOCUMENT

## ABREVIATIONS

<b>DMR</b>	Department of Mineral Resources
<b>MPRDA</b>	Mineral and Petroleum Resources Development Act, 28 of 2002
<b>Ref.</b>	Reference
<b>Naledzi</b>	Naledzi Group Pty Ltd
<b>SAJV</b>	South African Japan Vanadium Pty Ltd
<b>EAP</b>	Environmental Assessment Practitioner
<b>NEMA</b>	National environmental Management Act, 1998 (Act 107 of 1998)
<b>EIA Regulations</b>	Environmental Impact Assessment Regulations
<b>GNR</b>	Government Notice Regulation
<b>WML</b>	Waste Management License
<b>NEM:WA</b>	National Environmental Management: Waste Act 59 of 2008
<b>NEM:WAA</b>	National Environmental Management: Waste Amendment Act 26 of 2014
<b>NWA</b>	National Water Act 36 of 1998
<b>NEM:AQ</b>	National Environmental Management: Air Quality Act 39 of 2004
<b>NHRA</b>	National Heritage Resources Act, 25 of 1999
<b>WUL / WULA</b>	Water Use License / Water Use License Application
<b>IWWMP</b>	Integrated Water and Waste Management Plan
<b>DWS</b>	Department of Water and Sanitation
<b>DEAT</b>	Department of Environmental Affairs and Tourism
<b>SANBI</b>	South African National Botanical Institute
<b>IEM</b>	Integrated Environmental Management
<b>EIA</b>	Environmental Impact Assessment
<b>DSR</b>	Draft Scoping Report
<b>SR</b>	Scoping Report
<b>FSR</b>	Final Scoping Report
<b>EMPr</b>	Environmental Management Programme
<b>I&amp;APs</b>	Interested and Affected Parties
<b>IRR</b>	Issues and Response Report
<b>EA</b>	Environmental Authorisation
<b>km</b>	kilometres
<b>m</b>	metres
<b>mm</b>	millimetres
<b>km<sup>2</sup></b>	Square kilometre
<b>kg</b>	kilograms
<b>ha</b>	Hectare / hectares
<b>kt</b>	Kilo ton (kilo means 1000 tons eg. 20 kt = 20 000 tons)
<b>ktpa</b>	Kilo ton per annum
<b>°C</b>	Degree Celsius
<b>m/s</b>	Metres per second
<b>m<sup>3</sup>/a</b>	Cubic metres per annum

<b>m<sup>3</sup></b>	Cubic metres
<b>l/s</b>	Litres per second
<b>PM10</b>	Particulate Matter up to 10 micrometres in size (dustfall out)
<b>PM2.5</b>	Fine Particulate Matter is less than 2.5 micrometres in diameter
<b>D</b>	Dust fall rate
<b>Mg/m<sup>2</sup>/day</b>	Milligrams / square metre / day
<b>dBA</b>	Decibels A (measurement for sound)
<b>MAP</b>	Mean Annual Precipitation
<b>LPI</b>	Land Property Information
<b>absl</b>	Above sea level
<b>LUPO</b>	Land Use Planning Ordinance Ord. 15 of 1985
<b>BIC</b>	Bushveld Igneous Complex
<b>MCP</b>	Mine Closure Plan
<b>ROM</b>	Run of Mine
<b>MML</b>	Main Magnetite Layer
<b>QDR</b>	Quaternary Drainage Region
<b>DWAF</b>	Department of Water Affairs and Forestry (former Department of Water and Sanitation)
<b>IDP</b>	Integrated Development Plan
<b>US EPA</b>	United States Environmental Protection Agency
<b>ASTM</b>	American Standard Testing Methodology
<b>MLM</b>	Makhuduthamaga Local Municipality
<b>GTM</b>	Greater Tubatse Local Municipality
<b>SDF</b>	Spatial Development Framework
<b>SDM</b>	Sekhukhune District Municipality
<b>DRDLR</b>	Department of Rural Development and Land Reform
<b>IUCN</b>	International Union for Conservation of Nature
<b>BID</b>	Background Information Document
<b>SAHRA</b>	South African Heritage Resources Agency
<b>LIHRA</b>	Limpopo Heritage Resources Agency
<b>GPS</b>	Global Positioning System
<b>SMP</b>	Social Management Plan



**DRAFT SCOPING REPORT**  
**SECTION A – OVERVIEW, BACKGROUND**

**1. INTRODUCTION AND BACKGROUND**

Rakhoma Mining Resources Pty Ltd holds a Prospecting Right (Licence no. LP30/5/1/1/3/2/1/629EM). Rakhoma has undertaken geological exploration over the farms Geluk 512KS, Geluk Oos 513KS and Ironstone 847KS located at Magnet Heights some 20km south west of Steelpoort within the Magisterial District of Sekhukhune of the Limpopo Province.

The exploration drilling has determined the extent of a feasible reserve of vanadium-bearing titaniferous magnetite deposits. Four magnetite seams were identified indicating a mineral resource of 14 million tons of ore which can be economically mined. Rakhoma has therefore submitted a mining right application to Department of Mineral Resources: Limpopo Region (DMR) to mine iron- and vanadium ore on the above mentioned properties. A raw ore product will be produced.

Rakhoma is majority owned by Vanchem Vanadium Products Pty Ltd which is a vanadium producer. Vanchem will secure its own supply of ore through Rakhoma by obtaining a mining license. All vanadium-bearing titaniferous magnetite ore that will be mined from the proposed Geluk Mine will be crushed and screened then sent to Vanchem’s processing plants at Emalahleni (Witbank). Production at the proposed mine will be based on Vanchem’s ore requirements.

**1.1 Details of the Applicant**

The applicant for the Environmental Authorisation (EA) is Rakhoma Mining Resources Pty Ltd (Rakhoma).

**Table 1: Details of Applicant**

<b>Applicant:</b>	Rakhoma Mining Resources Pty Ltd,
<b>Company Reg. no:</b>	2007/012691/07
<b>Contact:</b>	Mrs. Mbabvi Ngobeni (Company Secretary)
<b>Address:</b>	Van Eck Road, Ferrobank, Witbank, 1035
<b>Tel:</b>	013 696 6004
<b>Fax:</b>	013 696 6217
<b>Email:</b>	mbavhin@vanchem.co.za

**1.2 Details of the Environmental Assessment Practitioner (EAP)**

Naledzi Group Pty Ltd (Naledzi) has been appointed by Rakhoma to undertake the Environmental Impact Assessment Process in terms of the National Environmental Management Act, 1998 (NEMA) Act 107 of 1998) and the Environmental Impact Assessment (EIA) Regulations of 2014. The project consultants responsible for the project are:

**Table 2: Details of EAP**

<b>Contact:</b>	Desmond Musetsho	Marissa Botha
<b>Address:</b>	Postnet Suite 320, Private Bag X 9307 Polokwane, 0700	Postnet Suite 320, Private Bag X 9307 Polokwane, 0700
<b>Tel:</b>	015 296 3988	015 296 3988
<b>Fax:</b>	015 296 4021	015 296 4021
<b>Cell:</b>	083 410 1477	084 226 5584
<b>Email:</b>	dmusetsho@naledzi.co.za	botham@naledzi.co.za

Naledzi Group Pty Ltd is an independent environmental consultancy with no vested interested (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the NEMA.

### 1.3 Project Team

Other than the project consultant (EAP), a team of specialists will be appointed to form part of the project team. These specialists would conduct detailed investigations to assess anticipated environmental impacts from the proposed mining activity. The project team is currently being sourced with the release of this draft report. Their details will be incorporated in the next issue of the Scoping Report. Specialists which would be involved include:

- A Social and Economic Specialist;
- Terrestrial Ecologist and Aquatic Ecologist;
- Archaeologist and Heritage Specialist;
- Air Quality Specialist;
- Noise and Vibration Specialist;
- Land use (&soil) Specialist;
- Hydrologist (surface water specialist);
- Geohydrologist (ground water specialist);
- Geochemist
- Traffic Engineer
- Visual Specialist
- Wetland Specialist

### 1.4 Assumptions and Limitations

Naledzi has prepared this Draft Scoping Report (DSR) for the sole use of Rakhoma and the appointed development consultants/contractors to this project, in accordance with generally accepted consulting practices and for the intended purposes, as stated in the agreement under which this work was prepared. The report is also intended for review by the relevant competent authorities. Interested & Affected Parties (I&As) are also privy to the review of the report to provide input to the Environmental Impact Assessment (EIA) process. This report may not be relied upon by any other party without the explicit written agreement of Rakhoma and Naledzi. No other warranty, expressed or implied, is made as to the professional advice included in this report.

## 2. ADMINISTRATIVE PROCESS REQUIREMENTS FOR PROJECT

### 2.1 Environmental Authorisation Application Process

#### 2.1.1 EIA Study – Scoping and EIA Process

In terms of EIA Regulations published in Government Notice R982, R983, R984 and R985 of 4 December 2014 under Section 24 (5) of the National Environmental Management Act No. 107 of 1998 (NEMA) the application for a Mining Right is subject to an Application for EA. Government Notice R983, R984 and R985 schedules listed activities which require environmental authorisation. The proposed mining operation triggers an activity under GNR 984 which is subject to a Scoping and EIA process. (Figure 1)

Regulation 21 – 24 of Government Notice R.982 (EIA Regulations 2014) sets out the procedure for the Scoping and EIA Process. It is subject to the following:

- **A Public Participation Process in terms of Regulations 40 – 44; (WE ARE HERE)**
- **Scoping Report into Appendix 2; (WE ARE HERE)**
- Environmental Impact Report into Appendix 3;
- Environmental Management Programme into Appendix 4.
- Closure Plan

The proposed development also requires a waste management license under the provisions of the National Environmental Management: Waste Act (Act 59/2008) (NEMWA) as amended as it triggers a waste management activity published under GNR 921/2013 as amended by GNR633 of 24 July 2015 published under Section 19 of NEMWA. Likewise the WML is also subject to a Scoping and EIA process. The EIA process for environmental authorisation and the WML thus integrated.

The Scoping phase assists to gain understanding of the potential environmental impacts relevant to the project as well as social consequences. It determines where further information is required. The aim is to form an initial scope of the potential impacts through consultation (public participation) with interested and affected parties and desktop analysis and initial site investigations.

The Impact Assessment phase considers the identified impacts and assesses the impacts through specialist investigations. The findings of the assessment are then consolidated in an Environmental Impact Report (EIR) and Environmental Management Programme (EMPr).

The decision making phase involves decision making by the authorising authority, which is in this case DMR. During this phase DMR will review the EIR and consult with any other organs of state. DMR must accept or reject the EIR and EMPr. Upon acceptance of the reports an environmental authorisation may be issued and conditions of the decision would be given in detail by the competent authority.

The environmental authorisation will be made available to I&AP's for period of 20 consecutive calendar days. This provides I &AP's with an opportunity to verify that the decision taken considered their comments and concerns raised. I&APs are also then informed of the appeal procedure, should they have a reason to appeal.

### **2.1.2 Integrated Water Use License Application**

In terms of Section 21 of the National Water Act, 1998 (Act 36 of 1998) (NWA) the proposed mining operations require a water use license application (WULA) which will be submitted to the Regional office of the Department of Water and Sanitation (DWS) under the provision of the NWA. (Figure 1)

The application would further require an Integrated Water and Waste Management Plan (IWWMP) into NWA. Government Notice 704 of 4 June 1999, National Water Act, 1998 (Act 36 of 1998) provide Regulations on use of Water for mining and related activities aimed at the protection of water resources. It defines the manner in which rainwater falling or flowing onto mining areas or an industrial site which must be managed.

This process is also integrated with the EIA Process in terms of NEMA.

### 2.1.3 Integrated Process Approach

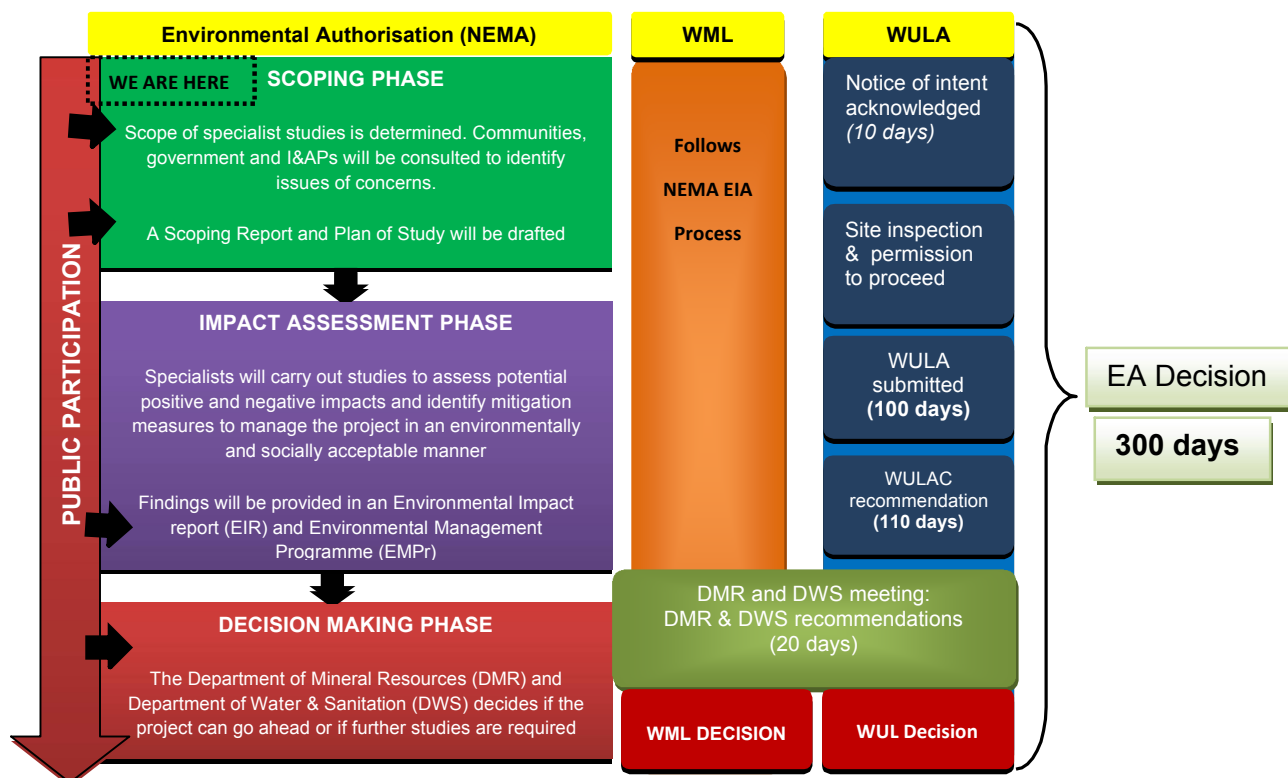


FIGURE 1: ENVIRONMENTAL PROCESS DIAGRAMME

### 2.2 Objective of Scoping Process

In terms of the NEMA EIA Regulation 2014, Regulation 21 (3) a Scoping Report must contain all information set out in Appendix 2 to the EIA Regulations. The objective of a Scoping Process stipulated within Appendix 2 indicates that through a consultative process:

- Identify relevant policies and regulations relevant to the activity;
- Motivate the need and desirability of the activity (in relation to context of preferred location);
- Identify and confirm the preferred activity and technology alternatives through an impact and risk assessment ranking;
- Identify and confirm the preferred site;
- Identify the key issues to be addressed in the assessment phase;
- Level of assessment to be undertaken and the methodology to be applied;
- Identify suitable measures to avoid, manage and mitigate identified impacts

### 2.3 Sections within the Scoping Report

The content requirements of the Scoping Report has been addressed and divided into Sections A - G within this report. The sections are as follows;

- Section A – Overview and Background,
- Section B – Project Description, Need and Desirability, Project Alternatives
- Section C – Description of Biophysical & Social Environment
- Section D – Legislation and Administrative Context
- Section E – Environmental Issues, Potential Impacts, Methodology for assessment
- Section F – Public Participation
- Section G – Plan of Study for EIA

### 3. DESCRIPTION OF THE PROPOSED PROJECT

#### 3.1 Prospecting Right held by Rakhoma

A prospecting right is a permit which allows a company to survey or investigate an area of land for the purpose of identifying an actual or probable mineral deposit; once a feasible deposit is identified an application for a mining license follows.

Rakhoma Mining Resources Pty Ltd holds a Prospecting Right (Licence no. LP30/5/1/1/3/2/1/629EM). A feasible reserve of vanadium-bearing titaniferous magnetite deposits has been identified. It consists of four magnetite seams revealed by the companies prospecting drilling program. A new order mining license is currently being applied to extract iron-and vanadium ore.

#### 3.2 Project Locality

The proposed iron-and vanadium ore mining operation will be located on the farms Geluk 512KS, Geluk Oos 513KS and Ironstone 847KS at Magnet Heights (Figure 2). This regionally is located some 20km west of Steelpoort within the jurisdiction of two local authorities namely Makhuduthamaga Local Municipality and the Greater Tubatse Local Municipality (Figure 4). It falls within the limits of Sekhukhune District Municipality of the Limpopo Province. The site coordinates area at approximately 24°49'49.94" South and 29°58'29.25" East.

The application area consists of 3 farms and covers 3165.32 hectares. It is populated over its southern and northern portions, yet unoccupied in its central portion. The populated areas represent several Tribal Council areas. However, the 3 farms under application are state owned.

**Table 3: List of Properties and Ownership**

Farm name	Title Deed	LPI Code	Registered Landowner
Geluk 512 KS	T28642/1971	T0KS00000000051200000	State owned
Geluk Oos 513KS	T41599/1982	T0KS00000000051300000	Department of Rural Development and Land Reform (former Department of Land Affairs)
Ironstone 847KS	T14484/1989 T30881/2015	T0KS00000000084700000	

The site consists of natural areas and steep hilly terrain in its eastern and western portions. The Shakwanang River extends north south through the study site and represents the lowest point on site (1120m abs). The terrain rapidly increased from the river into a mountainous area (1184m - 1339m abs) to the east of Geluk farm and to the western extreme of the farm Ironstone (1594m abs). (Figure 3)

The site is accessed from the main Magnet Heights/ Jane Furse road off the R555 Steelpoort /Roosenekal Road. This main road runs through the mining right area on the farm Ironstone, extending north along the western edge of the farm Geluk. There are also a number of gravel roads on proposed project area. Subsistence farming is evident along the banks of the Shakwaneng River and cattle pens are evident in proximity to the populated areas.

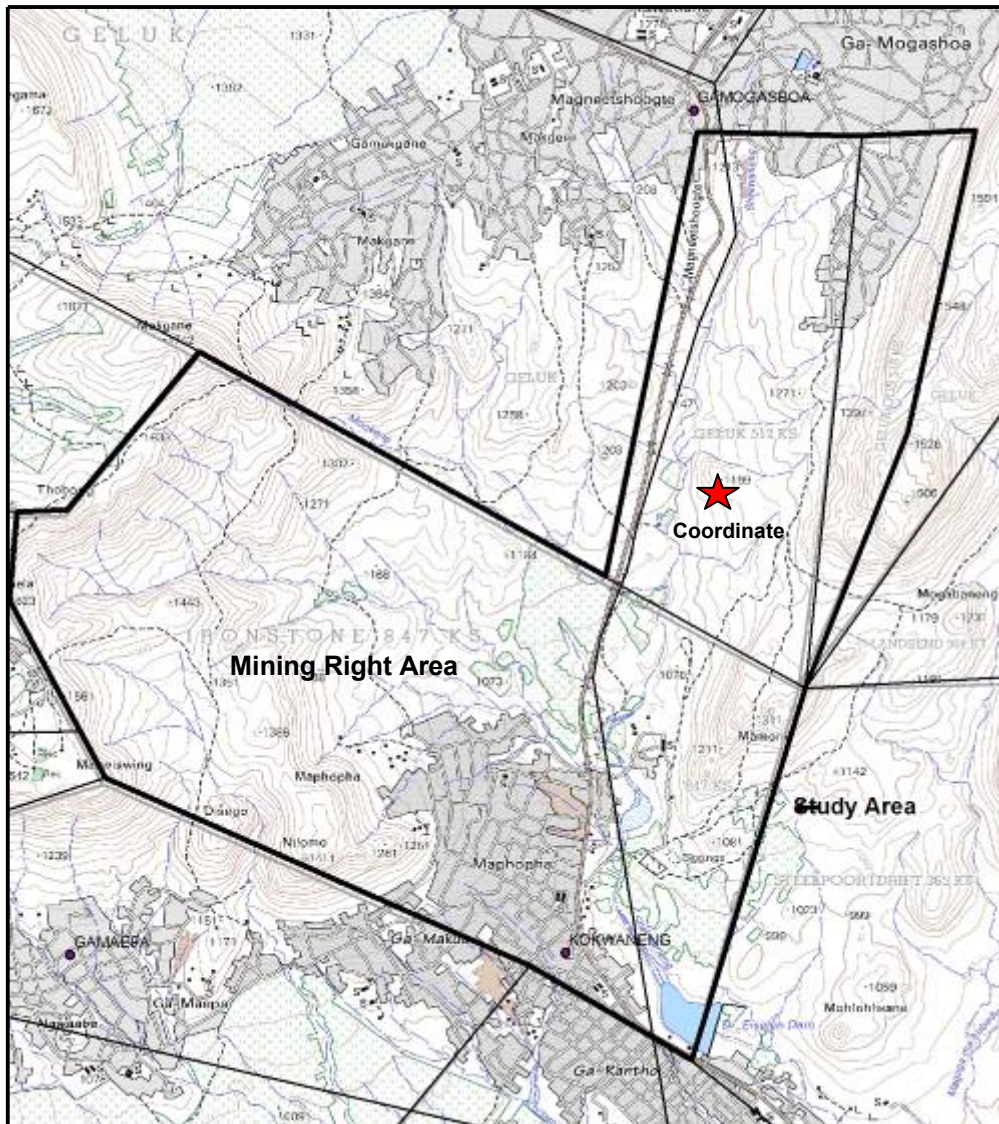


FIGURE 2: THE GELUK MINE PROJECT MINING RIGHT APPLICATION AREA

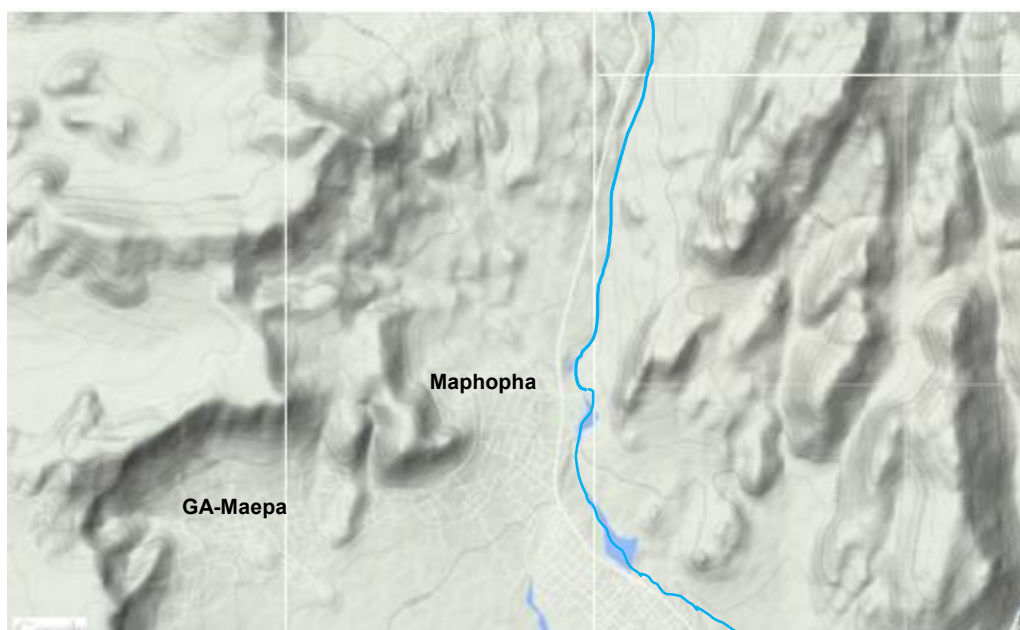


Figure 3: TERRAIN OF GELUK MINE PROJECT AREA (courtesy Google Images – Terrain)

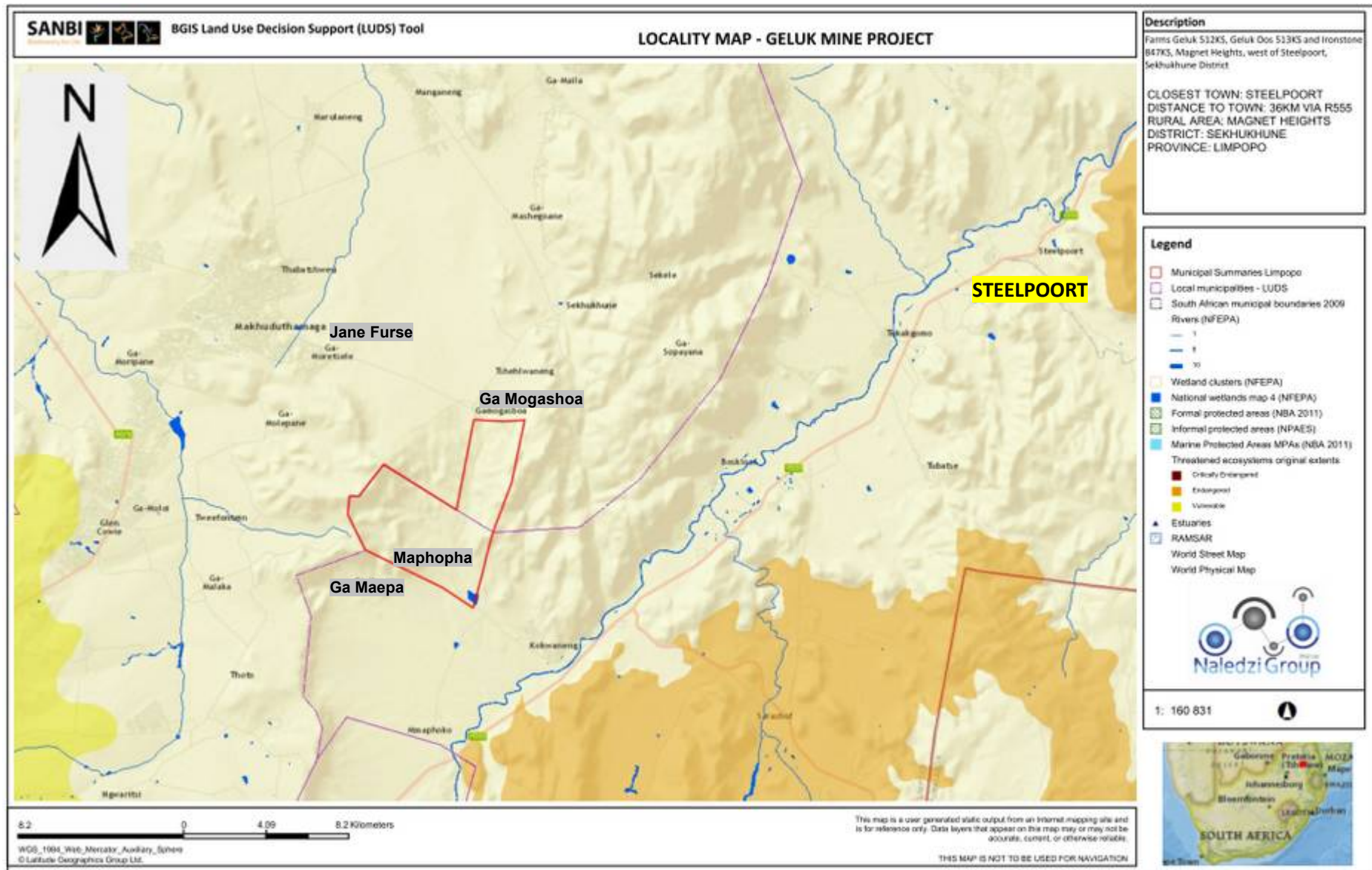


Figure 4: REGIONAL LOCALITY OF MINING RIGHT AREA TO STEELPOORT

### 3.3 Zoning of Project Area

The 3 farms under application are still zoned for Agricultural purposes and settlement development. Rakhoma would need to apply for a change in land use from agriculture to industrial / commercial use in terms of Land Use Planning Ordinance (LUPO) Ord. 15 of 1985.

LUPO thus operates alongside the MPRDA of 2002 with the result that once a person has been granted a mining right in terms of Section 23 of the MPRDA he or she will still not be able to commence mining operations in terms of that right unless LUPO allows for that use of the land in question. The requirement is compliance with Section 8 ( $\pm$  7) of LUPO which is a Rezoning application.

### 3.4 Ore Body of the Project Area

The project area, known as Magnet Heights, is situated in the Eastern Lobe of the Bushveld Igneous Complex (BIC) and the ore body forms part of a vanadium-bearing titaniferous magnetite deposit that occurs as more than twenty-five magnetite layers in the Upper Zone of the BIC.

The Four magnetite layers identified within the prospecting right area have been graded as the Main Seam, First Seam, Second Seam and Third Seam. The Main seam is located at the bottom of the succession. The ore body is dipping approximately 11° in a direction between 265° to 280°. A normal fault with a throw of between 30m and 50m, and a strike of 200°, was found to coincide with a river gorge that forms the most prominent topographical feature of the project area.

The average depths of each seam below surface are: Main Seam - 10.77m, First Seam - 10.03m, Second Seam - 7.85m, Third Seam - 6.41m. The Main Seam is of primary interest and is the bottom-most of the four seams. It is found over approximately 80% of the drilled area. The average depth of the main seam is 11m and a maximum depth of 88m. **The maximum mining depth will be 20m.**

To date only 395ha of the mining area has been explored and modelled, which accounts for 12.5% of the total area of approximately 3,165ha for all three properties.



**FIGURE 5: RESOURCES THAT WOULD BE ECONOMIC TO MINE (Ore body-Mining pit)**



### 3.5 Expected Life of Mine

It is anticipated that the economic mining reserve will be 14 million tons, yielding approximately 10.7 million tons of vanadium concentrate. The anticipated mine production would be 240 000 tons per annum of ore in its first 5 years and a rump up to 700 000 tons per annum by year 6. The expected life of mine is 30 years.

The mining production yield proposed is subject to the outcome of the environmental and social assessments. The southern and northern extent of the mining right area is populated and a 500m buffer area may be required to such villages, resulting in the exclusion of such areas from the mining pit design/scheduling area.

The mining production will be based on Vanchem's ore requirements, which is 20kt per annum.

### 3.6 Mine Closure

Upon depletion of the economic reserve of the mine it will be closed down and the mining area will be rehabilitated to its former land use, which is natural, cattle grazing and or subsistence farming. During the life of mine, stripping and rehabilitation will be done simultaneously. This includes reshaping and re-vegetated the land to restore it to a stable condition with a land use that is appropriate.

A Mine Closure Plan will form part of the Environmental Impact Report to be submitted to DMR: Limpopo Region. The MCP will investigate a sustainable and feasible post-mining land use.

### 3.7 Mining Method and Activities

The "Geluk Mine" will be a surface mine operation consisting of strip mining and simultaneous rehabilitation. The mine will mainly consist of a "mine pit" progressively excavated in strips according to a mineral resource and mine schedule. The maximum mining depth of the pit area will be 20m. Strips of approximately 20m wide will be mined in the strike direction. Initial mining will focus on the areas where the Main Seam forms outcrops at the surface.

The general mining practice would include removing of overburden to provide access to the seam/pavement ore. The seam/pavement ore would thereafter be drilled and blasted and removed by excavator and dump trucks to the mine stockpile. The Run of Mine will be crushed and screened before being transported to Vanchem processing facility in Emalahleni (Witbank). A raw ore product will be produced. No on-site processing will take place. The basic flow of mine activities area as follows:



The activities as part of the basic flow of the mining operation are discussed below.

### 3.7.1 Vegetation Removal and Site preparation

To get to the minable ore body, the mining pit area must first be cleared and prepared. This involves excavation and removal of overburden to get to the ore body. Toe trenches would be created and silt traps built to stop run-off water draining into water features and the river. Vegetation will be dozed to the side and roads created on contour. Topsoil will be dozed off/where thicker, taken off with excavators and dump trucks and placed on a stockpile for later use during rehabilitation. Usually close to the open pit for progressive rehabilitation.

A roll-over methodology will be used where stripped overburden is placed directly back into the previous strip that was mined. Some overburden needs to be stockpiled for final covering and some needs to be drilled and blasted due to the hardness.

### 3.7.2 Drilling and Blasting

Seam ore would require blasting in order to reduce it to a size that is able to be loaded and transported to the plant. Blast holes will be required as part of the excavation activities. Hole diameters of 89mm are proposed. Explosives will be placed down the hole. Drill and blast designs are as follows:

Drill Hole Diameter:	89mm
Burden	1.8m
Spacing	2.0m
Stemming	0.5m
Sub-Drill	0.1m
Approximate powder factor:	0.37kg/tonne

Safety zones would need to be established around the area of drilling and blasting due to nearby settlements, schools and the Jane Furse Road. Methods to reduce flyrock and ground vibrations would be necessary.

### 3.7.3 Loading and Hauling

Broken ore would be loaded by means of an excavator onto a dump truck and transported to a processing facility or stockpile on the property. For this type of operation, a combination of 45 to 65 tonne excavators and 30 to 40 tonne articulated dump trucks would be suitable. A typical fleet for overburden stripping and production would consist of drill rigs, dozers, excavators, dump trucks, a grader, a water cart and a rock breaker.

### 3.7.4 Crushing and Screening

The Run of Mine (ROM) will be crushed and screened before being transported to the client, Vanchem. This process will be mainly for size reduction and a 98% yield is expected. The crushing and screening plant will contain the following equipment:

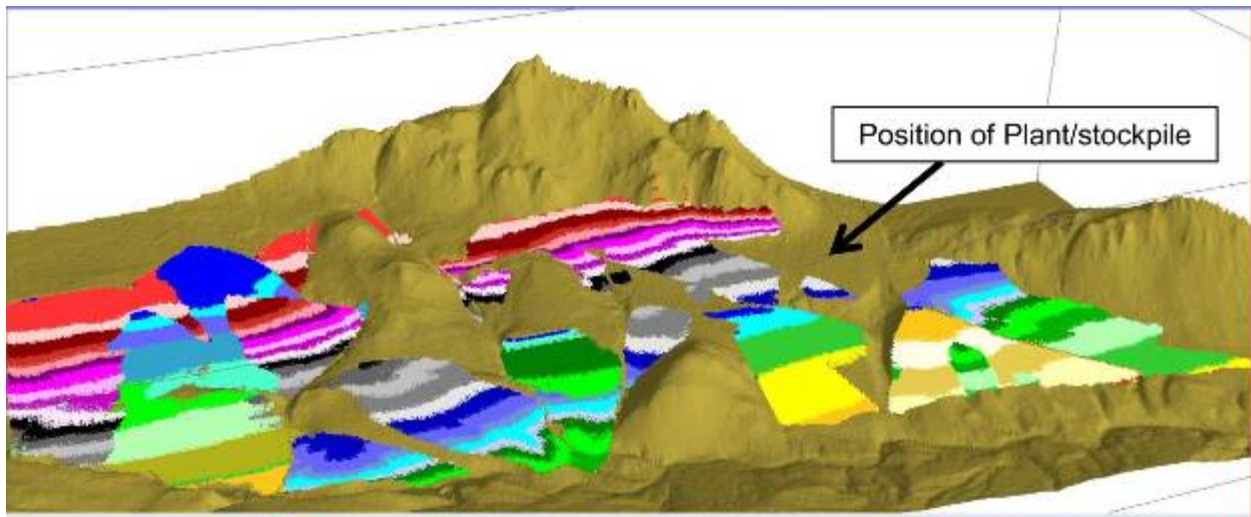
- Cone crusher
- Grizzly
- Pegger
- Conveyor belts

### 3.7.5 Rehabilitation

The process of reshaping and re-vegetating the land to restore it to a stable condition with a land-use that is appropriate for the particular location will be conducted progressively with the mining.

### 3.8 Draft Mine Design / Layout

A concept layout plan inclusive of mine infrastructure has not been developed. Only a draft mine design/scheduling. This Scoping Report is preliminary and will be updated once more information becomes available.



**FIGURE 6: DRAFT MINE PLAN FOR THE PROPOSED GELUK MINE PROJECT (VIEW FROM THE WEST TOWARDS THE MINING RIGHT AREA)**

Figure 6 above shows the proposed mining pit area and mining schedule for the project area. The plant / stockpile position has been determined in relation to the mining pit area. It has been positioned on a relatively flat area on the property comprising a granite outcrop. (Figure 6). These designs are considered conceptual until informed by the EIA study.

The key components expected to form part of the proposed mining operations are:

- Haul Roads
- Run of Mine and Product Stockpile
- Crushing and Screening Plant
- Weighbridge
- Offices and Workshop
- Waste rock dump

### 3.9 Mining Pit Area

The mining pit area is the actual mine operation area excavated and strip mined. The pit design and layout plan is based on the analysis and scheduling of the mining operations in relation to the four seams identified on site. Mining will take place in sequences. It will start with mining larger adjacent areas sequentially. The initial mining pit area design will be scheduled for extraction of 200 ktpa of ore and would progressively increase to 700 ktpa.

### **3.10 Waste Rock dump**

Waste rock dumps will be required for overburden and waste rock excavated as part of the mining operations. The position of waste rock dumps can only be confirmed once the mine design and mining pit area has been finalised.

The average seam depths are; Main Seam - 10.77m, First Seam - 10.03m, Second Seam - 7.85m and Third Seam - 6.41m. The preliminary average strip ratios (waste to ore ratio) calculated for seams above the main seam are 2.68 and for depths less than or equal to 20m is 1.63 over 25 fault blocks.

### **3.11 Product Stockpile**

The ROM and product stockpile consists of broken ore which is loaded and hauled from the mining pit to the product stockpile for later crushing and screening. The ROM and product stockpile position has provisionally been established. (Figure 6)

There area for the ROM is a relatively flat portion on the project site, situated on granite outcrop to the east of the magnetite seam outcrops. It is not underlain by magnetite seams and accessed relatively easily. There are also several large outcrops of Main Seam in close proximity.

### **3.12 Haul Roads**

An access road will be established from the Magnet Heights/Jane Furse Road, using an existing intersection to the proposed project site. Haulage roads will be required from the mining pit area to the ROM and product stockpile for later crushing and screening. Further haulage roads will be required to connect the mine pits; waste rock dumps/topsoil stockpiles and workshop areas.

### **3.13 Water Requirements**

The mine will require water for dust suppression, washing of vehicles and offices. Ground water may need to be removed from pits at which point such water can be reused which collect in the mine pits (strips). The water requirement for the mine has not been quantified as yet and will be included in the draft Environmental Impact Report.

### **3.14 Electricity**

Several installations and equipment on the mine will source power from Eskom's electricity supply through the sub-station to be constructed on the mine. The usage/bulk requirement has not been quantified yet. There is also the possibility of the use of generators where necessary.

### **3.15 Offices**

A mobile office will be established (4x10m). A mobile office for the weighbridge will be established.

### **3.16 Stores and Material**

A containerized store will be provided by the contractor, in the contractor's yard, to hold a limited store of high use items such as oils, grease, air filters etc.

### **3.17 Maintenance / Workshop**

A workshop (10m x 10m) will be established in the contractor's yard. The workshop will have a concrete floor and will be enclosed. The workshop will be used for servicing of vehicles and other on-site repairs and maintenance.

## **4 NEED AND DESIRABILITY OF THE PROJECT**

The raw ore to be extracted from the proposed "Geluk Mine" will be sold to Vanchem Vanadium Products Pty Ltd which is a vanadium producer. Rakhoma is majority owned by Vanchem which will secure its own supply of ore through the proposed project. Production at the proposed mine will be based on Vanchem's ore requirements.

The proposed project is desired at the proposed locality. A feasible reserve of vanadium-bearing titaniferous magnetite deposits have been identified through an extensive drilling program on the farms Geluk 512KS, Geluk Oos 513KS and Ironstone 847KS. Four magnetite seams were identified. There is an estimated economical reserve of 14 million tons of ore to be mined at the proposed project site. The main seam of ore is also close to the surface which contains the majority of ore reserve identified. The raw ore product is thus required by a large scale vanadium producer and the product can only be sourced on location of a feasible / economical ore deposit which has been delineated on above mentioned farms.

## **5 PROJECT ALTERNATIVES**

Alternatives are different means of meeting the general purpose and need of a proposed activity, taking into account location or site alternatives, activity alternatives, processes or technology alternatives, temporal alternatives and the no-go alternative. Evaluation of alternatives also allows the relative impact of different project alternatives on the environment to be considered. (DEAT (2006) Guideline 5: Assessment of Alternatives and Impacts in support of the EIA Regulations, 2006-IEM Guideline Series)

### **5.1 Alternative infrastructure sites**

No feasible alternative infrastructure sites were considered for the location of the mine as the mining activities are determined by the vanadium-bearing titaniferous magnetite reserve.

### **5.2 Land use Alternatives post Mine Closure**

Post mining land use options will be further explored in the closure plan which needs to be developed as part of the EIA / EMPr process. These include historical land use, resources, population growth, economic activity and topography. The current dominant land use in the area is settlement development, subsistence farming and cattle grazing. The project area is populated in its northern and southern extent. Large portions of the site are natural and consist of hilly terrain. The feasibility of restoring the land will be investigated and will include community involvement to determine an acceptable post-mining land use.

The entire proposed mining right area and associated infrastructure footprints will be rehabilitated. Further strip mining and rehabilitation will be undertaken simultaneously. A roll-over methodology will be used where stripped overburden is placed directly back into the previous strip that was mined.

### **5.3 Mining Activity Alternatives**

No feasible mining activity alternatives are considered. The ore body to be excavated is relatively near the surface. The maximum depth of mining is in the order of 20m. Strip mining is the most effective/practical approach to mining the ore seams due to the project areas hilly terrain and geometry.

### **5.4 Mine Design and Layout**

Different layout design options are expected to be investigated during the course of the EIA process. Final designs and locations of mine infrastructure will be based on the outcomes of specialist investigations and greatly by the final mine pit design and schedule. The mine design and layout must be set as to remain technically and economically feasible.

### **5.5 No-go Option**

The no-mining option is for the current land use to continue. The current land is predominantly natural, small-scale subsistence farming along the river with settlements in the northern and southern extent. The prospecting activities currently undertaken on the project site will cease and the available ore body will not be extracted. Vanchem will seek other possible ore bodies and prospecting rights to delineate other ore bodies in order to supply the vanadium processing plant ore requirements. The local communities will not benefit from the associated additional employment opportunities.

## **SECTION C – DESCRIPTION OF BIOPHYSICAL AND SOCIAL ENVIRONMENT**

The content of the Scoping Report is outlined under Section 21(3) and Appendix 2 of the NEMA Regulations of 2014. It is indicated that a description of the environment that may be affected by the activity and the manner in which the activity may affect the environment should be considered. The receiving environment consists of different component such as the biophysical and socio-economic environment.

Information pertaining to the receiving environment and its social surroundings has been sourced through a desktop analysis, literature review and use of tools such as Geographic Information Systems.

## 6 BIOPHYSICAL ENVIRONMENT

### 6.1 CLIMATE

#### 6.1.1 Climate and Temperatures

The project area is located in the Sekhukhune District of Limpopo Province. The site climate is characteristic of the Highveld Climatic Zone which experiences average daily maximum temperatures of 27°C in January and 17°C in July, with average daily minimal for the region varying from 13°C in January to 0°C in July. The terrain of the project site and regional area is undulating and mountainous. Daily temperatures vary considerably at different localities, with high temperatures in lower-lying areas and lower temperatures on southern aspects on mountains.

#### 6.1.2 Precipitation and Evaporation

The rainfall and evaporation data was abstracted from the Hydro-Institutional Mapping Report in the Steelpoort River Basin Report 2001 and Mucina & Rutherford 2006 climate data relating to the Sekhukhune Mountain Bushveld vegetation types/landscapes.

Rainfall occurs predominantly in the summer months between October and March, with January generally experiencing the heaviest rain. The mean annual rainfall (MAP) for the area is in the range 500–700 mm. Local topography influences rainfall patterns over short distances. Thunderstorms, with the associated low infiltration of the soil and erosion in mountainous areas, are common in the basin.

High evaporation occurs in the warm areas and evaporation rates are about 80 percent higher during summer than in winter (Olifants basin study 1991).

#### 6.1.3 Wind

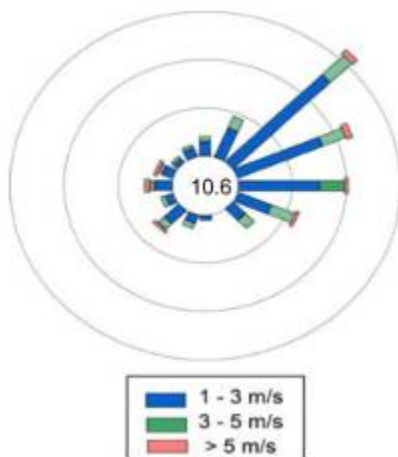
There is no meteorological monitoring at the Rakhoma prospecting site. The wind field characteristics are based on available weather data from the Steelpoort monitoring station (Figure 7). This can be considered representative of the proposed project area. The predominant wind direction for the Steelpoort area is east to a north easterly wind component with a frequency of about 40%. Relatively light winds (<5m/s) prevail in this area with calm periods of about 10.6%. This is a Highveld region climate with periods of high winds in the autumn months (August – September).

Figure 7 is overleaf.



**FIGURE 7: LOCATION OF STEELPOORT WIND MONITORING STATION (abstract from DWAf Air Quality Impact Assessment, 2005 Olifants River Resource Projects Report no. PWMA 04/B50/00/3204)**

During winter, wind roses indicate that the dominant wind direction may shift to the south and south-east. Wind speeds are low to moderate, with a low percentage (15.74%) of calm conditions (<1 m/s).



**How to read this rose:** Frequencies are the lengths of shafts when compared to circles drawn to represent a 5% frequency of occurrence. Wind speed classes are assigned to illustrate frequency of high and low winds occurring for each wind vector. Frequencies of calms are periods for which wind speeds are below 1m/s which are indicated in the centre of the wind rose

**FIGURE 8: WIND ROSE FOR STEELPOORT AREA**



## 6.2 Topography

The site topography is undulating. It is characterised by mountains and flat-bottomed valleys. The Shakwaneng River flows north to south through the project area and constitutes the lowest lying area on site at 1039m above sea level. (Figure 9)

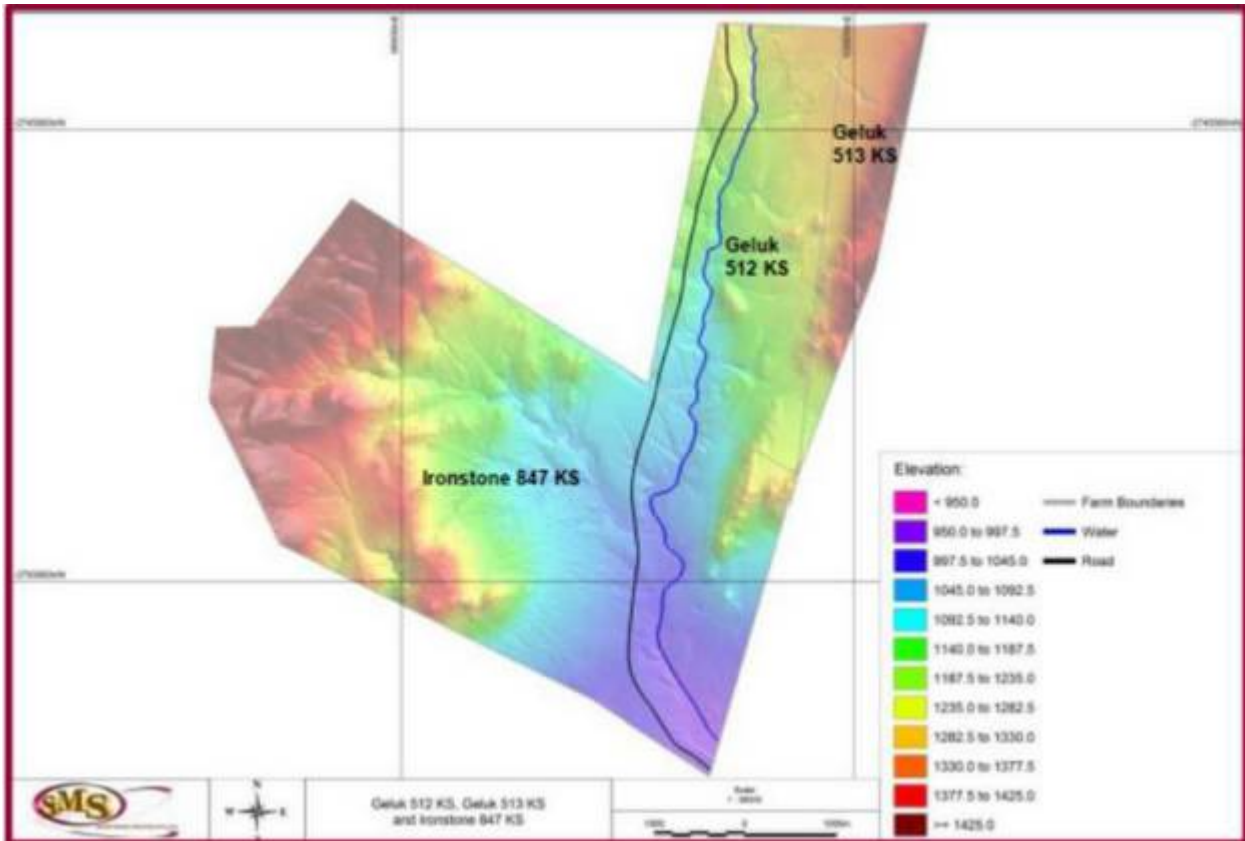


FIGURE 9: TOPOGRAPHY, ROAD AND WATER COURSE ON PROJECT AREA

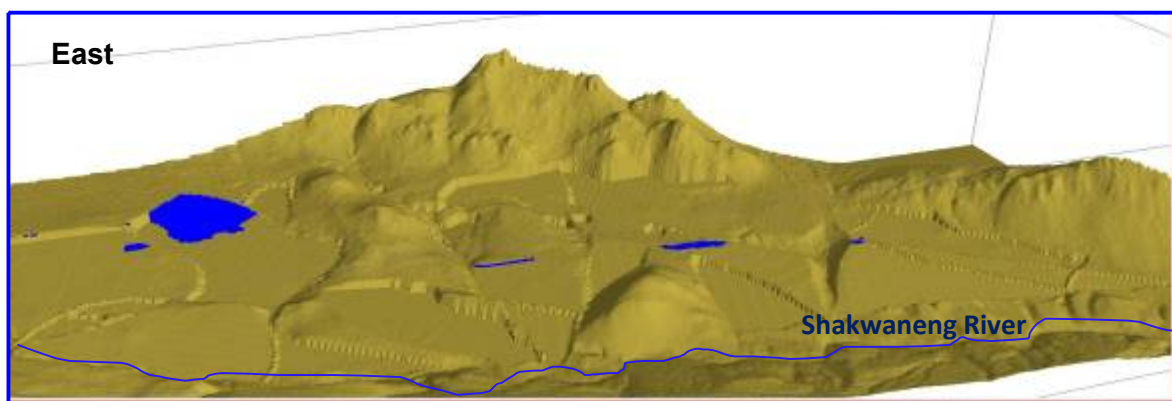
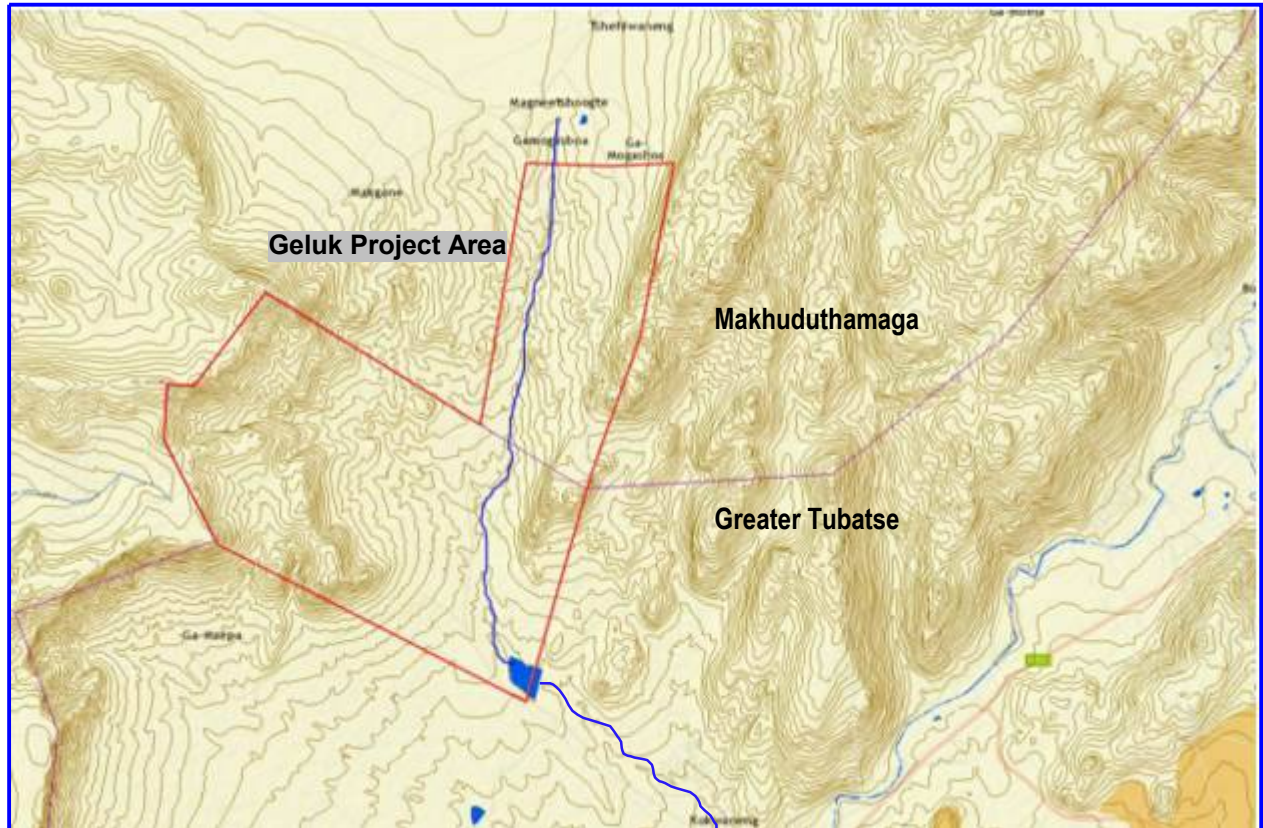


FIGURE 10: TOPOGRAPHY OF GELUK MINE PROJECT AREA

Figure 10 shows the proposed mining right area topography used to determine the mine design. The eastern section of the project area has mountain peaks of 1283 m absl and low lying areas at 1036m absl. The western section of the project area, Ironstone has mountain peaks at 1700m absl and 1297m absl.

Land uses are restricted by the topography to primarily mining, settlements (residential) and small scale subsistence farming. The subsistence farming is evident at the footslopes of the mountains/hills towards the Shakwaneng River.

The project area is located on the western extreme of the Steelpoort Valley River Basin (Steelpoort River Basin Report 2001)

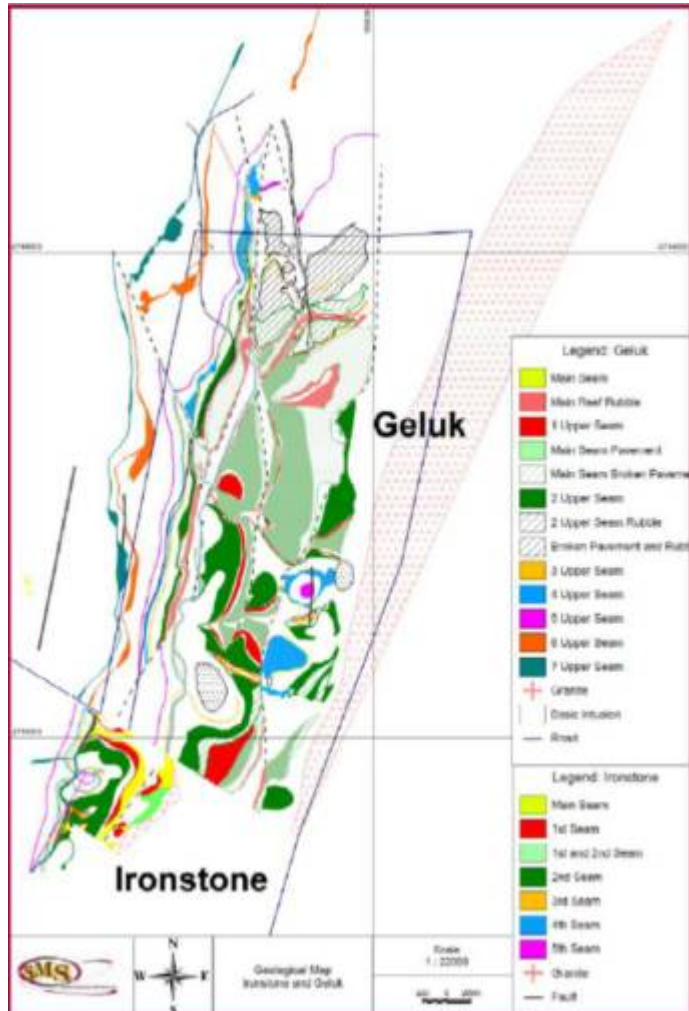


**FIGURE 11: 20M CONTOUR LINES FOR GELUK PROJECT AREA**

### 6.3 Geology

The project area forms part of the Bushveld Igneous Complex ("BIC") which may be described as a basin-shaped mass of igneous rocks extending for 240km from Pretoria in the South to Mokopane in the North and for 400km from North of Marico to near Mashishing (previously Lydenburg). The project area, known as Magnet Heights, is situated in the Eastern Lobe of the BIC and the ore body forms part of a vanadium-bearing titaniferous magnetite deposit that occurs as more than twenty-five magnetite layers in the Upper Zone of the BIC.

The magnetite layers in the vicinity of Magnet Heights have been observed to consist of four prominent layers. At the base is the Main Magnetite Layer ("MML"). Two thinner leader seams occur about 6m above the MML. Another layer is located between 11m and 20m above the upper marker. The MML is generally overlain by weathered gabbro-norites while anorthosites form the foot-wall. The ore body is dipping approximately 11° in a direction between 265° to 280°. Current erosional surface cuts across these layers exposing each in turn. It is this exposure which has created the rubble locating on surface.



**FIGURE 12: GEOLOGICAL MAP FOR GELUK MINE PROJECT AREA**

A normal fault with a throw of between 30m and 50m, and a strike of 200°, was found to coincide with a river gorge that forms the most prominent topographical feature of the project area. The greater economic potential is considered to be found east of the fault where the MML and its leaders are overlain by a west facing slope. Here the seams form a magnetite pavement where they coincide with the erosional surface.

The Lebowa granite intrusion truncating the Upper Zone in the East, and the normal fault coinciding with the river gorge, form the natural boundaries of a potential ore block in the project area, approximately 5.6km long by 1km wide.

Four distinct magnetite layers were intersected during the drilling program. These have been identified as the Main Seam (of primary interest in this project), First Seam, Second Seam and Third Seam. The Main seam is located at the bottom of the succession (Figure 13), with the First Seam locating between 1m and 2m above it (Figure 14).

The Second Seam is found just a few metres above the First Seam (Figure 15). The Third Seam is positioned approximately 20m above the Second Seam (Figure 16). Average seam widths are shown to be 3.19m for the Main Seam, 0.66m for the First Seam, 0.85m for the Second Seam and 0.73m for the Third Seam.

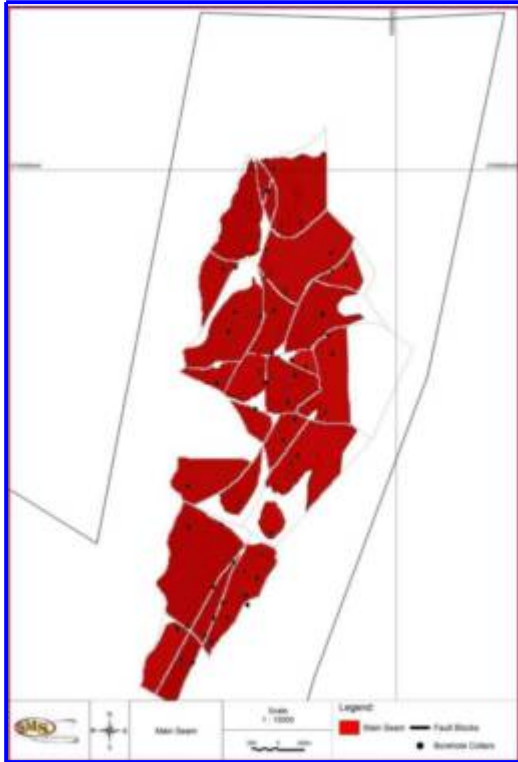


Figure 13: Aerial Extent of Main Seam

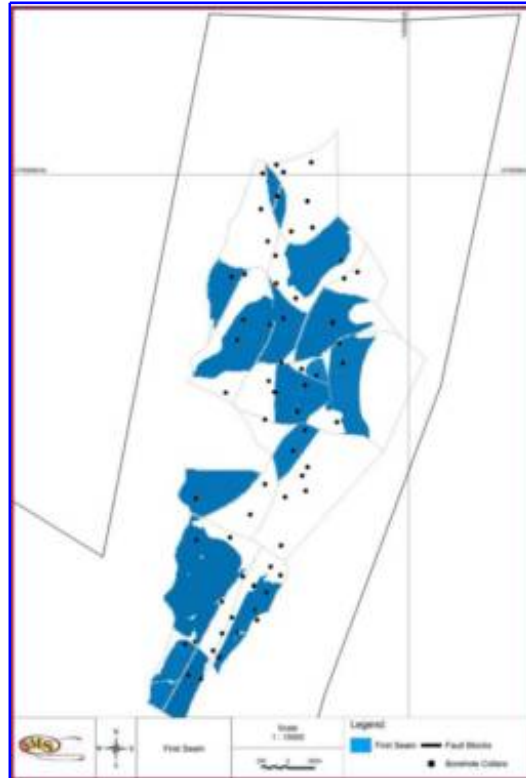


Figure 14: Aerial extent of First Seam

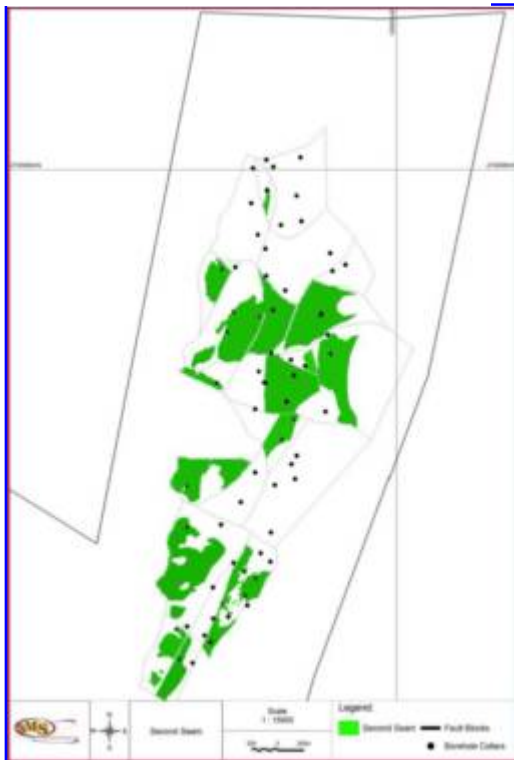


Figure 15: Aerial Extent of Second Seam

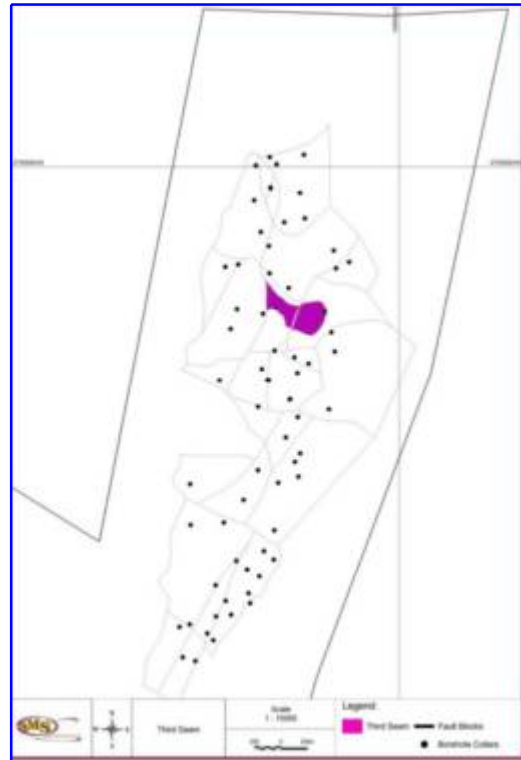
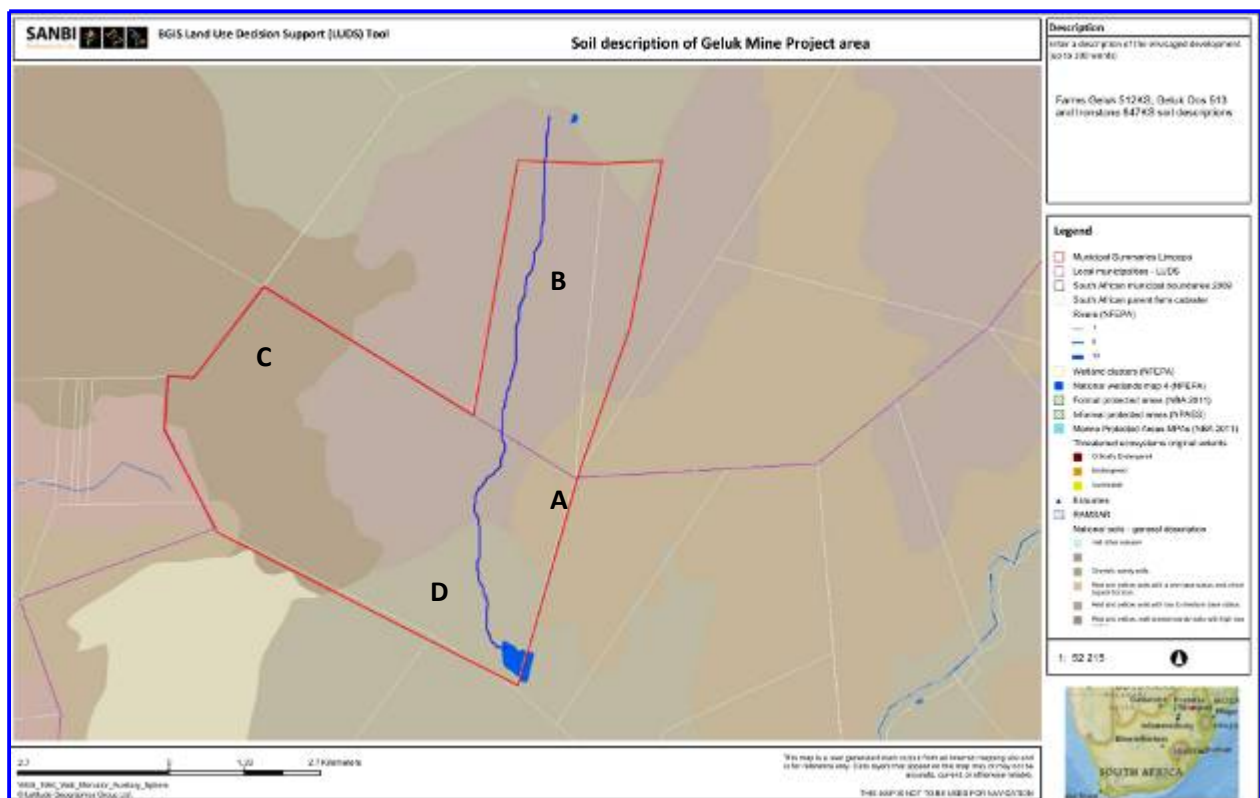


Figure 16: Aerial extent of Third Seam

## 6.4 Soils

Soils on the project area are predominantly shallow, rocky and clayey. Glenrosa and Mispah soils forms are common, with lime present in low-lying areas. Rocky areas without soil are common on steep slopes. Furthermore red apedal, freely drained soils occur and these deeper soils include Hutton, Bonheim and Steendal soils forms. To the western extreme of the farm Ironstone well drained deep Hutton or Clovelly soils can be expected with catenary sequences from Hutton at the top to Clovelly on the lower slopes; shallow skeletal Glenrosa soils also occur here. (*Mucina and Rutherford 2006*)

AS per SANBI BGIS General Soil description the following is indicated for the study site as per Figure 17:



**FIGURE 17: SOIL TYPES ON THE GELUK PROJECT AREA**

**A** – Rock with limited soil

**B** – Soils with minimal development, usually shallow, on hard or weathered rock with or without intermittent diverse soils. Lime is generally present in part or most of the landscape.

**C** – Generally the same of B however Lime is rare or absent from the landscape;

**D** – Red soils with a high base stratus.

## 6.5 Land Capability

The proposed mining area would have a low to moderate agricultural land use capability based on the varying topography, rocky and shallow soils, and overall soil structure (as per 6.4 soil descriptions). The land could be suitable for grazing, as currently being undertaken in the area and subsistence farming.

## 6.6 Hydrology

### 6.6.1 Surface Water & Water bodies

The proposed mining area falls within the Olifants Catchment Management Area number 4. The WMA comprises secondary catchments, Upper-, Middle- and Lower Olifants and Steelpoort Catchment. The site falls within the Steelpoort catchment (Figure 18) and within Quaternary Drainage Region (QDR) B41H. Quaternary catchments are the principal water management units in South Africa and are demarcated for the whole country as part of a comprehensive national water resource assessment.

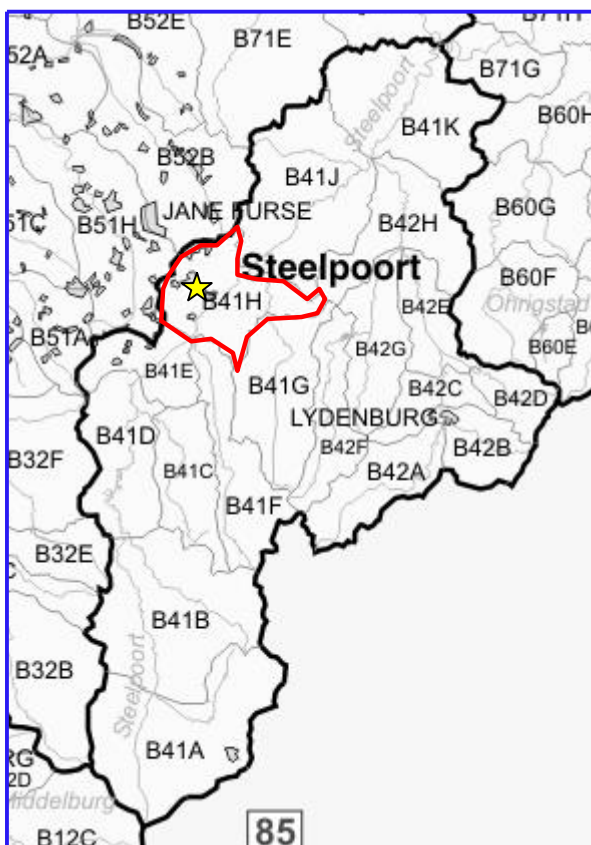


FIGURE 18: STEELPOORT VALLEY BASIN QDR B41H - LOCATION OF GELUK MINE PROJECT SITE

One river is found on the development site, the Shakwaneng River. It drains from north to south through the farms Geluk 512KS and Ironstone 847KS. An artificial storage dam/wetland known as the Dr Eiselen Dam has been constructed within the Shakwaneng River on the most southern extent of the farm Ironstone 847KS (Figure 19). The Shakwaneng River drains into the Steelpoort River 4.5 km downstream from the proposed mining area.

There are multiple runoff features from the mountain slopes feeding into the Shakwaneng River on the proposed project site. The most significant impact of the proposed mining operations would be the impact on surface water quality and availability of water resources within the project area for the mining operations. Furthermore sediment loading of the river may take place and mining excavations may alter and impede the river and other natural drainage patterns.

### 6.6.2 Surface Water Quality

The water quality status of the Shakwaneng River is not known. It drains into the Steelpoort River some 4.5km south of the proposed mining area. The Steelpoort River is considered to be in a fair state for water quality (Class C). There are significant increases in total dissolved salts in downstream areas of the river, which can be attributed to mining activities, irrigation and land use practices. There are concerns about heavy metal contamination from mining in the catchment. (DWAF 2005)

### 6.6.3 Surface Water Use

The major water use within the regional area is domestic use from settlements within the regional area, secondly community irrigation and industry. Other water use groups include:

- mining
- industry
- livestock
- recreation
- environment

Rakhoma will mostly require water during the operation of the mine for dust suppression. The estimated annual water usage has not been determined yet.

The water quantity requirements of users in the Steelpoort River (Janse van Vuuren et. Al., 2003) are table below.

**Table 4: Water Quantity Requirements of users in the Steelpoort River**

<b>Water users</b>	<b>Water requirement (10<sup>6</sup> m<sup>3</sup> / a)</b>
Urban domestic	2.30
Rural domestic	4.32
Livestock and Game	0.80
Mines	16.10
Irrigation	73.50
Afforestation	5.10
Alien vegetation	24.30
Water transfer to Blyde River	2.70

### 6.6.4 Wetlands

It is anticipated that there would be some wetlands on the project area function as stream flow reduction systems for runoff from the mountain slopes and other tributaries into the Shakwaneng River. There is also an artificial wetland, the Dr Eiselen Dam located in the most southern extent of the farm Ironstone 847KS. Wetlands are considered sensitive features in terms of the National

Water Act, 1998 (Act 36 of 1998). These aquatic features would need to be delineated and protected.

The impacts that may prevail on wetlands on site from mining activities may include:

- Existing hydrological flows change as a result of site disturbances;
- Change in the drainage patterns of the landscape;
- Reduction in quality, size or function of existing wetlands;
- Change in quality of surrounding water;
- Habitat loss. Impact on small animals (insects, amphibian, mammal) unable to migrate;
- Loss of ecosystem services as outlined above;
- Loss of species diversity;
- Loss of ecosystem resilience.

## 6.7 Geohydrology

The proposed project area is rural and the surrounding settlements (schools, hospitals, local residents) are dependent on borehole water. Some 12 000 people make use of raw river water which is collected directly from the Steelpoort River. Some 6000 people from the villages make use of boreholes. Groundwater is a major water resource for most households in Sekhukhune and will continue to do so in the future. (Makhuduthamaga IDP 2013)

The Olifants river basin study of 1991 estimates the mean annual recharge of the aquifers in the Steelpoort at 296 million m<sup>3</sup> per year and classifies the groundwater potential in the whole of the Steelpoort basin in the range of moderate to very high. Boreholes in areas of moderate potential are expected to yield between 1.5 and 5 l/s with a failure rate of 60 percent and those in the high potential areas between 3 and 10 l/s with a failure rate of 50 percent. Boreholes in the very high potential areas are expected to yield between 5 and 20 l/s with a failure rate of less than 30 percent.

Groundwater use is estimated at 0.733 Million m<sup>3</sup>/a and the available exploitable groundwater that could be used to further expand the current groundwater use is estimated at 1.26 Million m<sup>3</sup>/a.

A 1995 DWAf water quality study on the middle Steelpoort basin states that surface and groundwater resources are being threatened by increasing levels of contaminants from industrial, agricultural, mining and residential sources. Evidence of such impact was observed during a surface water quality assessment undertaken in the upper Steelpoort river catchment (Swart et al. 1995) (DWAf 1995 [6]: v). Despite the areas poor quality groundwater, the same study recognizes that shortage of; in particular, drinking water in the middle Steelpoort catchment has led to the increased exploitation of groundwater resources in this area (DWAf 1995 [6]: 1)."

Water quality deteriorates in the downstream direction and is the worst in the central Steelpoort subbasin, where the majority of the basins population lives.

Groundwater of the region can be contaminated from many sources such as rubbish dumps, toxic waste and chemical storage and use areas, leaking fuel storage tanks, sewage effluent, seepage from improper sanitation and waste disposal, and intentional dumping of hazardous substances.



A Mining process impacts on the natural hydrological system by disturbing the integrity of the overlying rock and soil strata resulting in increased infiltration and recharge of the groundwater system.

## 6.8 Air Quality

This section refers to the pre-mining state of the air quality, which is referred to as the ambient air quality. Air pollution has a localized and regional dispersal potential.

The ambient air quality of the regional Steelpoort area is problematic. Dust generation, specifically PM10 (dust fallout) and PM2.5, are of concern due to the mine locations in close proximity to houses and villages in the extensive Steelpoort area. This proposed mining operation is also proposed in the vicinity of rural settlements which will require adequate dust control measures during construction and operation of the mine. (*Limpopo Air Quality Management Plan 2013*)

The project site is characterised rural in nature with settlement development in its northern and southern extent, and subsistence farming. The majority of the populated area relates to the southern extent, Maphoha Village of the project area. The Magnet Heights/Jane Furse Road runs along the western boundary of the farm Geluk 512KS. There are several unpaved gravel roads on the project site. Primary sources of air pollution contributing to the ambient air quality in the area include dust arising from unpaved roads, vehicle movements, domestic fuel burning from rural households (fuel wood and charcoal for cooking and space heating).

By establishing the proposed mine dust emissions may be generated by wind erosion from the waste rock dumps, stockpiles, open mining strips, unpaved mine access roads and other exposed areas. Dust emissions occur when the threshold wind speed is exceeded (Cowherd et al., 1988). Factors which influence the rate of wind erosion include surface compaction, moisture content, vegetation, shape of storage pile, particle size distribution, wind speed and rain. Dust generated by these sources is termed 'fugitive dust' as it is not emitted to the atmosphere in a confined flow stream (US EPA, 1995).

As the area is mostly natural and rural in nature, the proposed mining operation will be considered a main emissions contributor to the ambient air quality during its establishment and operation phases. Mining will be undertaken in close proximity to schools (500m). The most significant anticipated sources would include:

- Emissions associated with the construction of the mine and opening of mining strips
- Fugitive dust from mining, haulage of ore and ore crushing and screening operations;
- Vehicle entrained dust from paved and unpaved roads;
- Vehicle emissions from vehicle tailpipes;
- Biomass and veld burning;
- Wind-blown erosion from stockpiles, waste rock dumps, open mining strips

Daily dust emissions will vary according to the level of activity during construction and operation phase of the mine. Fugitive dust is considered to be the main emission contributor during both these phase. Vehicle entrainments of particulates from unpaved haul roads are anticipated to be one of the dominant emissions during the operational phase of the mine. Mitigation of these emissions will have to be undertaken to prevent the reduction of the ambient air quality.

A set of National Dust Control Regulations were gazetted on 1 November of 2013 in terms of Section 53 (o), read with Section 32 of the National Environmental Management: Air Quality Act (39 of 2004) (NEM:AQ). These regulations prescribe a standard for acceptable dustfall rate for residential and non-residential areas.

**Table 5: Acceptable dust fall rates**

Restriction Areas	Dustfall rate (D) (mg/m <sup>2</sup> /day, 30 days average)	Permitted frequency of exceeding dust fallout rate
Residential area	D < 600	Two within a year, not sequential months
Non-residential area	600 < D < 1200	Two within a year, not sequential months

The method to be used to measure dustfall rate and the guideline for locating sampling points shall be according to the American Standard Testing Methodology (ASTM) D1739:1970 or equivalent.

In addition to the dustfall limits, the National Dust Control Regulations prescribe monitoring procedures and reporting requirements.

## 6.9 Noise

The proposed project site is rural in nature and populated in its northern and southern extent with the main Magnet Heights/Jane Furse Road routing through the project area. The regional area is highly populated and baseline noise levels can be expected to be urban in nature with day time noise levels of 55dBA and 45 dBA during night time. (*Based on Ambient noise ratings of SABS 10103: 2008*).

Receptors sensitive to noise in the study area includes schools, communities, residences and the Magnet Heights/Jane Furse Road as well as the R555.

Noise pollution associated with proposed mining activities may include noise from vehicle engines, loading and unloading of rock into steel dumpers, chutes, and other sources. Cumulative impacts of ripping, drilling, blasting, transport, and crushing, grinding, and stock-piling can significantly affect nearby residents.

Vibrations are associated with many types of equipment used in mining operations, but blasting is considered the major source. Shocks and vibrations as a result of blasting in connection with mining can lead to noise, dust and collapse of structures in surrounding inhabited areas. Livestock, on which the local population may depend, might also be disturbed.

The proposed mining operations will be restricted 500m from any schools or inhabited areas. Safety zones would need to be established around the area of drilling and blasting due to nearby settlements, schools and the Jane Furse Road. Methods to reduce flyrock and ground vibrations would be necessary.

## 6.10 Visual Aspects

The pre-mining visual character of the area is represented by the following land uses:

- a) Natural areas, mountains and drainage systems
- b) Small plots along the Shakwaneng River and subsistence farming
- c) Settlements and roads

The scenic quality of these land uses are considered high for natural areas, medium for plots and farming activities and low for settlement areas with associated infrastructure.

The project area lies in an undulating Mountainous terrain with a scenic drainage system flowing north to south on the farm Geluk. The Magnet Heights Waterfall is located in the northern section of the farm Geluk. The scenic quality of the project area and its surroundings can be classified as high as the scenic quality of the site and surrounding area are linked to the type of landscape that occur in the area.

The proposed mining activities will potentially alter the landscape character of the project area and adjacent areas through establishment of mine infrastructure, haulage roads, stockpiles and large scale excavations of mining strips. The increase in dust and presence of large-scale equipment and vehicles may impact on the aesthetic value of the area.

Furthermore mining activities may result in excavation of sensitive landscapes such as hills and mountains, and could result in sedimentation of the Shakwaneng River.

The landscape of the project site may have the ability to assimilate visual impacts associated with the proposed mining operation. Mining will be undertaken progressively and strips of area mined would be backfilled and rehabilitated before progressing to the next mining strips. This method of mining will allow for a lower visual intrusion on surrounding settlements.

## **6.11 Terrestrial Ecology (Fauna and Flora)**

### **6.11.1 Flora**

The project site is located in the Savannah Biome as defined by Mucina & Rutherford (2006). It comprehends two vegetation types, namely Sekhukhune Mountain Bushveld (SVcb 28) and Central Sandy Bushveld (SVcb 12) (Figure 19) . The majority of the proposed mining area corresponds to the Sekhukhune Mountain Bushveld. The vegetation type is typical of Limpopo Province occurring on mountains and undulating hills above lowlands above the Sekhukhune Plains Bushveld. It occurs at altitudes of 900 – 1600 m above sea level.

It is a dry, open to closed microphyllous and broad-leaved savannah on hills and mountain slopes that form concentric belts parallel to the north eastern escarpment. The open bushveld is often associated with ultramadic soils and contain a high diversity of edaphic specialists. Bushveld mountain slopes are generally taller than that encountered in the valleys and has a well-developed herb layer. The dry habitats contain a number of species with xerophytic adaptations, such as succulence and underground storage organs.

*Melia azedarach* is currently the most aggressive alien invader within the vegetation unit.

This vegetation unit is least threatened. The conservation target for the unit is 24%. None of the unit is statutory conserved in any conservation areas, but 0.4% is conserved in the Potlake Nature

Reserve. Nearly 15% is transformed due to cultivation, urban build, mining activities and its associated urbanisation.

This mountain bushveld is part of the Sekhukhuneland Centre of Endemism, more specifically the Steelpoort Subcentre. It harbours high plant diversity with many endemics. It is of global conservation significance. **SANBI & DEAT (2009) classified the Sekhukhune Mountainlands as an Endangered ecosystem.**

The Sekhukhuneland Centre of Endemism is defined as the flora of the Rustenburg Layered Suite in the eastern Bushveld Igneous Complex, without the south-western and north-western parts of the Suite that stretch into the Highveld and Springbok Flats respectively. The Centre covers approximately 4 800 km<sup>2</sup> with 61 endemic or near endemic species or infra specific taxa. Apart from the unique substrate, the centre also contains a very diverse range of habitat types, and thus a significant proportion of the plant species found here are specifically adapted to their edaphic conditions – they will only thrive or survive if the habitat remains intact (Siebert 2001).

Figure 19 is overleaf.

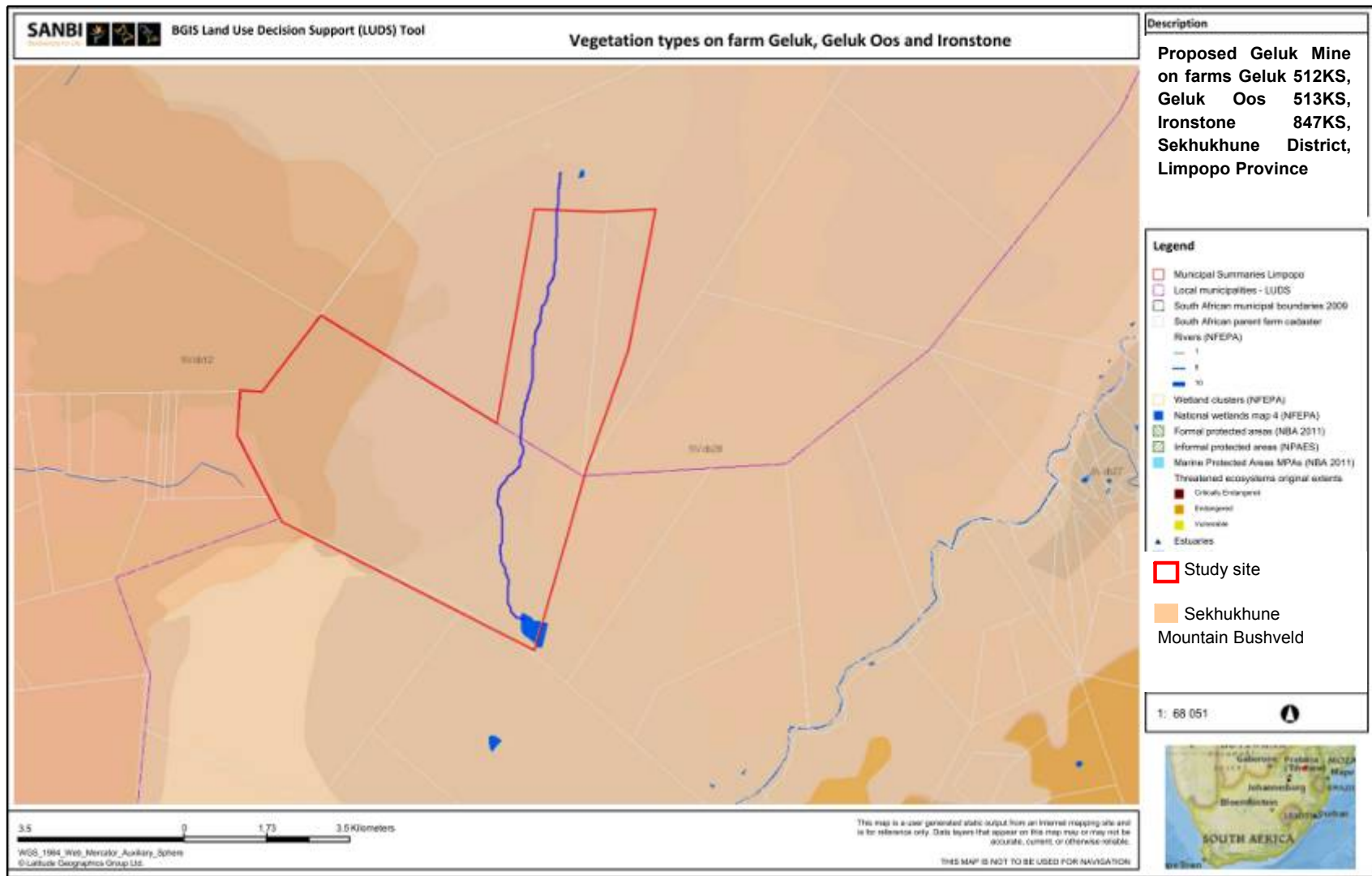


Figure 19: Vegetation units corresponding to project site

### 6.11.2 Fauna

A variety of mammals can potentially inhabit the proposed project area as a result of the natural conditions that predominate especially on top of the mountain slopes and hills.

The study area provides a variety of habitats which are suitable for reptile species. Various important and sensitive reptile species are known to occur in the region, and have a high probability of occurring on the study area. The Shakwaneng River also provides perfect habitat for a number of amphibian species. Important and sensitive amphibian species have a high probability of occurring on the proposed project area.

The river, wetland areas, Dr Eiselen Dam and many ephemeral drainage lines on the proposed project area are important habitat for birds in that they act as corridors of microhabitat for water birds. Riparian vegetation provides cover for skulking species, large trees for raptors to breed and roost in. The large pools that form after good rains persist well into the dry season and the fish that are trapped in those pools provide potential sources of food for Red Data species such as Yellow-billed Stork, Marabou Stork and Black Stork. A host of non-Red Data species is also dependant on drainage lines for food and shelter.

The pristine mountain slopes and hills are likely to support populations of large species, particularly raptor species currently Red Data listed such as Martial Eagle, Tawny Eagle, Batleur Terathopius ecaudatus, Lapped-faced Vulture and also non-raptors such as Southern Ground Hornbill and Kori-bustard.

It is inevitable that woodland will have to be cleared to gain access to the ore body and establish the mine. The biggest potential impact on large Red Data birds would be the removal of large trees. The impact on smaller species that are potentially breeding in the area that will be cleared for the mine would be local in extent.

Impacts that may take place due to mining activities include:

- Loss of breeding, foraging and roosting habitat through habitat transformation and destruction;
- Noise pollution associated with the mining activities and its cumulative effect can affect wildlife and result in migration of fauna and avifauna to adjacent areas;
- Blasting activities may pose a potential safety risk to fauna and also potentially cause fatalities if flyrock is not adequately controlled and contained.

Mitigation and management measures would need to be developed to manage potential impacts on fauna.

### 6.12 Sensitive Features

The most sensitive feature on the proposed project site is the Shakwaneng River, its associated waterfall as well as associated ephemeral drainage lines. The project area also falls within the Sekhukhune Mountain Bushveld forming part of the Sekhukhune Mountainslands; this is an Endangered Ecosystem.

The hills and mountains on the project area are sensitive landscapes which may be excavated as result of mining. The mining operations could result in sedimentation of the Shakwaneng River.

The site further falls within the Olifants Water Management Area which is a National Freshwater Protected Area.

### **6.13 Ramsar Sites within Makhuduthamaga / Greater Tubatse**

There is no Ramsar Site within Makhuduthamaga Local Municipality or in Greater Tubatse Local Municipality.

## **7. SOCIAL ENVIRONMENT**

### **7.1 Heritage and Cultural Resources**

The proposed mining area falls within the former self-governing territory of Lebowa. It now falls within jurisdiction of Makhuduthamaga and Greater Tubaste. Makhuduthamaga literally means “executives”, this was a term used to denote members of the Fetakgomo movement in the 1950s.

The regional area is now governed by the Republic of South Africa and land has been allocated to several tribal councils.

The proposed mining activities, excavations and site clearance may unearth sites of heritage and cultural significance. In terms of Section 38 of the National Heritage Resources Act, 1999 (Act 25 of 1999), a Phase 1 Archaeological Impact Assessment will be undertaken to identify and georeference any site of cultural or historical significance.

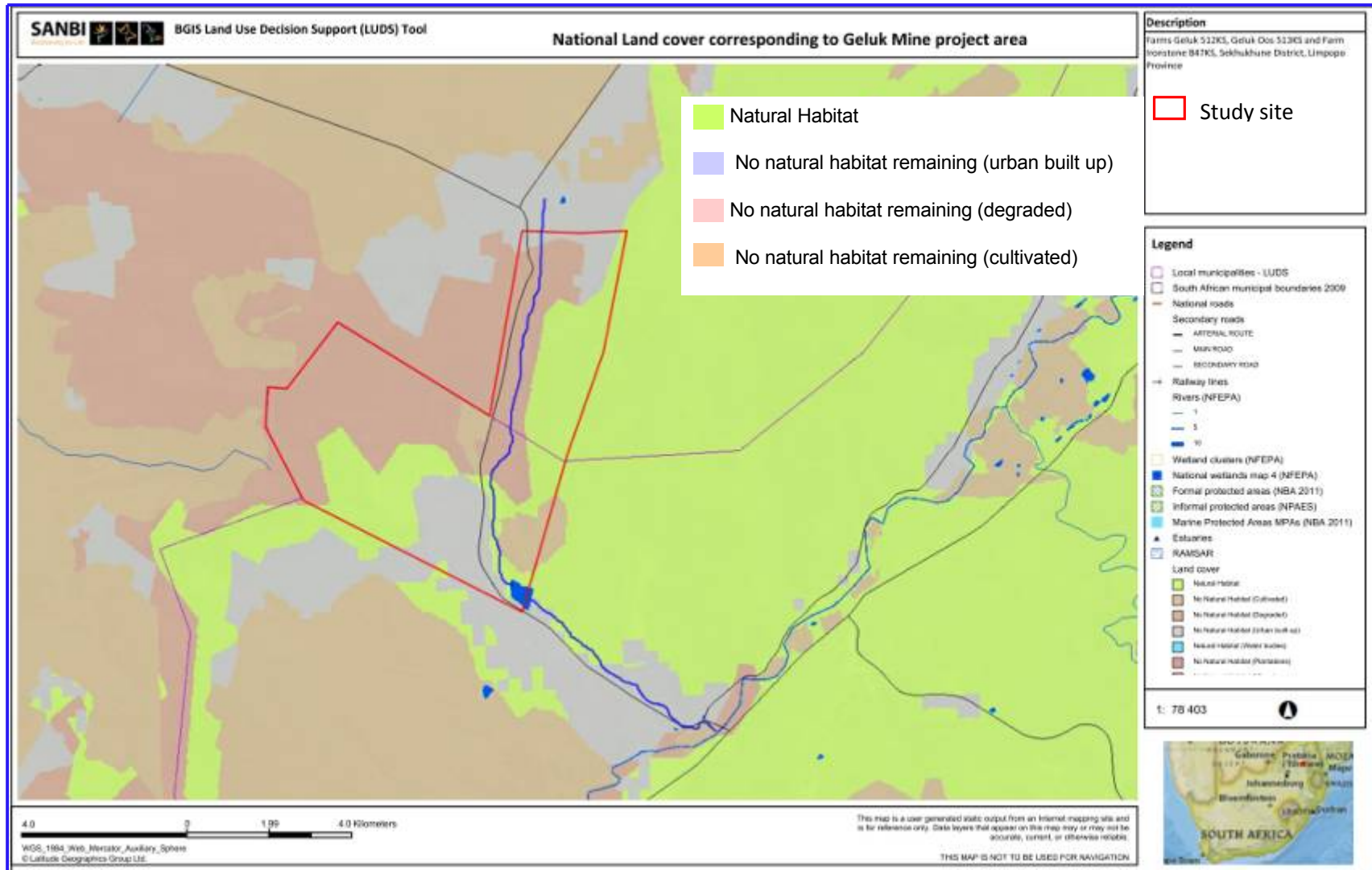
### **7.2 Existing land use**

Traditional and rural settlements expand onto the northern and southern extent of the proposed mining area. The site consists of natural habitat and also degraded areas. The community engage in subsistence farming, livestock farming on the study site. There may also be harvesting of fire wood and medicinal plants. Hunting of buck and gathering of plants for traditional uses were also noted in the project area.

There are several unpaved access roads on the project site. The Magnet Heights/Jane Furse main road is located on the western boundary of the farm Geluk 512KS.

According to the National Land Cover Map generated in SANBI BGIS for the project site the following land cover corresponds farms Geluk, Geluk Oos and Ironstone (Figure 19):

- Natural Habitat;
- No natural habitat remaining (urban built-up area);
- No natural habitat remaining (degraded);
- No natural habitat remaining (cultivated);



**FIGURE 20: NATIONAL LAND COVER CORRESPONDING TO THE PROPOSED GELUK PROJECT AREA**



### 7.3 Surrounding land use

The regional area of Steelpoort consists mainly of mining activities. Rural settlements correspond to former self-governing Lebowa land.

**Table 6: Surrounding Land use**

Surrounding land use	Direction from site	Distance	Municipal area
Settlement development	North, south, west	Directly adjacent	Makhuduthamaga Greater Tubatse
Natural	east	On the site and directly adjacent	Makhuduthamaga Greater Tubatse
Mining activities	Regionally with the Steelpoort and Burgersfort area	Varying	Makhuduthamaga Greater Tubatse

### 7.4 Social-Economic Activities

The proposed Geluk Mine project site is located within the Sekhukhune District Municipality in the jurisdiction of both Makhuduthamaga Local Municipality and Tubatse Local Municipality. The site is located some 20km west of Steelpoort, 36km south west of Burgersfort and some 9km south east of Jane Furse.

The farms Geluk 512KS and Geluk Oos 513KS is populated in its northern extent by Ga-Mogashoa settlement. There are several schools and community facilities within this village. Furthermore these farms fall with the jurisdiction of Makhuduthamaga. This is mainly a rural municipal area with communal tenure and with, at most, one or two small towns in their area. The municipality is completely rural in nature, dominated by traditional land ownership comprises a land area of approximately 2 096.9 square meters. It is made up of 189 settlements with a population of 274 358 people and 65 217 households, which amount to more than 24% of the District 1 076 840: Census 2011. The 2011 census highlighted that 32 780 inhabitant of Makhuduthamaga are unemployed, while only 19 534 are employed. The 2011 Regional Economic Database revealed that the four (4) biggest employment contributors are wholesale, and retail trade, catering and accommodation at 37%, followed by community, social and personal services at 19%, Government at 16%, and Construction at 12%.

Like most rural municipalities in the Republic of South Africa, Makhuduthamaga is characterized by weak economic base, poor infrastructure, major service delivery backlogs, dispersed human settlements and high poverty levels

Land ownership is predominantly under the South African Development Trust but under the custodianship of local traditional authorities. The MLM SDF found that 99% of land in the municipal area is in the custodianship of traditional authorities. Approximately 2% of the land is under the hands of private owners, i.e. land for Jane Furse Plaza, Jane Furse Crossing and Moratiwa Shopping Complexes.

The farm Ironstone 847KS is populated in its southern extent by the villages of Maphopha and Ga-Masha/ Ga –Rantheo. Within the section of Ngwabe along the main Magnet Heights/Jane Furse Road is a school and further economic and social facilities. Ironstone falls within Greater Tubatse Local Municipality.

The demographics for this municipality indicate a total population, according to Statistics South Africa, 2007, of approximately 343 468 with 66 611 households which makes Greater Tubatse Local Municipality a municipality with highest population in the District. It also appears from 1996 to 2007 community survey results that there has been a positive population growth in most of the local municipality. The main employment centre is Burgersfort and Steelpoort hence bulk of the people move to these urban areas.

The municipal area has a lack in growth of existing job opportunities as there are more people in the region than present job opportunities. This situation is worsening due to low levels of literacy, which increase the percentage of unskilled labour and need for unskilled job opportunities.

**Table 7: Employment Status of Greater Tubatse**

**Table showing employment status in the area:**

<b>Self Employment</b>	<b>Formal</b>	<b>informal</b>	<b>Unemployed</b>	<b>Pensioner</b>	<b>Formal &amp; informal</b>
<b>3 282</b>	<b>20 542</b>	<b>7 906</b>	<b>124 300</b>	<b>15 754</b>	<b>2 920</b>

**Source GTM community survey 2007**

The graph reveals that the vast majority of households within the economic towns of GTM (41%) have no income. A total of 7% earn between R0 to R4 800 per annum, following which 25% households that earn between R4 800 to R19 200.

The expansion of the mining activities in the GTM area presents an opportunity to address unemployment in the area. Yet, the low skills levels pose a threat in this regard. Education should be geared toward meeting the skills needs of the growing economy as a result of the mining activities.

National Department of Agriculture undertook a livelihoods survey in the area of Sekhukhune 2004 and 2006. The survey indicated that some areas facing the worst level of food insecurity in Greater Tubatse were amongst others, Ga-Masha with a score of 42.85. Evidence of ongoing-water scarcity and limited economic opportunities within the area limit the ability of its residents to adapt and cope to external stresses and shocks.

### **Sekhukhune District Municipality**

Both the municipalities of Makhuduthamaga and GTM fall within the Sekhukhune District. The present total population of the SDM is at 1,076, 840 (Statssa, 2011 Statistics) projections show there are 217,000 households living in the municipal areas. Half the population is below 18 years and the male, female ratio at this age is equal whilst the female population is 60% over the age of 18 or the working age. Sekhukhune District is mainly rural, with 94.7% of the total population residing in the rural areas and 5.3% in the urban areas.

### 8. LEGISLATION AND ADMINISTRATIVE CONTEXT

There are certain legislative requirements to which the proposed mining project must conform. The requirements of the applicable legislations or acts must be applied to this project.

#### 8.1 Constitution of the Republic of Southern Africa Act No 108 of 1996

The Constitution of South Africa is the supreme law of the country of South Africa. It provides the legal foundation for the existence of the republic, sets out the rights and duties of its citizens, and defines the structure of the government.

In terms of Section 24 of the Constitution:

- ✓ Every person has the right to an environment that is not harmful to their health or well-being and to have the **environment protected** through reasonable legislative measures.

**Environmental protection** is a practice of protecting the natural environment on individual, organizational or governmental levels, for the benefit of both the natural environment and humans. Due to the pressures of population and technology, the biophysical environment is being degraded, sometimes permanently. This has been recognized, and governments have begun placing restraints on activities that cause environmental degradation.

#### 8.2 Mineral Petroleum Resources Development Act No 28 of 2002

In terms of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act No. 28 of 2002) and its subsequent amendments of 2008, 2014 and the MPRDA Regulations R. 527, an application for a mining right must be supported by an EIA process.

In terms of Regulation 48 of R. 527 – MPRDA Regulations of 2004, a mining right must be supported by an EIA process in terms of Regulations 39 (1) which results in the following environmental reports: a Scoping Report conforming to Regulation 49(1) of R.527 must be submitted to the DMR, followed by an EIA report conforming to Regulation 50 and an EMPr conforming to Regulation 51.

As part of the EIA process in terms of Regulation 3 of R. 527), consultation must take place with interested and affected parties (I&APs).

The application for a mining right must be submitted simultaneously with an Application for Environmental Authorisation. Department of Mineral Resources as of 04 December 2014 has been delegated the powers to act as the competent authority in respect of activities relating to mining in terms of the National Environmental Management Act, 107 of 1998. Rakhoma Mining Resources Pty Ltd has already submitted the Application for a Mining Right.

### 8.3 National Environmental Management Act, 1998 (Act 107 of 1998)

The National Environmental Management Act, 1998 (Act 107 of 1998 (NEMA) provides for the cooperative, environmental governance by establishing principles for decision making on matters affecting the environment, institutions that will promote cooperative governance and procedures for co coordinating environmental functions exercised by organs of state.

In terms of EIA Regulations published in Government Notice R982, R983, R984 and R985 of 4 December 2014 under Section 24 (5) of the National Environmental Management Act No. 107 of 1998 (NEMA) the application for a Mining Right is subject to an Application for Environmental Authorisation. Government Notice R983, R984 and R985 schedules listed activities which require environmental authorisation. The proposed mining operation triggers an activity under GNR 984 which is subject to a full Scoping and EIA process. Rakhoma has applied to DMR for environmental authorisation.

Rakhoma is required to undertake an EIA process and submit a Scoping Report and EIA/EMPr, which describe the potential environmental impacts of the proposed mining project, how such impacts will be managed and how the disturbed area will be managed.

### 8.4 Applicable Listing notices and triggered activities under EIA Regulations, 2014

Activity 17 scheduled in Listing Notice 2 under Government Notice R984 of the EIA Regulations 2014 is considered the all-encompassing activity for developments which require a Mining Right. It specifically describes and elaborates on the associated infrastructure, structures and earthworks, directly related to the extraction of mineral resource.

**Table 8: Triggered NEMA Listed Activities**

Relevant Government notice	Activity no	Listing activity Description
<b>GNR 984 of 14 December 2014 (Listing Notice 2)</b>	Activity 17	Any activity including the operation of that activity which requires a mining right as contemplated in Section 22 of the Mineral and Petroleum Resources Development Act, 28/2002, including such infrastructure, structures and earthworks, directly related to the extraction of a mineral resource, including activities for which an exemption has been issued in terms of Section 106 of MPRD Act 28/2002.  <b>Rakhoma has applied for a Mining Right Application to the DMR (Ref no. LP30/5/1/2/2/10107MR). This EIA seeks to obtain Environmental Authorisation the activity.</b>
	Activity 15	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for – <ul style="list-style-type: none"> <li>(a) The undertaking of a linear activity; or</li> <li>(b) Maintenance purposes undertaken in accordance with a maintenance management plan;</li> </ul> <p><b>The proposed Mining Right area is 3165.32 hectares in extent and consists of large areas of indigenous vegetation. More than 20 hectares of indigenous vegetation will be removed for the mining pit (strip mining) and infrastructure.</b></p>

	Activity 21	<p>Any activity including the operation of that activity associated with the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening and washing but excluding smelting, beneficiation, refining, calcining or gasification of the mineral resources.</p> <p><b>The broken ore extracted from the mining strips will be hauled to the Run of Mine and then crushed and screened (primary for size reduction) and then shipped to the client.</b></p>
	Activity 24	<p>The extraction or removal of peat or peat soils, including the disturbance of vegetation or soils in anticipation of the extraction or removal of peat soils, but excluding where such extraction or removal is for rehabilitation of wetlands in accordance with a maintenance management plan.</p> <p><b>Overburden will be removed from the mining pit area; the haulage roads, waste rock dump area, crusher and screening area, and associated other mine infrastructure. The soils will be rolled over into strips through progressive rehabilitation of disturbed areas.</b></p>
<b>GNR 983 of 04 December 2014 (Listing Notice 1)</b>	Activity 14	<p>The development of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 80m<sup>3</sup> or more but less than 500m<sup>3</sup>.</p> <p>The mine will require storage of explosive magazines, diesel, and oils.</p> <p><b>The mine will require storage of diesel, fuel oil, ammonium nitrate and an explosives magazine.</b></p>
	Activity 19	<p>The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock from</p> <p>(ii) a watercourse;</p> <p>but excluding where such infilling, depositing, dredging, excavation, removal or moving</p> <p>(ii) is for maintenance purposes undertaken in accordance with a management plan agreed to by the</p> <p>(iii) relevant environmental authority; or</p> <p>(iv) occurs behind the development setback line.</p> <p><b>The proposed mining operations may result in the removing or moving of soils from a water course. The Shakwaneng River and many ephemeral drainage lines traverse the project area and proposed mining pit area.</b></p>
	Activity 24	<p>The development of –</p> <p>(i) A road for which an environmental authorisation was obtained for the route determination in terms of activity 5 of GNR387 of 2006/activity 18 in GNR 545 of 2010;</p> <p>(ii) A road with a reserve wider than 13.5m or where no reserve exists where the road is wider than 6metres</p> <p><b>The mine will require construction of haul roads for hauling of</b></p>

		<b>broken ore, overburden and waste rock.</b>
<b>GNR 986 (Listing Notice 3)</b>	Activity 12	<p>The clearance of an area of 300square metres or more of indigenous vegetation except where such indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>Geographical area:</p> <p>(i) Within a critically endangered or <b>endangered ecosystem</b> listed in terms of Section 52 of NEMBA or prior to the publication of such a list, within a area has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004.</p> <p><b>The proposed mine area corresponds to Sekhukhune Mountain Bushveld which is considered as part of Sekhukhune Mountainlands which is classified as an Endangered ecosystem by SANBI&amp;DEAT (2009). The project area is 3165.32 hectares in extent. The majority of the project site consists of this vegetation site.</b></p>

### 8.5 National Environmental Management Waste Act no 58 of 2008 (NEMWA)

The National Environmental Management Waste Act no 58 of 2008 (NEMWA) is the principal act governing waste management within South Africa since 2009. A list of waste management activities which require a waste management license (WML) have been published under Government Notice R921 of 29 November 2013, amended by GNR332 of 2 May 2014 and GNR 633 of 24 July 2015 in terms of Section 19 of the NEMWA. The list of activities have been categorised from A-C. Activities under Category A are subject to a Basic Assessment Process, Category B is subject to a full Scoping and EIA Process and Category C adhere to relevant requirements or standards as set out by the Minister. Hence the procedure for WML must be integrated with an environmental impact assessment process.

02 June 2015 the National Environmental Management Waste Amendment Act 26 of 2014 came into effect which amends the NEMWA. Definitions of residue deposit and residue stockpile (as per MPRDA) have now been inserted into the NEMWA. GNR 633 of 24 July 2015 recently inserted residue deposits as a Category B activity which requires a WML under the provisions of NEMWA.

As per the inserted Schedule 3 under NEMWAA which defines wastes, residue stockpiles and residue deposits are defined as Category A wastes. The definitions under Category A are as follows:

**Residue deposits:** means any residue stockpile remaining at the termination, cancellation or expiry of a prospecting right, mining right, mining permit, exploration right or production right;

**Residue stockpiles:** means any debris, discard, tailings, slimes, screening, slurry, waste rock, foundry sand, mineral processing plant waste, ash or any other product derived from or incidental to a mining operation and which is stockpiled, stored or accumulated within the mining area for potential re-use, or which is disposed of, by the holder of a mining right, mining permit or, production right or an old order right, including historic mines and dumps created before the implementation of this Act [and]

**Table 9: Residue Deposits and Residue Stockpile wastes**

1. Wastes resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals	a) Waste from mineral excavation
	b) Wastes from physical and chemical processing of metalliferous minerals
	c) Wastes from physical and chemical processing of non-metalliferous minerals
	d) Wastes from drilling muds and other drilling operations

Thus likewise the Environmental Authorisation and WML are subject to a Scoping and EIA process. The EIA process for environmental authorisation and the WML is being integrated. The potential list of waste management activities to be undertaken as part of the project which triggered under NEMWA is:

**Table 10: Waste Management Activities in terms of Section 19, NEM:WA**

Relevant Government notice	Activity no	Listing activity Description
<b>GNR 633 of 24 July 2015 (Category B)</b>	Activity 11	"The establishment or reclamation of a <b>residue stockpile</b> or residue deposit resulting from activities which require a mining right in terms of the MPRDA (Act 28 of 2002)."

Other potential waste management activities will be identified and populated during the preparation of the final Scoping Report.

### 8.6 National Water Act, Act 36 of 1998 (NWA)

The principles and objectives of the NWA are to guide the protection, use, development, conservation, management and control of water resources in a sustainable and equitable manner for the benefits of all persons.

Section 19 of the National Water Act, 36 of 1998 deals with prevention and remedying effects of pollution in particular where pollution of water resources occurs or might occur as a result of activities on land. The person who owns controls, occupies or uses the land in question is responsible for taking measures to prevent pollution of water resources. If these measures are not taken, the catchment management agency concerned may itself do whatever is necessary to prevent the pollution or to remedy its effects, and to recover all reasonable costs from the persons responsible for the pollution.

In terms of Section 19 the following is stated:

- (1) *An owner of land, a person in control of land or a person who occupies or uses the land on which -*
- a. any activity or process is or was performed or undertaken; or*
  - b. any other situation exists, which causes, has caused or is likely to cause pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring.*
- (2) *The measures referred to in subsection (1) may include measures to -*
- a. cease, modify or control any act or process causing the pollution;*
  - b. comply with any prescribed waste standard or management practice;*

- c. *contain or prevent the movement of pollutants;*
- d. *eliminate any source of the pollution;*
- e. *remedy the effects of the pollution; and*
- f. *remedy the effects of any disturbance to the bed and banks of a watercourse.*

The proposed mining operation requires a water use license application (WULA) in terms of Section 21 of the National Water Act, 1998 (Act 36 of 1998) (NWA). WULA will be submitted to the Regional office of the Department of Water and Sanitation (DWS) under the provision of the NWA. The application process is integrated and conducted parallel with the EIA Process. The potential water uses include:

- Section 21 (a): taking water from a water resource (water will be sourced via a borehole);
- Section 21 (c): Impeding or diverting the flow of water in a watercourse (The mine operation will take place within 500m of a wetland)
- Section 21 (i): altering the bed, banks, course or characteristics of a watercourse (wetlands on mining area, operation to take place within 500m);
- Section 21 (g): Disposing of waste in a manner which may detrimentally impact on a water resource; and
- Section 21(j) Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people (dewatering of mining strips/mining pit area if necessary)

### **8.7 National Heritage Resources Act, 1999 (Act 25 of 1999)**

The National Heritage Resources Act, 1999 (NHRA) protects all structures and features older than 60 years (Section 24), archaeological sites and material (Section 35) and graves and burial sites (Section 36). Potential impacts on heritage and archaeological resources during the construction phase include the likelihood of unearthing of heritage and archaeological resources especially during the construction phase of the project. The NHRA thus protects:

- Burial sites
- Buildings of more than 60 years
- Paleontological objects
- Special geological features (fossil prints, bushman rock art)

A Heritage Impact Assessment as required in terms of section 38 of the National Heritage Resource Act (Act 25 of 1999) would be commissioned during the EIA phase of the project to:

- To establish whether any of the type and ranges of heritage resources as outlined in section 3 of the National Heritage Resource Act (Act 25 of 1999) do occur in or near the proposed power line route, and if so, to establish the significance of these heritage resources.
- To establish whether such heritage resources will be affected by the proposed power line activities, and if so, to determine possible mitigation measures that can be applied to these heritage resources.

### **8.8 National Environmental Management: Air Quality Act, 2004**

A set of National Dust Control Regulations were gazetted on 1 November of 2013 in terms of Section 53 (o), read with Section 32 of the National Environmental Management: Air Quality Act (39 of



2004). These regulations prescribe a standard for acceptable dustfall rate for residential and non – residential areas. (Refer to Table 5 on page 26 for the acceptable dustfall rate).

The method to be used to measure dustfall rate and the guideline for locating sampling points shall be according to the American Standard Testing Methodology (ASTM) D1739:1970 or equivalent. In addition to the dustfall limits, the National Dust Control Regulations prescribe monitoring procedures and reporting requirements.

### 8.9 National Environmental Biodiversity Act, 2004 (Act 10 of 2004)

The purpose of the Biodiversity Act is to provide for the management and conservation of South Africa’s biodiversity within the framework of the NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed.

The list of threatened and protected species issued in terms of Section 56 (1) of the NEMA would be considered in this application and occurrence of species on site would be assessed.

South Africa also uses the internationally endorsed World Organisation-International Union for Conservation of Nature (IUCN) **IUCN Red List Categories and Criteria** in the Red List of South African plants.

The proposed project site comprises Sekhukhune Mountainlands which is classified as an Endangered ecosystem.

### 8.10 Decision Making Authority

DMR is the decision making authority for the mining right application, environmental authorisation and waste management license. The WUL application will be submitted to DWS. The applications and its submission to the authorities is summarised below:

**Table 11: Applications and relevant Authorities**

AUTHORITY	LEGISLATION	COMPETENCE
Department of Mineral Resources (DMR)	EIA Regulations 2014 under Section 24 of NEMA (GNR. 982) Regulations 21-24, 40-44; EIA Regulations	Decision making authority for mining related activities which require environmental authorisations
	Section 19 of NEM:WA 59/2008 as inserted by 2014 amendment	Decision making authority for activities relating to residue stock piles to mining which require WML
Department of Water and Sanitation	Section 21 water use - National Water Act, 1998 (Act No. 36 of 1998)	Decision making authority on matters related to water

### 9. ENVIRONMENTAL ISSUES AND POTENTIAL IMPACTS

The Scoping Report aims to scope identify and list the *environmental issues and potential impacts* that are relevant to the project and determine where further information is required in the form of specialist studies and or investigations. The identification of such issues and potential impacts are solicited from stakeholders, interested and affected parties through a public consultation process as well and desktop investigations undertaken by the environmental consultant paired with initial site investigations.

The key identified issues and potential impacts pertaining to the proposed mining operations outline the focus areas for the Impact Assessment phase and Specialist studies to be undertaken.

#### 9.1 BIOPHYSICAL ENVIRONMENT

##### 9.1.1 Impact on Water availability

The mine would require water for mining activities from either boreholes or surface water abstraction from the Shakwaneng River and Dr Eiselen Dam. Potable water for domestic use would need to be sourced from a local water provision scheme.

The major water use within the local area is domestic use from settlements, secondly community irrigation and industry. Other water use groups include: mining and further down stream of the Steelpoort River is recreation (trout fishing). This is already a water-scarce area.

Rakhoma will mostly require water during the operation of the mine for dust suppression. The potential impacts pertaining to water usage include:

- Processing, treatment and disposal of water used during the mining operations;
- Impact on available water resource in an already water-scare area;

##### 9.1.2 Impact on Hydrology (Surface Water & water bodies)

The Shakwaneng River drains from north to south through the proposed mining right area and the Dr Eiselen Dam has been constructed on the Shakwaneng River. There are multiple ephemeral drainage features from the mountain slopes feeding into the river. The activities associated with the mining operations and construction may impact on the surface water through site clearance, creation of the mining strips (pit area), mine waste rock dumps and stockpiles. The mining activities may also alter the water course and associated drainage features through excavations. The potential impacts include:

- Impact on available water resource in an already water-scare area;
- Impact on surface water quality;
- Altering and impeding the river and wetlands through mining operations (primarily excavations)
- Erosion ( the topography, vegetation, soils types and drainage patters have the potential for medium-high erodibility and donga formation);

- Increased sedimentation into the river and natural drainage features;

Rainwater falling and flowing onto the mining area will be managed through an Integrated Water and Waste Management Plan (IWWMP) which will be submitted to DWS. It will address water and waste management.

### **9.1.3 Impacts on Aquatic Ecosystems (wetlands)**

It is anticipated that there would be some wetlands on the project area function as stream flow reduction systems for runoff from the mountain slopes and other tributaries into the Shakwaneng River.

The impacts that may prevail on wetlands on site from mining activities may include:

- Existing hydrological flows change as a result of site disturbances;
- Change in the drainage patterns of the landscape;
- Reduction in quality, size or function of existing wetlands;
- Change in quality of surrounding water;
- Habitat loss. Impact on small animals (insects, amphibian, mammal) unable to migrate;
- Loss of ecosystem services as outlined above;
- Loss of species diversity;
- Loss of ecosystem resilience.

### **9.1.4 Impact on Geohydrology (Ground Water)**

A Mining process impacts on the natural hydrological system by disturbing the integrity of the overlying rock and soil strata resulting in increased infiltration and recharge of the groundwater system. The proposed mining activities may contaminate the groundwater on a local and or regional level.

### **9.1.5 Impacts from Acid Mine Drainage / Contaminants Leaching**

Mined ore from the open pit, waste rock excavated when exposed to oxygen and water may lead to acid generation if certain sulphide minerals/heavy metals are abundant and if an insufficient amount of neutraliser material is not available to counteract acid formation. These contaminants may release into surface and groundwater sources.

In the case of iron and vanadium, these metals are generally present in their reduced (Fe<sup>2+</sup> and V<sup>2+</sup>) ionic states in anoxic acid mine drainage, and these forms of the metals are much more stable at higher pH than the fully oxidised (Fe<sup>3+</sup> and VO<sup>2+</sup>) ions. Some acid mine drainage streams remain neutral-to-alkaline, although others show a marked decline in pH as they oxygenate.

The operation of the proposed mine may impact on water resources by releasing/leaching such contaminants. The potential impact of mine drainage on water resources and the quality thereof and possible risk of forming would need to be determined.

### **9.1.6 Impact on Air Quality**

The proposed mining right area is within a rural area. It is surrounded by settlements and large natural areas corresponding to mountains and hills. The local air quality can be considered as

moderate owed to existing problematic ambient air quality for the regional Steelpoort area. The mining construction and operation will result in an increase in fugitive dust and vehicle emissions resultant from excavations, haulage roads, site clearance and windblown erosion from stockpiles.

Airborne emission will occur during each stage of the mine cycle. These would be easily dispersed by wind.

#### **9.1.7 Impact on Soils**

The soil potential of the proposed mining area is low to moderate based on the shallow soils and rocky nature, further owing to the varying topography and overall soil structure. The area has soils of high erodibility and erosion dongas are anticipated to occur on the foot slopes of the mountains and hills.

Sources of erosion from the mining operations are the excavations (mining pit area) , waste rock and overburden stockpiles, haul roads and access roads, ore stockpiles. This may increase soil erosion result in sedimentation of surrounding areas and water bodies. Furthermore handling of hazardous materials and spillages may contaminate soils and subsoils. Main factors which will influence erosion will be the volume and velocity of runoff from precipitation events, infiltration thereof through soils, amount of vegetation cover, slope length, duration of bare soil exposure from mined areas before being rehabilitated.

The potential impacts on soil are anticipated to be:

- Soil contamination during mining activities (from wind blown dust and chemicals spills and residue);
- Topsoil erosion due to exposure, excavation, stockpiling;
- Loss of soils due to erosion and transfers into surrounding areas and water bodies;
- Sediment loading of surrounding areas, water bodies;

Erosion control must be considered from the beginning of operations through completion, closure and post closure of the proposed mine.

#### **9.1.8 Impact on Topography**

The proposed mining area is characterised by mountains, hills and a flat bottomed valley. The topography restricts land uses. The proposed mining activities will potentially alter the topography of the project area and adjacent areas through establishment of mine infrastructure, haulage roads, stockpiles and large scale excavations of mining strips. The improper management of stormwater and erosion on the mining pit area topographical features may pose slope, mining area stability issues.

The contours and slopes of the site need to be taken into account during the final mine design and placement of waste rock dumps, ROM, stockpiles and haulage roads as well as mine scheduling.

### 9.1.9 Terrestrial ecology (Fauna & Flora)

The proposed mining project would require the removal of vegetation and progressive rehabilitation thereof during the mine life-cycle. The site is also located within the Sekhukhune Mountainlands which is classified as an Endangered Ecosystem. The removal and disturbance of the project area vegetation will result in the following potential impacts;

Impacts on Flora:

- Destruction of vegetation, removal of plant species
- Loss of Important red data and endemic plant species

Impacts of Fauna:

- Habitat fragmentation, transformation and destruction;

## 9.2 SOCIAL ENVIRONMENT

### 9.2.1 Impacts on Settlements

The proposed mining project area is populated in the northern and southern extent. It has not been defined yet whether the settlements north and south of the development site would require resettlement or if mining operations will remain 500m from these villages. A 500m restriction area/exclusion zone applies from mines to settlements/residential areas. Potential impacts to be investigated as part of the study would include:

- Displacement of settled communities within 500m of the mining operations area prior to mine establishment;
- Impacts of migration from northern and southern villages into other settlements to resettle away from mining activities;
- Loss of access to clean water / services and natural resources;
- Impacts on livelihoods
- Impacts to cultural and ancestral resources;

### 9.2.2 Noise

Receptors sensitive to noise in the study area includes schools, communities, residences and the Magnet Heights/Jane Furse Road. The baseline noise levels of the area will may significantly increase with the proposed mining operation through vehicle engines, loading and unloading of rock into steel dumpers, chutes, and other sources. Cumulative impacts of ripping, drilling, blasting, transport, and crushing, grinding, and stock-piling can significantly affect nearby residents. The potential impact will be an increase noise levels to the local and surrounding area.

### 9.2.3 Visual Aspects

The proposed mining project (pre-mining, life cycle of mine, closure and post closure) may impact on visual receptors (communities, motorists, tourists). The potential impacts that may occur include:

- Impact on the community's sense-of place;
- Impact on the visual quality of the local and surrounding area;
- Impact on the landscape character and scenic quality;

#### 9.2.4 Traffic

There will be a significant increase in traffic volumes on the local road Jane Furse on the western portion of the farm Geluk 512KS which routes between the R555 and Jane Furse Township/Schoonoord. Rural settlements have developed along this road. There will be a significant increase in heavy transport vehicles on the R555 route from the proposed mining area to Witbank. R555 is the main route which will be utilised to haul the raw ore product to Vanchem processing plants.

There is a medium volume of traffic on the local Jane Furse road due to public and private vehicles, pedestrians and livestock crossing from natural areas into settlements areas. The anticipated mine traffic and haulage of raw ore will significantly increase traffic volumes on the local and regional road. The potential impacts on traffic include:

- Impact on road safety;
- Increased traffic on local road and usage;
- Increase in traffic on the R555;
- Pedestrian safety
- Impact on road infrastructure (excessive haulage vehicles on regional road may deteriorate road surface);

#### 9.2.5 Cultural and heritage resources/ ancestral remains

The proposed mining activities, excavations and site clearance may unearth sites of heritage and cultural significance and impact on ancestral burial sites/remains. Further burial sites may be located on within the project area. The potential impacts from the mining activities on the cultural and ancestral remains:

- Disturbance of cultural and heritage resources;
- Destruction of the resource through surface disturbance / excavation;
- Degradation/destruction of topographical or hydrological pattern changes or from soil movement;
- Disturbance or destruction of ancestral burial grounds;

#### 9.2.6 Health Impact

The proposed mining operation may result in increased dust, migration to the area by foreign job seekers, use of hazardous substances, safety issues due to blasting and flyrock. Safety zones would need to be established around the area. Methods to reduce flyrock and ground vibrations would be necessary. Potential impacts that may arise from the mining construction and operation are as follows:

- Contaminated ground and surface water from the a mining area may pose a health risk to communities;
- Exposure to high concentrations of dust may pose a health risk to local and surrounding areas;
- Indirect effects of dust fallout from proposed mining operations can include increased incidences of asthma, chronic bronchitis;

- Negative behaviour such as risky sexual and other destructive behaviours leading to infections of HIV/AIDS which migrant labourers are likely to take back to home (incurable disease);
- The loss of access (the project site is natural and contains multiple succulents and herbs) to natural medicinal resources (traditional healers);
- Safety risk due to drilling and blasting operations proposed nearby settlements, schools and the Jane Furse Road;

### 9.2.7 Dust Fallout (Nuisance impact)

Although dust fallout is addressed under the Air Quality under the section Biophysical environment, it also presents a nuisance to the social environment.

The proposed construction and operation of the mine will result in increased dust levels during site preparation, excavations, usage of unpaved haulage roads and access roads which will potentially impact on the local and surrounding areas (settlements).

### 9.2.8 Mine Waste

Mine waste related to the proposed mining construction and operation may potentially result in contamination of the direct and surrounding natural areas and settlement areas.

### 9.2.9 Socio-economic impact

The social and economic impact from a large scale mine (3165.32 hectares mining right area) is extensive and spread over a local to regional level. These socio-economic impacts posed by the mining proposal can be positive and negative. The potential socio-economic impacts may include:

- Creation of jobs, roads;
- Migration influx into proposed mining areas (can create impact on local inhabitants);
- Increased demand for goods and services in remote and impoverished areas;
- Mining operations can lead to social tension and violent conflict;
- Vulnerability of local communities to soil, air and water pollution, which affect subsistence and livelihood of local people;
- Influx of people to mining area can create pressure on land, water and other resources;
- Possible displacement of settled communities due to a 500m restricted area/exclusion zone between the mining operation and populated areas;

## SECTION F – PUBLIC PARTICIPATION PROCESS

### 10. PUBLIC PARTICIPATION PROCESS

The Public Participation Process forms the corner stone for detailing the Scoping Report. The process identifies potential interested and affected parties on the project and solicits inputs and comments pertaining to the matter/activity proposed from such parties. Public Participation allows the public to contribute to the project and provides for better decision making by collective inputs from stakeholders, organs of state and specialists. In terms of the EIA Regulations 2014, Appendix 2

(h) (ii), a Scoping report must contain details of the public participation process undertaken for the project.

The public participation process is conducted in accordance to Regulation 41 to 44 of Government Notice R982 of the NEMA Regulations. The process provides the public access to necessary information on the project throughout the scoping and EIA phase of the study. It provides sufficient, transparent and accessible information to I&APs in an objective manner in a phased approach as per the EIA process conducted. The objectives are outlined per phase below.

**Table 12: Objective of consultation during different phases of the EIA Process**

Scoping Phase	Impact Assessment Phase	Decision Making Phase
<ul style="list-style-type: none"> <li>▪ Provide comments and inputs;</li> <li>▪ Verify that issues have been recorded</li> <li>▪ Assist in identifying reasonable alternatives</li> <li>▪ Contribute local information and knowledge to help identify environmental impacts</li> </ul>	<ul style="list-style-type: none"> <li>▪ Contribute information and local knowledge to the impact assessment</li> <li>▪ Verify that issues have been considered in the Environmental Impact Report &amp; EMPr</li> <li>▪ Comment on the findings of the Environmental Impact Report</li> </ul>	<p>Provide I&amp;APs with the outcome of the environmental authorisation (DMR decision), how the decision can be appealed</p>

### 10.1 Commencement of the Public Participation Process

Naledzi Group Pty Ltd commenced with the public participation process and announcement of the commencement of the Scoping and EIA Study on 24 July 2015. The announcement stipulated that the process is within the Scoping Phase.

### 10.2 Identification and Registration of Interested and Affected Parties (I&APs)

#### What is an interested and affected party?

- Any party interested and or affected by the activity
- Organs of state who have jurisdiction in respect of the activity

#### Identification and Registration of I&AP's

In terms of Regulation 40, 41 -44 of the EIA Regulations of 2014 of NEMA the Environmental Assessment Practitioner (EAP) managing the application must:

- 1) Provide access to information to all information that reasonably has or may have the potential of influence any decision and must include consultation with-
  - (a) The competent authority
  - (b) Every state department that administers a law relating to a matter affecting the environment relevant to an application for environmental authorisation;
  - (c) All organs of state which have jurisdiction in respect of the activity;
  - (d) All potential, or, where relevant registered interested and affected parties
  - (e) Registered landowners;
  - (f) Occupiers of the proposed application site;
  - (g) Person in control of the proposed application site;



- (h) Owners, persons and occupiers of land adjacent to the site where the activity is to be undertaken;
- (i) Municipal ward councillor for the project area, ratepayers organisation representing the community in the area;
- (j) Municipality in which jurisdiction the application falls;

Consultation with communities and interested and affected parties are also required in terms of the MPRDA, 2002 this has been defined in terms of the act as:

**‘consultation’** means a two way communication process between the applicant and the community or interested and affected party wherein the former is seeking, listening to, and considering the latter’s response, which allows openness in the decision making process.

**‘community’** means a group of historically disadvantaged persons with interest or rights in a particular area of land on which the members have or exercise communal rights in terms of an agreement, custom or law: Provided that, where as a consequence of the provisions of the Act negotiations or consultations with the community are required, the community shall include the members or part of the community, directly affected by prospecting or mining, on land occupied by such members or part of the community.

‘Interested and affected’ parties include, but are not limited to; –

- (i) Host Communities
- (ii) Landowners (Traditional and Title Deed owners)
- (iii) Traditional Authority
- (iv) Land Claimants
- (v) Lawful land occupier
- (vi) The Department of Land Affairs,
- (vii) Any other person ( including on adjacent and non-adjacent properties) whose socio-economic conditions may be directly affected by the proposed prospecting or mining operation
- (viii) The Local Municipality,
- (ix) The relevant Government Departments, agencies and institutions responsible for the various aspects of the environment and for infrastructure which may be affected by the proposed project.

#### Identified I&AP’s

**i. Competent Authorities:**

- Department of Mineral Resources: Limpopo Region is responsible for the environmental authorisation, waste management license and awarding to the Mining Right;
- The Department of Water and Sanitation is the responsible authority for issuance of the WULA;

**ii. Registered Land owner:**

The farms Geluk 512KS, Geluk 513KS and Ironstone 847KS is state owned. The Department of Rural Development and Land Reform (DRDLR) Limpopo Region has been identified. The project area is within Sekhukhune District and therefore the Head of Department and Chief Director for Management of State Owned land in DRDLR has been notified, Mr Julius Mashuphu.

The project application and notifications area however being handled by Ms Susan Molefe. She is the Senior Manager for state owned land in the Sekhukhune District.

The DRDLR: Limpopo Region is the former Department of Land Affairs thus falls within this category of I&APs identified.

**iii. Lawful occupiers of the land:**

The land is under custodianship of local traditional authorities. Allocation rights have been provided to:

- Tswako (Maepa) Traditional Authority in terms of Government Notice 680/1968
- Hlakwana (Rantho) Traditional Authority in terms of Government Notice 687/1968
- Bahlawana ba Maphopha in terms of Government Notice 1402/1966

There are also several Kgoshi's and Kgoshigadi's certificates from various traditional councils to utilise the proposed Mining Right area. These traditional authorities and chiefs are considered lawful occupiers of land, traditional authorities.

**iv. Host Communities**

The site is populated in its southern and northern extent by Maphopha village (south) and Ga-Mogashoa (south) and would be considered the host communities. This will be verified during the Scoping Phase

**v. Land Claimants:**

The Restitution on Commission on Land Rights: Polokwane has been identified and notified of the proposed project. A request for land claim results for the farms Geluk, Geluk Oos and Ironstone has been lodged.

**vi. Local Municipality**

The project site is within the district of Sekhukhune District Municipality and within the municipal areas of Makhuduthamaga (farm Geluk and Geluk Oos) and Greater Tubatse (farm Ironstone).

These district and local authorities have been identified and notified.

**vii. Ward Councillors**

The project site falls within Wards 7, 12 and 13 of Makhuduthamaga Local Municipality and Wards 27, 28 and 29 of the Greater Tubatse Local Municipality. The relevant Ward Councillors have been identified and notified.

**viii. Agencies and institutions responsible for infrastructure and the environment**

This includes the Limpopo Department of Economic Development, Environmental and Tourism, Eskom, Limpopo Roads Agency. A comprehensive list is attached.

**ix. Government Departments**

An I&AP database and Organs of State Database has been opened for the project and all identified landowners, interested and affected parties and registered interested and affected parties have been registered. The lists are being maintained and updated during the Scoping Phase. The

database would remain open for the duration of the Scoping and EIA phase. Please refer to Appendix A for the I&AP Database and Organs of State Database.

### 10.3 Public involvement during the Scoping Phase

The opportunity to participate in Scoping and EIA study and register as an interested and affected party was announced on 27 July 2015.

- A newspaper advertisement was published in the Steelburger Newspaper on 27 July 2015 (Appendix B- EIA Study Newspaper Advertisement);
- Site Notices were posted on site and in the study area on 27 July 2015. Photographs were taken of the site notices placed in the area. (Appendix C – Site Notice Photographs);
- A Background Information Document (BID) was prepared and sent to interested and affected parties, organs of state and tribal authorities on the project on 24 July 2015. The BID was presented in English. It is being circulated from 24 July to 20 August 2015;
- Notification Letters & BID's were hand delivered to Organs of State on 31 July and 2 August 2015 and to the Tribal Authorities on 4 and 5 August 2015. These letters were stamped by the receivers (organs of state, Tribal Authorities) affected by the mining right application; (Appendix D – BID and Notification letter);

### 10.4 Public Review of Draft Scoping Report

A Draft Scoping Report has been prepared and is made available for public review.

The DSR and Plan of Study for EIA have been prepared during August 2015. **The report is made available for public review from 14 August 2015 – 11 September 2015.** An electronic copy of the Scoping Report has been available to registered interested and affected parties and organs of state on the project database. Hard copies of the Scoping Report have been placed at public venues in the study area to allow for review and commenting. The DSR has been placed at the following venues for public review:

**Table 13: List of Public Venues at which Draft Scoping Report can be viewed**

Venue	Location	Contact
Bahlakwana ba Maphopha Traditional Council Office	Stand 6745 Moshate Section Ga-Maphopha, Ngwaabe	Contact person: Ms Ramontja Tribal Council Administrator Cell: 082 540 9929
Mogashoa-Ditlhakaneng Tribal Council Office	Stand 788 Ga Mogoshoa-Ditlhakaneng Village, Magnet Heights	Contact person: Evah Mamaile Tribal Office Administrator Cell: 072 085 8482
Makhuduthamaga Local Municipality	Stand No 1 Groblersdal Road Jane Furse 1085	Contact: Office of the Speaker Contact Person: Mtilo Makaleng Tel: 013 265 8638
Naledzi Group Pty Ltd	No 141 Thabo Mbeki Street Fauna Park Polokwane 0699	Contact person: Desmond Musetsho / Thendo Matsenene Tel: 015 296 3988

## OPPORTUNITY TO COMMENT ON THE DRAFT SCOPING REPORT

All comments can be sent to the offices of Naledzi Group **no later than 11 September 2015**. Direct your comments to:

Contact the Naledzi Group Pty Ltd through Ms. Marissa Botha  
Suite # 320, Postnet Library Gardens, Private Bag X 9307, Polokwane, 0700  
141 Thabo Mbeki Street, Polokwane, 0700  
Tel: (015) 296 3988 Fax: **(015) 296 4021**  
Cell: **084 226 5584**  
Email: [botham@naledzi.co.za](mailto:botham@naledzi.co.za)

Interested and Affected parties wishing to comment on the Scoping Report may do so by:

- Comment by email, facsimile or telephone;
- Any written submission

The DSR and Plan of Study for EIA has been distributed to all I&AP's and stakeholders for comment.

A Notification letter announcing the availability of the DSR for public review along with electronic copies of the DSR have been distributed to all I&APs and stakeholders on the project database.

### 10.5 Stakeholders Meeting

A Stakeholders meeting will be arranged with relevant local authorities, district municipality, ward councillors, organs of state and agencies responsible for infrastructure to discuss the project and solicit comments and inputs during the public review period of the Draft Scoping Report.

Details of such a meeting will be communicated with the relevant stakeholders during the Scoping Phase.

### 10.6 Public Meetings

Public information sessions will be arranged with I&APs and relevant communities during the public review period of the Draft Scoping Report in which details of the project will be communicated. Comments and issues will be solicited from the public during such information sessions.

The arrangements for such information sessions will be communicated to I&APs during the draft Scoping Report public review period.

### 10.7 I&AP Correspondence

Comments and Issues raised during the Scoping Phase will be captured in an Issues and Response Report (IRR). Comments raised at public meetings and any written comments received will be documented in the IRR, indicating both the comment and also the responses compiled by the EIA team and the project proponent.

The Issues and Response Report will consist of versions.

- ✓ Version 1 – IRR appended to Final Scoping Report
- ✓ Version 2 – IRR appended to Draft Environmental Impact Report (EIR)
- ✓ Version 3 – IRR appended to Final EIR

## 10.8 Submission of Final Scoping Report (FSR)

Once the public review period has lapsed on the DSR, Naledzi would capture all the comments and issues received from the public in the IRR and included it in the Final Scoping Report. The FSR and Plan of Study for EIA would be submitted to DMR for approval.

The FSR is due for submission to DMR on 31 August 2015.

## 10.9 Public Consultation during Environmental Impact Phase

Interested and Affected Parties would be notified of the commencement of the EIA Phase once all specialist investigations have been undertaken. I&Aps would be given the opportunity to review the findings of the EIA which is presented in a Draft EIR and EMPr. The draft EIR would indicate the potential positive and negative impacts and measures to enhance positive impacts and reduce negative impacts.

As part of the assessment, an EMPr is compiled. The EMPr is a requirement as per the EIA Regulations 2014 and the MPRDA. The EMPr recommends how to operate and implement the project. It is anticipated that the ***EIR & EMPr would be available during December 2015 and January 2016.*** I &Aps would receive a notification letter announcing the availability of the Draft EIR. The report would be distributed for public review and comment for a period of 30 calendar days.

Information sessions would be arranged to present the findings of the EIR to I&Aps and stakeholders. Details thereof would be available during the EIA Phase.

All comments and issues received during the public review period of the Draft EIR and EMPr would be captured in a Final EIR and submitted to DMR for review and ultimately approval. ***Submission of the Final EIR is anticipated during February 2016.*** I &Aps would receive notification of the submission and would as per the scoping phase have the opportunity to request copies of the final report.

## 10.10 Public Consultation during Decision making phase

During this phase DMR will review the Final EIR and consult with any other key organs of state eg. the Department of Water & Sanitation (DWS) before granting or refusing an environmental authorisation.

The environmental authorisation will be made available for public review for a period of 20 consecutive calendar days. This provides I &AP's with an opportunity to verify that the decision taken have considered their comments and concerns raised. I&Aps are also then informed of the appeal procedure, should they have a reason to appeal.

## SECTION G – PLAN OF STUDY FOR ENVIRONMENTAL IMPACT ASSESSMENT

### 11. PLAN OF STUDY FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY

The Plan of Study is required in terms of Appendix 2 (i) of the NEMA EIA Regulations 2014 of GN R982. The plan of study is to form part of the content of the Scoping Report to set the approach to the Environmental Impact Assessment of the application. The Plan of Study must include:

- I. A description of the tasks that will be undertaken as part of the environmental impact assessment process, including any specialist reports or specialist processes, and the manner in which such tasks will be undertaken;
- II. An indication of the stages at which the competent authority will be consulted;
- III. A description of the proposed method of assessing the environmental issues and alternatives, including the option of not proceeding with the activity and;
- IV. Particulars of the public participation process that will be conducted during the EIA process
- V. Any specific information required by the competent authority

#### 11.1 TASKS TO BE UNDERTAKEN FOR THE EIA

The Impact Assessment Phase entails undertaking various specialist studies, and developing an Environmental Impact Assessment Report (EIR) and a Draft Environmental Management Programme (EMPr). As part of the assessment, an EMPr is compiled. The EMPr is a requirement as per the EIA Regulations. The EMPr recommends how to plan, operate and implement the proposed mining project and will also include a mine-closure plan. The provisions of the EMPr are legally binding on the developer and its contractors. This EMPr is also submitted to DMR and Department of Water & Sanitation for their approval. Implementation of the EMPr during commissioning and operation of the proposed mining project will ensure compliance with environmental regulations during the pre-mining activities, cycle of the mine, post-mining and closure.

##### 11.1.1 Specialist Studies

Specialist Studies have been identified according to potential impacts in the Scoping Report. The specialist studies would be commissioned in the initial stages of the impact assessment phase of the EIA study. Specialist Studies would focus on the outcomes of the Scoping Report and inform or evaluate the potential impacts and consist of baseline information and assessment of the potential impact. The specialists would also provide recommendations on the mitigations measure to be implemented to curb potential negative impacts and enhance positive impacts.

The findings of specialist studies will be integrated with the Draft EIR and EMPr and the impacts will be ranked using a scoring system that compares the significance of each impact.

Specialist studies must be detailed as per Appendix 6 of the NEMA Regulations 2014, Government Notice R982 . Specialist studies must Include -

- Details of person who prepared the report;
  - i. Expertise of that person to carry out the specialist study or specialist process including a curriculum vitae;
  - ii. A declaration that the person is independent in a form as may be specified by the competent authority;

- An indication of the scope of , and any purpose for which the report was prepared;
- The date and season of the site investigation and the relevance of the season to the outcome of the assessment;
- Description of the methodology adopted in preparing the report or carrying out the specialist process;
- The specific sensitivity of the site related to the activity and its associated structures and infrastructure;
- An identification of any areas to be avoided, including buffers;
- A map superimposing the activity including associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;
- Description of any assumptions made and any uncertainties or gaps in knowledge
- Description of findings and potential implications for such findings on the impact of the proposed activity, including identifying alternatives on the environment;
- Recommendations in respect of any mitigation measures that should be included in the EMPr;
- Any condition or recommendation for inclusion in the environmental authorisation;
- Any monitoring requirements for inclusion in the EMPr or environmental authorisation;
- A reasoned opinion – (i) as to whether the proposed activity or portions thereof should be authorised and; (ii) if the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;
- A description of any consultation process undertaken during the course of carrying out the study;
- Summary of copies of any comments received during any consultation process;
- Any other information requested by the competent authority

It is proposed that the following specialist studies will be undertaken as part of this EIA process:

- ✚ Archaeology and Heritage Impact Assessment;
- ✚ Social and Economic Impact Assessment;
- ✚ Soil and Land Use Impact Assessment;
- ✚ Noise and Vibration Impact Assessment;
- ✚ Air Quality Impact Assessment;
- ✚ Terrestrial Ecological Impact Assessment;
- ✚ Aquatic Ecological Impact Assessment;
- ✚ Surface Water (Hydrology) Impact Assessment;
- ✚ Ground Water (Geohydrology) Impact Assessment;
- ✚ Traffic Impact Assessment;
- ✚ Geochemistry Impact Assessment Report
- ✚ Visual Impact Assessment.

### **11.1.2 Environmental Impact Report (EIR) and Environmental Management Programme (EMPr)**

A Draft EIR and Draft EMPr will be developed in which the findings of the specialist studies would be consolidated to inform the assessment. Issues raised by I&As and the potential impacts from the development on the physical, biophysical and social-economic environment will be examined in detail.

As part of the assessment, an EMPr is compiled. The EMPr is a requirement as per the EIA Regulations. The EMPr recommends how to operate and implement the project.

The Draft EIR and EMPr will be available for public review/comment for a period of 30 calendar days. The availability of the Draft EIR will be advertised in a local newspaper. It is anticipated that the Draft EIR and EMPr would be compiled during November 2015. The public review period on the reports is anticipated to be during December 2015 to end of January 2016. The report would be available at locations which are easily accessible by the public.

On the lapse of the public review period the reports would be finalised by incorporating any additional comments received from I&Aps. A Final EIR and Draft EMPr would be submitted to DMR for review and decision making. The anticipated date for submission is during the beginning of February 2016.

### **11.1.3 Issue and Response Report**

Comments, issues and concern raised by organs of state, landowners and interested and affected parties are recorded in an Issue and Response Report (IRR). The report contains responses to the issues raised by the respective parties.

### **11.1.4 Pubic Consultation**

The consultation of the public during the Impact Assessment phase is pivotal to convey and represent the findings of the EIR and EMPr for the project. Joined inputs on consideration of the impact of a project assist in informed decision making by the competent authority.

Tasks to be completed under this process include:

- Notification letters to I&Aps to announce the commencement of the Impact Assessment Phase
- Notification to I&Aps of the availability of the Draft EIR and EMPr in the local newspaper;
- Placement of Draft EIA at venues accessible by the public in the study area;
- Providing a public review period and comment for a period of 30 calendar days;
- Notification of a Public Meetings to present the findings of the EIR to I&Aps and stakeholders;
- Notification to I&Aps that final reports have been submitted and copies are available on request;
- Notification to I&Aps and stakeholders of the issue of an environmental authorisation. This provides I&AP's with an opportunity to verify that the decision taken considered their comments and concerns raised.
- I & Aps are also informed of the appeal procedure, should they have reason to appeal

The key objective of public participation during this phase is to provide stakeholders and I&AP's with sufficient and transparent information on an ongoing basis. Information contained in the Scoping Report is elementary to the content of the EIR. The process therefore allows for comment and review of the Draft EIR. The inputs received during the comment period would be included and assessed in a Final EIR.



## 11.2 STAGES AT WHICH THE COMPETENT AUTHORITY WILL BE CONSULTED

**Table 14: Stages at which the competent authority will be consulted**

Stages	Documentation	DATE
<b>SCOPING PHASE</b>	Submission of the draft Scoping Report for inputs and comments	14 August 2015
	Submission of Final Scoping Report and Plan of Study for EIA	31 August 2015
<b>EIA PHASE</b>	Submission of Draft EIR and EMPr	8 December 2015
	Submission of Final EIA and Draft EMPr	17 February 2016

## 11.3 PURPOSE OF ENVIRONMENTAL IMPACT ASSESSMENT

The purpose of the environmental impact assessment is to assess and address the potential environmental impacts identified during the scoping phase through in depth specialist investigations focussing on each identified impact. The in depth investigations provide mitigations measures to address the identified impacts and also provide for methods to enhance positive impacts. Specialist study findings would be incorporated in the EIR and impacts would be assessed according to its significance, extent to be addressed and adoption of mitigation measures to address the issue.

The assessment would include the consideration of the impacts as per the NEMA Regulations of 2014, GN R982, Appendix 5 (j):

- Cumulative impacts
- The nature, significant and consequences of the impact and risk
- Extent and duration of the impact and risk;
- Probability of the impact and risk of occurring
- The degree to which the impact and risk can be reversed
- The degree which the impact may cause irreplaceable loss of resources
- The degree to which the impact and risk may cause irreplaceable loss of resources;
- The degree to which the impact and risk can be mitigated

A scoring system would be utilised to rank the significance of each impact identified. The cumulative effect of the impacts within the local area would also be considered.

In terms of the National Environmental Management Act , 1998 Chapter 1, sets out the national Environmental Management Principles of which ultimately strive to ensure that development is socially, environmentally and economically sustainable. The core values of an Environmental Impact Assessment are therefore integrity, utility and sustainability. The EIA would therefore conform to the agreed Environmental Standards and would provide balanced credible information for decision making and result in environmental safeguards.

The EIA process to be followed should therefore meet the aims and objectives of NEMA, 1998 and focus on issues that matter and respond realistically to such issues. Most important the EIA process must be participative which fully involves the public. By involving the public, information should be presented in a clear and non-technical manner.

### 11.3.1 Assessment Methodology of Environmental Issues

The identified impacts will be evaluated by considering several rating scales as listed below. These ratings include: extent, duration, intensity, significance, status of impact, probability.

“Extent” defines the physical extent or spatial scale of the potential impact

**Table 15: Assessment Methodology**

<b>Criteria: EXTENT</b>		
<b>“Extent” defines the physical extent or spatial scale of the potential impact</b>		
<b>RATING</b>		<b>DESCRIPTION</b>
1	Site specific	Impacts extending only as far as the activity, limited to the site and its immediate surroundings
2	Local	Impacts extending within 5km from site boundary
3	Regional	Impacts extending to the district (20km from boundary of the site) of Steelpoort/Sekhukhune District
4	Provincial	Impacts extending to provincial scale eg. Limpopo Province / Mpumalanga Province
5	National	Impacts extending to within the country i.e. South Africa.
6	International	Impacts extending beyond international border / the borders of South Africa
<b>Criteria: DURATION</b>		
<b>"Duration" defines the temporal scale</b>		
<b>RATING</b>		<b>DESCRIPTION</b>
1	Immediate	Less than 1 year
2	Short term	1-5 years
3	Medium term	6-15 years
4	Long term	Between 16 – 30 years
5	Permanent	Over 30 years. Where mitigation either by natural processes or by human intervention will not occur in such a way or in such time span that the impact can be considered transient.

Criteria: INTENSITY		
"Intensity" establishes whether the impact would be destructive or benign.		
Status	RATING	DESCRIPTION
<b>Negative</b>	0	Negligible Where impacts do not really affect the environment and no mitigation is required
	1	Low Where impacts will result in short term effects on the social and/or natural environment. These impacts are not deemed largely substantial and are likely to have little real effect. (marginally affected)
	2	Medium Where impacts will result in medium term effects on the social and/or natural environment. These impacts will need to be considered as constituting a fairly important and usually medium term change to the environment, these impacts are real but not substantial. Impacts are fairly easy to mitigate
	3	High Whereby effects will be long term on social, economic and/or bio-physical environment. These will need to be considered as constituting usually long term change to the environment. Mitigation is considered challenging and expensive
	4	Very High Where impacts should be considered as constituting major and usually permanent change to the environment, and usually result in severe to very severe effects. Mitigation would have little to now effect on irreversibility
Criteria: INTENSITY		
Status	RATING	DESCRIPTION
<b>Positive</b>	0	Negligible Where impacts affect the environment in such a way that natural, cultural and social functions and processes are not greatly and in instances no mitigation measures will be required. (environment not really affected)
	1	Low Minor improvement are anticipated over a short term on the social and/or natural environment.
	2	Medium Where moderate improvements are anticipated over a medium- to long-term on the social and/or natural environment.
	3	High Where large improvements are anticipated over a long term on social, economic and/or bio-physical environment.
	4	Very High This results in permanent improvements of the social/or natural environment.

**Criteria: STATUS**

“Status of impact” - describes whether the impact would have a negative, neutral or positive effect on the affected environment

RATING		DESCRIPTION
+	Positive	Benefit to the environment
=	Neutral	Standard / impartial
-	Negative	cause damage to the environment

**Criteria: PROBABILITY**

“Probability” describes the likelihood of the impact occurring.

RATING		DESCRIPTION
0	Improbable	Where the possibility of the impact occurring is low.
1	Probable	Where there is a distinct possibility that the impact will occur.
2	Highly probable	Where it is most likely that the impact will occur.
3	Definite	Where the impact will occur regardless of any prevention measures.

**Criteria: SIGNIFICANCE**

“Significance”- attempts to evaluate the importance of a particular impact with mitigation measures included and also excluded. The significance was calculated using the following formula:

$$\text{Significance} = (\text{Extent} + \text{Duration} + \text{Intensity}) \times \text{Probability}$$

RATING		DESCRIPTION
0-4	Very Low	Where the impacts will not influence the development, social , cultural or natural environment
5 -12	Low	Where impacts will result in short term effects on the social and / or natural environment. The impacts merits attention however are not deemed largely substantial are likely to have little real effect
13-25	Medium	Where impacts will have a medium-term effect on the social and/or natural environment. These impacts need to be considered as constituting a fairly

		important and usually medium term change to the environment, these impacts can be mitigated by implementing effective mitigation measures.
26-44	High	Whereby effects will be long term on social economic and or bio-physical environment. The impacts could have a major effect on the environment. This may bring forth the consideration of no-go areas/open areas on the development land regardless of mitigations implemented. Mitigation is however possible.
45	Very High	Whereby effects will be permanent on the social economic and or bio-physical environment. Such impacts cannot be mitigated.

### 11.3.2 Cumulative and Residual Impacts

Cumulative impacts are defined as the combination of multiple impacts from existing projects, the proposed project, and/or anticipated future projects that may result in significant adverse and/or beneficial impacts that would not be expected in case of a stand-alone project.

An assessment of cumulative impacts therefore considers the proposed project within the context of other similar land uses, in the local study area and greater regional context.

Residual impacts are those impacts that remain significant following the application of mitigation measures. The specialist studies to be conducted as part of the impact assessment phase of EIA will identify and provide an assessment of both the cumulative and residual impacts which are likely to occur as a result of the proposed project.

### 11.3.3 Specialist Investigations to be undertaken

The study area consists of the proposed Mining Right Area of 3165.32 hectares, the local topography, directly affected landowners and adjacent properties. Consideration will be given to an environmental context where applicable (geographical area).

The specialist studies to be conducted to inform the EIR and EMPr are:

#### 11.3.3.1 ARCHAEOLOGY AND HERITAGE IMPACT ASSESSMENT

A Heritage Impact Assessment would be conducted to identify any cultural or heritage resources that may be present on the project site. The assessment would list any identified features with location descriptions and state the significance of each feature.

The archaeologist would present possible impacts foreseen from the project on the resources and indicate either removal procedures or protection methods of such features identified on site. Mitigation measures would be outlined in this assessment and presented to the South African Heritage Resources Agency (SAHRA) and Limpopo Heritage Resources Agency (LIHRA) for approval.

The aim with the Heritage Impact Assessment is therefore to

- Describe and map any identified archaeological, historical, cultural resources;
- Obtain Global Positioning System (GPS) readings to delineate identified heritage receptor boundaries so that accurate polygons can be created for Geographical Information Systems (GIS) applications;
- To establish whether any of the type and ranges of archaeological, heritage resources as outlined in section 3 of the National Heritage Resource Act(Act 25 of 1999) do occur in or near the proposed development site and if so, to establish the significance of these heritage resources;
- To establish whether such heritage resources will be affected by the proposed activities, and if so, to determine possible mitigation measures that can be applied to these heritage resources;
- Provide a written account that details the discoveries made and which characterises the significance of the cultural heritage resources identified by the survey.

#### **Methodology:**

The scope of work for the HIA will comprise of:

- A review of the existing database;
- Review of existing literature;
- Site visit; and
- Report compilation.

### **11.3.3.2 SOCIAL AND ECONOMIC IMPACT ASSESSMENT**

The objectives of the study are as follows:

#### **11.3.3.2.1 Baseline:**

- Compile a baseline socio-economic description of the area, including variables such as population densities of surrounding communities, ethnicity of local populations, available skills, key economic activities of the area, land use, etc.; and
- Assess the basic needs of surrounding communities in terms of local economic development, as well as infrastructure such as housing, electricity, water, schools, health, etc.

#### **11.3.3.2.2 Impact Assessment**

- Identify positive and negative socio-economic impacts that may arise during all phases of the project, including construction, operation, decommissioning and post-closure. These may include: Changes in socio-economic status; and Loss of access to resources.
- Recommend measures for mitigating negative socio-economic impacts associated with the project, and for enhancing positive impacts;
- Compile a Social Management Plan (SMP) defining management actions pertaining to socio-economic impacts identified in the SIA. The objectives of the SMP will be to:
  - Design appropriate management plans to reduce and, where possible, avoid negative impacts, as well as to enhance positive impacts (and contributing the latter as input to the Community Investment Plan); and
  - Design appropriate monitoring procedures to monitor the effectiveness, efficiency and impact of management programs.

### **11.3.3.2.3 Suggested Study Method**

#### **11.3.3.2.3.1 Baseline Assessment**

The following methodology is suggested:

- Review existing secondary information and data;
- Conduct a baseline socio-economic survey to collect primary socio-economic data and to identify key concerns with the Project with all communities that could be directly and indirectly affected by the Project within the study area;
- Develop a physical and biophysical natural resource map with communities to determine their use of resources for food, fuel, construction, medicinal use, water sources, sacred sites etc. and to establish the perceived quality of these resources to sustain human life;
- Develop a land-use map differentiating soil and vegetation types, specific land uses, as well as pathways and barriers;
- Develop a social profile of the area with specific reference to opportunities and constraints that have a direct bearing on human life;
- Establish community development needs and assess the relevance and extent of appropriation by beneficiaries of existing community projects; and
- Ethnographic study – identify and discuss ethnic groups and communities, values and culture, family structure, the relevant social units, the relationships with the soil, the subsoil, (the issue of property) to space, to natural resources, to ancestors, the role and location of the burial and the sacred sites.

#### **11.3.3.2.3.2 Impact Assessment**

Summarize the following Project socio-economic related data:

- Labour requirements: by skill level, occupation and number of positions for Project construction and operations/maintenance;
- Contractors and goods and services: required throughout the life of the Project;
- Predicted expenditures: associated with project construction and operations/maintenance;
- Demography: population, population growth, gender distribution, migration patterns;
- Housing: Current housing and availability of accommodation for project construction/operations (if work crews are not staying in construction camps);
- Infrastructure and services: community access to, and existing capacity of health and education services and facilities, water and sanitation, and emergency services;
- Employment and unemployment rates;
- Income: levels and sources;
- Labour force: size, education, skill level and distribution within industry;
- Economic sector profiles: for regional and local area economies. Economic trends and projections will be analysed. This will include a description of prominent industries in the study area such as forestry, tourism, mining and recreation;
- Business and occupation profiles: This will include local and regional suppliers of goods and services;
- Food (fish, plants and animals) used for traditional and medicinal purposes;
- Education and health;
- Public perceptions of the Project;
- Evaluate potential impacts of the Project against these factors; and
- Compile a Social Management Plan (SMP) defining management actions that can be taken to minimize the impact of socio-economic impacts identified in the SIA. The objectives of the SMP will be to:

- Design appropriate management plans to reduce and, where possible, avoid negative impacts, as well as to enhance positive impacts; and
- Design appropriate monitoring procedures to monitor the effectiveness, efficiency and impact of management programs.

### **11.3.3.3 SOIL AND LAND USE IMPACT ASSESSMENT**

The objectives of the soil assessment will be as follow:

- To assess the current physical and chemical status of the greenfield area targeted for the development;
- To determine the pre-development land capability of the soil cover to be affected by the proposed project; and
- To assess the expected impacts posed on the soil resource by the proposed development.

#### **11.3.3.3.1 Scope of Work**

In terms of the legislation it is proposed to conduct a soil investigation based on the Soil Classification System for SA, 1991. Such an assessment will include a physical investigation of the soil cover to be disturbed by the proposed mining infrastructure. The scope of work entails the following:

- Conduct a desktop study as a prerequisite prior to a field visit;
- Conduct a field visit during which a physical assessment of the soil covering the areas to be disturbed will take place;
- Compile soil, land use and land capability maps for the assessed area; and
- Compile a report on the findings and results of the assessed area.

#### **11.3.3.3.2 Desktop Study**

A desktop study will be conducted to gain a general understanding of the soil resource covering the area in question. Existing broad scale maps will be obtained and reviewed to address the input requirements for the EIR and EMPr reports.

#### **11.3.3.3.3 Infield Soil Assessment**

In preparation for a field visit soil survey locations will be generated with the aid of GIS programming to optimise coverage of the expected soil types. Actual field mapping and classification will be supported by soil profiling to serve as a platform for detail level mapping. During soil mapping, the extent of ecologically sensitive areas, such as wetlands, will be identified and delineated on the basis of soil types.

The characterisation of the soil cover will be based on the Taxonomic Soil Classification System for South Africa, 1991 and the following attributes listed recorded at each location point:

- Soil form and depth;
- Estimated soil texture and Structure;
- Content of coarse fragments ;
- Calcareousness;



- Underlying material;
- Current land use; and
- Land capability.

Interpretation of the above information will enable the delineation of soil form units to derive a soil distribution map. The soil distribution map will serve as a basis for the delineation and establishment of a land capability map.

#### **11.3.3.3.4 Sampling of Representative areas**

Chemical balance in the soil profile may be subjected to disturbance during the planned development and post-activity restoration. In order to obtain fertility status of the soil resource prior to commencement of any development activities, a sampling program is recommended in conjunction with the soil mapping exercise.

The sampling of major delineated units is good practice. A maximum of 8 sample locations are deemed sufficient to exhibit the required soil properties and chemical status. The following analysis package is proposed and will be submitted to the laboratory of the Agricultural Research Council (ARC):

- Particle size distribution on selected samples (3-fraction testing);
- pH (water);
- Exchangeable cations Na, K, Ca, Mg (Saturated paste method);
- Phosphorus (Bray1 method);
- Organic carbon content on selected topsoil samples (Walkley Black method); and
- Electrical conductivity (indication of salt presence).

#### **11.3.3.3.5 Maps**

Results of the in-field soil assessment will enable the compilation of a soil map, comprising delineated soil units and including all wetlands identified. The soil map will form the basis for the assessment of land capability which will rest on the guidelines provided by the Aide-Mémoire and widely used in conjunction with the MPRDA authority.

#### **11.3.3.3.6 Soil Report**

A soil report describing the soil resource in terms of characteristics and laboratory analysis will be generated and will include an impact assessment. The significance of impacts will be assessed using a commonly applied ranking system to indicate those impacts which require mitigation and will be based on the criteria as listed below:

- Potential impact in terms of the nature of the impact;
- Extent and duration of the impact;
- Probability of the impact occurring;
- Degree to which the impact may cause irreplaceable loss of the resources; and
- Degree to which the impact can be mitigated.

Actions to mitigate significant impacts will be recommended. These will include guidelines on soil stockpiling and handling to optimise the preservation of the soil resource.

#### **11.3.3.4 NOISE AND VIBRATION IMPACT ASSESSMENT**

The approach will be based on SANS 10328:2008, 'Methods for environmental noise impact assessments. The technical guidelines will be based on good engineering practice, SANS 10103:2008, 'The measurement and rating of environmental noise with respect to annoyance and to speech communication.

##### **11.3.3.4.1 Scope of Work**

- Measure points which present ambient noise levels in the settlement and rural areas will be identified for the project. Measurements will be made using calibrated integrated sound level meters.
- Identify all new noise sources. Where Rakhoma are unable to provide octave band sound power levels of each new noise source, noise levels will need to be assumed from general information available in the literature or measured at comparable sites.
- List the noise legislation or best practice requirements which must be achieved. The International Standards Organization (ISO) and the South African Bureau of Standards (SABS) noise standards will be used (Typically SANS 10103:2008).
- Model the noise impact which would include all relevant noise sources within the proposed site. This would be carried out for each development phase. This will make use of relief contour mapping of the surrounding area as well as aerial photography of the area; and the site layout and construction plans as well as the envisaged construction program
- Assess the impact via a comparison of the predicted noise levels with the current ambient noise level data and the International Standards and make recommendations to reduce the impact where necessary.
- Undertake a qualitative Vibration Impact Assessment and include this with the Noise evaluation.

#### **11.3.3.5 AIR QUALITY IMPACT ASSESSMENT**

The following scope of work is proposed for the air quality study:

- To describe baseline ambient air quality and meteorological conditions based on current information, and to identify where knowledge gaps exist in this regard;
- If necessary, to conduct a preliminary baseline air quality monitoring programme to address identified baseline information gaps;
- To develop an emissions inventory identifying potential project sources of air emissions and quantifying emission rates from each source, based on actual measurements or literature emission factors;

- To undertake air dispersion modelling to predict spatial and time-series emission concentrations of key pollutants from the proposed project, in isolation from other neighbouring sources of air pollution;
- To assess the likely environmental significance of project-related and cumulative air quality impacts (i.e. combined impacts from project and existing sources), by comparison against air quality standards / guidelines (South African best practice) and human health effects reported in the literature; and
- To recommend project design and operational management measures to minimise/abate air quality emissions to the atmosphere.

#### **11.3.3.5.1 Study Approach**

The approach to the air quality study will include:

##### **11.3.3.5.2 Desktop Analysis of the status-quo air quality conditions**

The air quality specialist will review relevant literature (reports and data), where available, to establish site baseline air quality and meteorology. This will include the purchase and statistical analysis of modelled (MM5) meteorological data.

The air quality specialist will also identify possible current baseline information gaps and (where relevant) identify the baseline monitoring programme required to address these gaps, as described in the next subsection.

##### **11.3.3.5.3 Baseline Air Quality Modelling**

The objective of this Phase will be to monitor dust fallout at the proposed site for Baseline purposes. Dust fallout monitoring is a legal requirement in terms of the National Dust Control Regulations, 2013 published in terms of Section 53 (o), read with Section 32 of the National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004). This legal requirement sets in if the dust fallout of the proposed project exceeds the standard for acceptable dust fall rate for residential and non-residential areas.

The intension is determine baseline conditions and anticipated dust fallout from the proposed project. It exceeds of the standard acceptable dust fall rate is anticipated and dust monitoring programme must be implemented and brought in as a management plan.

##### **11.3.3.5.4 Dust monitoring Programme**

A Dust Monitoring Programme must include:

- The establishment of a network of dust monitoring points using method ASTM D1739:1970 (or equivalent), sufficient in number to establish the contribution of the project to dustfall in residential and non-residential areas in the vicinity of the project, to monitor identified or likely sensitive receptor locations, and to establish the baseline dustfall for the district; and

- As schedule for submitting to the relevant district/provincial air quality officer, dustfall monitoring reports annually or at more frequent intervals if so requested by the air quality officer;
- Develop a fugitive dust emissions management plan

#### 11.3.3.5.5 Emissions Inventory

A comprehensive inventory of emissions of key pollutants from all potential sources of emission will be compiled for the construction and operational phases of the proposed project. If required, US AP-42 emission factors will be used to estimate emissions from each source. The dust emissions inventory for the decommissioning and construction phase will be qualitative.

#### 11.3.3.5.6 Dispersion Modelling

The dispersion of key compounds associated with the operational phase of the proposed project will be modelled using the AERMOD software model. The specialist should provisionally model total suspended particulates (TSP) as well as PM10, and although the confirmation of parameters will be based on the availability of suitable emission factors and a detailed understanding of project activities. The predicted ambient concentrations of key pollutants will be presented as isopleths on a regional base map.

The dispersion modelling requires surface and upper air data (hourly wind speed and direction, temperature, humidity, solar radiation, rainfall, and at least two upper air soundings daily) for at least one monitoring station per modelling domain for at least 12 months.

The specialist must supply a professional opinion regarding likely air quality emissions (which are anticipated to be predominantly dust fallout) during the construction phase and operation phase of the proposed project.

#### 11.3.3.5.7 Risk Assessment

The significance of project-related and cumulative sources of air pollution will be assessed using the relevant specialist's impact rating protocol. This method considers the likelihood and significance of individual impacts in relation to human health, South African emission standards and relevant air quality standards / guidelines .

#### 11.3.3.5.8 Mitigation Measures

Management and mitigation measures will be identified for significant air quality impacts identified in this study to adequately control the release of air emissions from various project sources. Where these measures can be incorporated into the design phase of the proposed project to avoid possible significant impacts, this will be highlighted.

### **11.3.3.6 VISUAL IMPACT ASSESSMENT**

#### **11.3.3.6.1 Objective for Visual Impact Assessment**

The objectives of the Visual Impact Assessment (VIA) will be to:

- Assess the baseline conditions of the visual context within which the proposed project will take place;
- Determine what visual receptor groups may potentially be affected by the project;
- Establish what visual impacts may potentially arise as a result of the project and determine their social significance; and
- Investigate possible methods with which the potential impacts may be mitigated.

#### **11.3.3.6.2 Scope of Work**

The specific scope of works is briefly described below:

- The VIA will assess the value of the study area as a visual resource, as a function of its perceived aesthetic value, and will assess the magnitude and significance of the potential visual impact of the proposed activities;
- A Visual Resources Analysis will be carried out, which will identify elements that are considered to be of visual significance. Conversely elements that detract from the visual quality of the landscape will also be identified;
- A Visual Receptor Analysis will be done which will identify receptors that may be negatively impacted upon by the proposed activity. This will include adjacent landowners as well as significant commuting routes and areas where large groups of people may congregate;
- With the discretion of the specialist and scale of the project, GIS-based applications can be used to support the process of quantifying potential impacts and proposing possible mitigation strategies. A view shed / visibility analysis will be used to generate objective and quantifiable data, to demonstrate the extent and degree of visibility, as an indicator of the magnitude of visual impact that may be associated with the project.
- The VIA will also explore potential visual mitigation strategies and implementation measures that need to be considered during construction and implementation, operations and possible closure of the project site.
- The VIA will be carried out for the project site itself and the greater surrounding context.

### **11.3.3.7 TERRESTRIAL ECOLOGY IMPACT ASSESSMENT**

#### **11.3.3.7.1 Objective**

A Terrestrial Ecological Assessments will be undertaken for the study site which would consist of desktop analysis of available literature of the site, and consider spatial frameworks, biodiversity and bioregional plans for the study area. A Detailed survey of the study site would be undertaken to

determine whether any listed and threatened ecosystems exist or if any protected species occur on site.

The Ecological Assessment would form a detailed assessment of flora, fauna, avifauna, invertebrate and mammals that may potential occur on site. The detailed assessment and survey would culminate in thorough reporting and sensitivity mapping of identified protected species and ecosystems. The Report would identify impacts pertaining to the activity and would be assessed according to their significance. Recommendations for mitigation measures would be provided to lower the anticipated impacts. The specialist is to provide ecological input into the Environmental Management Programme (EMPr)

#### **11.3.3.7.2 Scope of Work – Flora**

- Conduct initial desktop review of vegetation likely to occur within the study area;
- Develop a species list of red data and protected plants;
- Conduct a detailed survey (using standard scientific methodology) in order to:
  - Identify general vegetation types and communities on site;
  - Identify dominant plant species;
  - Record red data and protected species;
  - Identify invader or exotic species;
  - Identify floral species with any medicinal, cultural or commercial importance;
  - Identify sensitive landscapes and habitats including wetland and riparian habitats;
  - Identify possible impacts of the proposed pipeline on flora species and communities; and
  - Recommend mitigation measures for these identified impacts.

#### **11.3.3.7.3 Scope of Work - Fauna**

- Conduct initial desktop review of faunal species likely to occur within the study area;
- Develop a species list of red data and protected animals;

Conduct a detailed survey (using standard scientific methodology) in order to identify terrestrial fauna linked to veldt types and vegetation communities on site, including:

- Visual observations;
- Live capture and release, including small mammal trapping;
- Identify the dominant faunal species on site;
- Record observed red data and protected faunal species;
- Identify observed exotic species;
- Identify possible impacts of the proposed pipeline;
- Identify possible impacts of the proposed pipeline on flora species, habitats and communities; and
- Recommend mitigation measures for these identified impacts.

#### **11.3.3.8 AQUATIC ECOLOGY IMPACT ASSESSMENT**

The objective will be to determine the current status of the aquatic environmental and to evaluate the extent of site-related effects in terms of selected ecological indicators and to identify important ecological attributes. To adequately describe the aquatic environment response, habitat, stressors

and exposure indicators will be selected. The methodology used to characterise these components include:

- In situ water quality: Parameters that will be assessed at each of the sampling sites will include: pH, dissolved oxygen (DO), total dissolved solids (TDS) and temperature;
- General Habitat Assessment: General description of the site. Parameters to be described include site location (GPS reading); photographs (for future identification of major changes and documentation of habitat conditions); watershed features (i.e. surrounding land use, sources of pollution, erosion, etc.);
- Invertebrate Habitat Assessment System (IHAS, version 2): This index evaluates habitat suitability specifically for aquatic macro invertebrates and is used in association with the SASS5 index.
- Aquatic Invertebrates (SASS5): The South African Scoring System Index (SASS5) will provide an indication of the state of the aquatic environment and will be compared to data collected during previous surveys in order to detect trends in aquatic ecosystem health; and
- The ichthyofaunal assessment will focus on fish species diversity and abundance, fish health assessment and the presence of Red Data species.

### **Wetland Delineation**

The delineation method documented by the Department of Water affairs and Forestry in the “Updated manual for identification and delineation of wetlands and riparian areas” (DWAf, 2008), and the Classification System for Wetlands and other Aquatic Ecosystems in South Africa-User Manual: Inland Systems (Ollis et al, 2013) will be followed throughout the field survey. These guidelines describe the use of indicators to determine the outer edge of the wetland and riparian areas such as soil and vegetation forms as well as the terrain unit indicator.

A hand held Global Positioning System (GPS) will be used to capture GPS co-ordinates in the field. 1:50 000 cadastral maps and available GIS data will be used as reference material for the mapping of the preliminary watercourse boundaries. This will be converted to digital image backdrops and delineation lines and boundaries will be imposed accordingly post field surveying. Due to the transitional nature of wetland boundaries, these are often not clearly apparent and the delineations must therefore be regarded as a human construct. The delineations will be based on scientifically defensible criteria and will aim to provide a tool to facilitate the decision making process.

In assessing the wetlands within the study area the following activities will be conducted:

- A delineation and classification of the wetlands;
- A characterization of the fauna and flora found in the wetlands;
- An assessment of the ecosystem services supplied by the wetlands;
- An assessment of the wetlands Present Ecological Status (PES) or integrity;
- An assessment of the Ecological Importance and Sensitivity (EIS) of wetlands; and
- An assessment of the potential impacts of the proposed activities on the wetlands and potential mitigations relating to the impacts.

Wetlands will be identified based on the following characteristic attributes (DWAf, 2008):

- The presence of plants adapted to or tolerant of saturated soils (hydrophytes).

- Wetland (hydromorphic) soils that display characteristics resulting from prolonged saturation.
- A high water table that results in saturation at or near the surface, leading to anaerobic conditions developing within 50 cm of the soil surface.

#### **11.3.3.9 SURFACE WATER IMPACT ASSESSMENT**

The surface water study will focus on the characterisation of the baseline hydrology at the project site and assess the potential impacts on surface water due to project development. The following tasks are proposed:

- Compilation of a baseline report to characterise the existing hydrology and water quality of the area;
- Development of floodlines for the area;
- Development of a stormwater management plan for the site; and
- Compilation of a water balance model to simulate dynamic rainfall, assess water storage requirements;
- There are important interactions between groundwater and surface water in this type of environment. There will therefore be strong collaboration between the groundwater and surface water specialists.

##### **11.3.3.9.1 Scope of Work**

- Conduct Site Visits to set up baseline monitoring programs and take field measurements
- Form a Baseline and Impact Assessment by:
  - Collation and review of the available daily rainfall data;
  - Description of the annual and seasonal climatic regimes for the local study area based on regional and local climatic data;
  - Description of the annual and seasonal surface water regimes (mean annual yield, mean monthly flows, flood flows, low flows) for the local study area based on regional and local hydrological data;
  - Develop an inventory of water users based on available information;
  - A monthly flow monitoring program to collect baseline information will be established.

##### **11.3.3.9.2 Assessment of Impacts**

The following will form part of the Impact Assessment:

- Potential impacts of the project on watercourses and land cover of such features within the study area;
- Potential impacts of hydrological, drainage and land cover changes on surface erosion, sedimentation and flows in streams and water bodies;
- Potential impacts of erosion and sedimentation on surface water supply and downstream users;
- Recommendations for surface water mitigation options to be considered for implementation for adverse effects anticipated during the phases of the project (this must include cumulative and residual impacts);
- Establish baseline water quality at the site, upstream and downstream;



- Hydrology and water quality section of impact assessment;
- A water quality and flow monitoring program to manage impacts to meet the requirements of the EIA

#### **11.3.3.9.3 Floodline Determination**

Determination of the 1: 20, 1:50 and: 100 year floodline will be developed and a floodline map will be prepared.

#### **11.3.3.9.4 Stormwater Management Plan**

A Stormwater Management Plan will be development according to available map data, catchment area, project infrastructure, major surface water drainage lines and river crossings.

To development the plan the following information will be gathered and tasks conducted:

- Daily rainfall data will be collected on site and reviewed to determine rainfall statistics;
- Confirmation of drainage lines and catchment areas;
- Use proposed project infrastructure layout to identify clean and dirty water areas;
- Set up design criteria for sizing of stormwater management measures;
- A model will be set up and applied to determine the layout and size of conveyance structures;
- Results will be communicated to design engineers for revision of designs where applicable;

<b>11.3.3.10 GROUND WATER IMPACT ASSESSMENT</b>
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The Groundwater Impact Assessment will aim to assess the groundwater inflow into the proposed project workings and the impact of the proposed project activities on the groundwater system which includes the quantity and quality impacts on existing users during all the phases of the proposed mine.

The following will be assessed:

- Potential impacts on existing users in terms of depression of groundwater levels and reduction in yield in existing boreholes;
- Impact on groundwater quality of existing users;
- Potential inflows into the mining pit area;
- Need for dewatering and design of dewatering wellfield;
- Development of pollution plumes emanating from the proposed mine activities after closure;
- Location of possible decant points after closure, flow rate and quality with time from the proposed mine area;
- Development of pollution plumes resulting from seepage of contaminated water form surface infrastructure;
- Development of various mitigation options, if necessary;
- Make a prediction of the impact on the groundwater regime and assess the potential impact of the proposed project activities on the groundwater regime.

#### **11.3.3.11 GEOCHEMISTRY**

The Integrated Water Use License Application and Integrated Water and Waste Management Plan, EIA and EMPr are required to indicate the potential impact of the proposed mine project on water resources. The Geochemistry Impact Assessment will quantify the contaminant load released from the operations into the surface and groundwater systems.

During this assessment the following will be undertaken:

- Identification of key source(s) of mine drainage;
- Initial conceptual models of the key source(s);
- Identification of gaps in the available information to characterise the key source(s);
- Sampling and analysis programme to address the information gaps; and
- Indicative drainage quality from selected sources based on published and available information; (includes qualitative assessment of the risk of acid mine drainage and potential concentration ranges for selected water quality parameters.
- Document sampling and analytical results;
- Revise drainage quality from selected sources;
- A qualitative assessment of Acid Rock Drainage risks from the proposed mine;
- Recommendation on how to mitigate mine drainage quality for input into the EMPr and IWULA.

#### **11.3.3.12 TRAFFIC IMPACT ASSESSMENT**

The increase in vehicular movement from the proposed mine project would require the conduct of a detailed Traffic Impact Assessment to stipulate the road infrastructure requirements and recommendations of possible upgrade requirements.

The Scope of works will include the following to assess the impact:

- The transportation requirements of all the aspects of the proposed mine project;
- Expected impact on the local and regional road network (heavy haulage trucks, abnormal vehicles);
- The required measure to mitigate the expected traffic impact from the project operations;
- Long-term management and maintenance action required to ensure workable solutions form a transport point of view;
- The required layout of the critical elements of the road network;
- Conduct traffic field surveys (vehicle counts);
- Evaluate local and regional network planning;
- Evaluate spatial land use planning information on the expansion and future growth of the area or region;
- Identify road network alternatives based on available transportation and land use planning information;
- Choose the most feasible alternative from a capacity and traffic operation point of view.

#### **11.3.4 Environmental Impact Report (EIR)**

An EIR would be compiled on completion all specialist investigations. Findings and recommendations outlined by the specialist studies would be incorporated by the EAP into a single report, the EIR. The EIR would contain the following:

- An assessment of the biophysical and social environment encompassed by the development and direct surroundings and consider the impacts of the development thereon and vice versa
- Identify and assess the significance of potential impacts the development may have on the dual environments
- Provide mitigation measures to curb negative impacts and enhance positive impacts
- Provide an environmental statement of findings of the assessment to the authorising authority for decision making

### **11.3.5 Environmental Management Programme (EMP)**

An Environmental Management plan is required for implementation during commissioning and operation of the project. The EMP will ensure compliance with environmental regulations during the cycle of the project and recommends how to operate and implement the project in form of efficient mitigation measures. Mitigations and recommendations would be resultant from the findings and recommendations contained of the EIR.

### **11.4 PARTICULARS OF PUBLIC PARTICIPATION PROCESS FOR EIA PHASE**

Interested and Affected Parties would be notified of the commencement of the EIA Phase once all specialist investigations have been undertaken. I&Aps would be given the opportunity to review the findings of the EIA which is presented in a Draft EIR and EMPr. The draft EIR would indicate the potential positive and negative impacts and measures to enhance positive impacts and reduce negative impacts.

As part of the assessment, an EMPr is compiled. The EMPr is a requirement as per the EIA Regulations. The EMPr recommends how to operate and implement the project. It is anticipated that the EIR would be available during December 2015 – January 2016. I &Aps would receive a notification letter announcing the availability of the Draft EIR. The report would be distributed for public review and comment for a period of 30 calendar days.

Information sessions will be arranged to present the findings of the EIR to I&Aps and stakeholders. Details thereof would be available during the EIA Phase.

All comments and issues received during the public review period of the Draft EIR and EMPr would be captured in a Final EIR and submitted to DMR for review and ultimately approval. I &Aps would receive notification of the submission and would as per the scoping phase have the opportunity to request copies of the final report.

### **11.5 PUBLIC PARTICIPATION DURING THE DECISION MAKING PHASE**

During this phase DMR will review the Final EIR and consult with any other key organs of state eg. the Department of Water & Sanitation (DWS) before granting or refusing an environmental authorisation.

The environmental authorisation will be made available for public review for a period of 20 consecutive calendar days. This provides I &AP's with an opportunity to verify that the decision taken have considered their comments and concerns raised. I&Aps are also then informed of the appeal procedure, should they have a reason to appeal.

# APPENDICES:

## APPENDIX A

### LIST OF INTERESTED AND AFFECTED PARTIES LIST OF ORGANS OF STATE

No	Organisation	Name
<b>INTERESTED AND AFFECTED PARTIES</b>		
1	Department of Rural Development and Land Reform (DRDLR) LPSCC Office-Limpopo -	Ms. Susan Molele (Senior Manager - State owned land – Sekhukhune District)
2	Tswako (Maepa) Traditional Authority	Paulina – Administration; Kgosi Maepa
3	Hlakwana (Rantho) Traditional Authority	Thelma - Administration
4	Bahlawana ba Maphopha	Ms. Ramontja - Administration
5	Kgoshi of Bahlakwana Rantho Tribe/Tribal Authority	NJ Rantho
6	Kgoshi of Kone-Legare Tribal Authority	Kwewe Reuben Mashegoana
7	Kgoshi of Sehlakoana Ba Melekane Tribe/Tribal Authority (Bahlakwana Ba Malekane)	Nkoane Morgan Malekane
8	Kgoshi of Tau-Tswaledi Tribe/Tribal Authority	Lehutso Dithoto Mashegoana
9	Kgoshi of Kone (Maloma) Tribe/ Tribal Authority	Matime Gordon Maloma
10	Kgosigadi of Bahlwana ba Maphopha Tribe/Tribal Authority	Elizabeth Mamoshiane Maphopha
11	Kgoshi of Ratau-Makgane Traditional Community/Tribal Authority	Ratau Malakeng Ernest
12	Kgoshigadi of Koni Seopela Traditional Authority/Tribe	Nkweng Jane Seopela
13	Baroka Ba Masha tribal Authority	PL. Masha
14	Ba Moretsele Tribal Authority	Moretsele Makgongwane Rebecca
15	Batlokwa Ba Magolego Tribal Authority	Magolego Maseke Abram
16	Baroka Ba Ratau Traditional Authority	Letuana III Joseph Ratau
17	Senamela Tribal Authority	Kgoloko Simon Senamela
18	Bahlakwana Ba Maphopha (Maphopha-Makgane) Traditional Council	Paul Maphopha
19	Gamoretsele Village	ME Moretsele
20	Bakwena Ba Makua Traditional Community	Makua Mashego Gauda
21	Batubatse Ba Mohlogopela	Tshesane Mogalase Busha hosea
22	Mogashoa-Monamane Tribal Council	Kghosi ME Mogashoa
23	Mogashoa-Ditlhakaneng Traditional Council	Kghosi DS Mogashoa (Evah Mamaile – Secretary)
24	LEMICO NPO Traditional Association (combination)	Paul Tshiane Secretary of LEMICO

No	Organisation	Name
25	Secretary of Mamshiane Maphopa / LULU committee	Sophie
26	LULU Committee	Daniel Deputy Secretary
27	Makhuduthamaga Office of the Speaker:	Secretary of Mayor
28	Ward 7 – Makhuduthamaga LM	Cllr Jerry Mapitsing
29	Ward 12 – Makhuduthamaga LM	Cllr. Peter Rankwe
30	Ward 13 – Makhuduthamaga LM	Cllr. Jane Mohloba
31	Greater Tubatse Local Municipality: Office of the speaker	Mokgwadi Pmaepa Secretary
32	Ward 29 – Greater Tubatse LM	Cllr. Daniel Komane
33	Ward 28 – Greater Tubatse LM	Cllr. Rantho
34	Ward 27 – Greater Tubatse LM	Cllr. Nonyane Tshehla
35	Limpopo Tourism & Parks Agency	Tauatsoala, Mike
36	Sekhukhune Tourism and Parks Resource Centre	
37	South African Woman in Mining Association (SAWIMA)	Shoky Phasha Steelpoort area
38	Woman in Mining Association (WIMA)	Charlene Skipp
39	Chamber of Mines Environmental Manager	Ms Stephinah Madau
40	Limpopo Business Support Agency (LIBSA) Jane Furse	Lucia Nchabeleng
41	Limpopo Economic Development Agency (LEDA)	Freddy Chaba Mining Division
42	Sekhukhune Economic Development Agency (SEDA)	Sephaka Motswianes
43	Eskom Distribution: Northern Region (Limpopo)	Xander Neethling Land&Rights
44	Eskom Distribution (Mpumalanga)	Siebert Labuschagne Land & Rights Division

No	Organisation	Name
45	Eskom Transmission Land and Rights Division	Lungile Motsisi
46	Eskom Transmission Land and Rights Division	Sebenzile Vilakazi Senior Environmental Advisor
47	Lebalelo Water User Association	Amanda Britz CEO
48	Lebalelo Water User Association	AJ van der Westhuizen
49	Central Steelpoort & Skepboom Irrigation Board	Hennie Nel
50	Tubatse Water User Association	SW Mampo
51	Olifants River Joint Water Forum/Lebalelo Water User Association	Bertus Bierman Technical Enquiries
52	Steelpoort Valley Producers Forum	Pierre Buys
53	National Development Agency (NDA) – Limpopo Province	Zach Chuenyane Provincial Manager
54	Independent Development Trust- Limpopo Region	
55	Mine Managers Forum – Sekhukhune District	
56	AGRI SA	AGRI Sa
57	Sekhukhune and Burgersfort Taxi Association	
58	Resident of Magnet Heights	Mashilo Tshehla
59	Resident	Alphas Magane

No	Organisation	Name
<b>LIST OF ORGANS OF STATE</b>		
1	Department of Water and Sanitation: Olifants Water Management Catchment Agency <b>Mpumalanga Region</b>	Ms Lufuno Rambau QDR B51H Directorate: Water Resource Management
2	South African Heritage Resources Agency- Upload SAHRIS online	Colette Scheermeyer (Manager)
3	<b>Limpopo Heritage Resources Authority</b> <b>Under Department of Sports, Arts and Culture</b>	Mr K. Donald Lithole Provincial Manager
4	<b>Limpopo Department of Economic Development Environment and Tourism</b>	Mr Victor Mongwe Senior Manager/ Head of Department: Environmental Impact Management
5	<b>Limpopo Department of Economic Development Environment and Tourism</b>	Mr TM Mphahlele - Senior Manager Directorate: Integrated Pollution and Waste Management Air Quality Officer
6	<b>Department of Mineral Resources – Limpopo Region</b>	Mr Aaron Kharivhe -Regional Manager
7	<b>Limpopo Department of Agriculture</b>	Ms. Ramatsimele Jacqueline Maisela - Head of Department
8	Limpopo Department of Agriculture Forestry and Fisheries Regional Office: Makhado	Mrs Nzina A Mudau Deputy Director – Forestry Regulations (Protected Tree Permits)



No	Organisation	Name
9	Limpopo Department of Agriculture Forestry and Fisheries	Mr. Thapelo Machate DAFF official-Waterberg District/Sekhukhune District (Protected Tree permits)
10	Limpopo Department of Agriculture Forestry and Fisheries	Mr. Thifhiwa Mathase DAFF official for Sekhukhune District (Protected Tree permits)
11	<b>Limpopo Roads Agency</b> Responsible for Ga-Masha Road up to Jane Furse Township (road through study site) and R579/R38/R37- sections of roads	Mr Phuti Montjane Manager: Land Use Management
12	<b>Limpopo Department of Public Works, Roads and Infrastructure</b>	Joseph Tshikonelo Environmental Manager: Department of Roads
13	South African National Roads Agency (SANRAL) <b>(Responsible for R555)</b>	Mike York-Hart Environmental Division/Mining
14	Greater Tubatse Local Municipality	J.N.T Mohlala Municipal Manager
15	Greater Tubatse Local Municipality	L. J. Molepo Chief Town Planner
16	Sekhukhune District Municipality	Ms Mokoko - Municipal Manager

No	Organisation	Name
17	Sekhukhune District Municipality	Mr Amos Matjiya - Chief Town Planner
18	Sekhukhune District Municipality	Ms Bridget Pilusa - Environmental Manager
19	Makhuduthamaga Local Municipality	Mr.M. Mogobadi - Municipal Manager
20	Makhuduthamaga Local Municipality	Mr. Bilikane Phasha - Town Planning Division Alt person: Mr Matulubi
21	Makhuduthamaga Local Municipality	Mr Lemson RM Communications
22	<b>Limpopo Department of Rural Development and Land Reform</b>	Mr Tele Maphoto - Land Restitution Support Head of Programmes: Restitution
23	<b>Limpopo Department of Rural Development and Land Reform</b>	Mr Maphutha Lebjane Regional Land Claims commissioner
24	<b>Limpopo Provincial Shared Services Centre</b> <b>Limpopo Department of Rural Development and Land Reform</b>	Tinyiko Makamu Manager – Limpopo State owned land
25	<b>Limpopo Provincial Shared Services Centre</b> <b>Limpopo Department of Rural Development and Land Reform</b> <b>(Management of state owned land)</b>	Head of Department And Chief Director Mr Julius Mashuphu
26	<b>Limpopo Provincial Shared Services Centre</b> <b>Limpopo Department of Rural Development and Land Reform</b> <b>(Management of state owned land-Sekhukhune District)</b>	Susan Molele

No	Organisation	Name
27	<b>Limpopo Department of Rural Development and Land Reform</b>	Head of Programme; Land Reform Mr Melton Tshililo
28	<b>Limpopo Department of Rural Development and Land Reform</b>	Mr Timmy Shilenge Head of Programmes: SPLUM
29	<b>Sekhukhune District</b> <b>Limpopo Department of Rural Development and Land Reform</b>	Ms. Senwana Makhanana Senior Manager: Land Claims in Sekhukhune
30	<b>Limpopo Department of Health</b>	Dr. Siphon Kabane Head of Department
31	Limpopo Department of Health Sekhukhune District	Ms Linah Maepa– District Executive Manager
32	Limpopo Department of Labour	Head of Department Albert Tshidavhu

# APPENDIX B

## SCOPING & EIA STUDY ANNOUNCEMENT ADVERTISEMENT

## ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

**PROPOSED MINING RIGHT APPLICATION FOR IRON AND VANADIUM ORE ON THE FARMS GELUK 512KS, GELUK OOS 513KS AND IRONSTONE 847KS IN GREATER TUBATSE / MAKHUDUTHAMAGA LOCAL MUNICIPALITY OF SEKHUKUNE DISTRICT MUNICIPALITY, LIMPOPO PROVINCE (DMR Ref: LP30/5/1/2/3/2/1/10107EM)**

Notice is hereby given in terms of the Environmental Impact Assessment (EIA) Regulations of 2014 under Section 24 (5) of the National Environmental Management Act (Act 107/1998) (NEMA), the Mineral and Petroleum Resources Development Act (Act 28/2002) (MPRDA), the National Water Act (Act 36/1998) (NWA) and the National Environmental Management: Waste Act (59/2008)(NEMWA). The intention of the applicant is to establish an Iron and Vanadium Ore mine (Geluk Mine) on the above mentioned properties.

Locality: Farms Geluk 512KS, Geluk Oos 513KS (Makhuduthamaga Local Municipality) and the farm Ironstone 847KS (Greater Tubatse Local Municipality). The study area is roughly 36km west of Steelpoort town (via R555/Jane Furse Road) at Magnet Heights.

The proposed development constitutes the following: Proposed Mining Right area of 3165.32 Hectares. The project will involve an open cast mine (box cut and strip mining) and related infrastructure in order to extract ore. Waste and ore will be loaded and hauled to a stockpile/crushing plant respectively. The ore will be crushed and screened onsite where after it will be transported off site for further processing.

Applicant: **RAKHOMA MINING RESOURCES PTY LTD**

Environmental Process: Naledzi Group Pty Ltd has been appointed as independent environmental consultants, to conduct the necessary Environmental Impact Assessment and Management Plans as outlined in Regulation 21-24 of the current EIA Regulations of NEMA, and obtain permits as prescribed in the MPRDA, NWA and NEMWA. The process is subject to public participation and environmental reporting. A Section 21 Water Use License and Section 19 Waste Management License is required as part of the application.

In terms of Government Notice R. 983, R984 and R985 scheduled under NEMA the establishment of the mine and associated infrastructure will trigger listed activities which require environmental authorisation. The main triggered activity includes (but not limited to):

**GNR. 984: Activity 17** “Any activity including the operation of that activity which requires a mining right as contemplated in Section 22 of the Mineral and Petroleum Resources Development Act, 28/2002, including such infrastructure, structures and earthworks, directly related to the extraction of a mineral resource, including activities for which an exemption has been issued in terms of Section 106 of MPRD Act 28/2002”

Public Participation: The purpose of the public participation process is to inform Interested and Affected Parties (I&AP's) regarding the proposed development and the environmental process. The process allows I&APs the opportunity to comment and contribute to the identification of environmental impacts for the proposal. Should you wish to register and obtain project information, please submit your name, contact details and comment to Naledzi on or before 20 August 2015 (A 21 day registration period is provided). Information sessions will be hosted to introduce and discuss the project. Arrangements pertaining to the session/s will be communicated to I&APs.

**Consultants:** Naledzi Group Pty Ltd, Contact person: Marissa Botha or Desmond Musetsho, Postnet Suite Library Gardens, Suite 320, Private Bag X9307, Polokwane, 0700 Tel: 015 296 3988 Fax: 015 296 4021 Cell: 084 226 5584 or Email: [botham@naledzi.co.za](mailto:botham@naledzi.co.za)

**TO ENSURE THAT YOU ARE REGISTERED PLEASE SEND YOUR DETAILS WITH COMMENTS AND INPUTS TO NALEDZI GROUP, TO REACH US BY 20 AUGUST 2015.**

# APPENDIX C

## SITE NOTICE PHOTOGRAPHS

# APPENDIX D

## NOTIFICATION LETTER EXAMPLE BACKGROUND INFORMATION DOCUMENT COMMENT AND REGISTRATION FORM



**Physical address:**

141 Thabo Mbeki Street, Fauna Park,  
Polokwane, 0699

**Postal address:**

Postnet Suite 320, Library Gardens, Private Bag X9307,  
Polokwane, 0700

**Tel:** 015 296 3988 **Fax:** 015 296 4021

**Email:** [info@naledzi.co.za](mailto:info@naledzi.co.za)

31 July 2015

Dear Interested and Affected Party,

**NOTICE OF AN ENVIRONMENTAL IMPACT ASSESSMENT (EIA) PROCESS  
IN SUPPORT OF AN MINING RIGHT APPLICATION FOR THE PROPOSED  
“GELUK MINE”**

**ENVIRONMENTAL IMPACT ASSESSMENT PROCESS AND INTEGRATED WATER USE- &  
WASTE MANAGEMENT LICENSE APPLICATION FOR THE MINING OF IRON- AND VANADIUM  
ORE ON THE FARMS GELUK 512KS, GELUK OOS 513KS AND IRONSTONE 847KS IN THE  
MAGISTERIAL DISTRICT OF TUBATSE/MAKHUDUTHAMAGA (DMR REF No. LP  
30/5/1/2/3/2/1/10107EM)**

Rakhoma Mining Resources (Pty) Ltd (Rakhoma) is in the process of applying to the Department of Mineral Resources: Limpopo Region (DMR) for a Mining Right in order to mine Iron Ore and Vanadium Ore with respect to the farms Geluk 512KS, Geluk Oos 513KS and Ironstone 847KS situated in the Magisterial District of Makhuduthamaga /Greater Tubatse. The mining operation is to be referred to as “Geluk Mine”. The Mining Right will cover a total area of 3165.32 hectares.

The farms under application are some 36km west of Steelpoort via the R555/Jane Furse Road in an area known as Magnet Heights in the Sekhukhune District of the Limpopo Province, South Africa.

Rakhoma is required to undertake and submit a Scoping and Environmental Impact Assessment (EIA) in accordance with the National Environmental Management Act (Act 107/1998) (NEMA), as amended and the EIA Regulations of 2014 to the DMR. The mine project requires environmental authorisation and several permits/license for water use and waste management before the mine project can be commissioned.

The Naledzi Group Pty Ltd has been appointed as the independent environmental consulting group to undertake the Scoping and EIA process and obtain the necessary environmental authorisation, water and waste permits. This includes:

- Obtain a Water Use License ( WUL) under the provisions of the National Water Act (Act 36/1998) from Department of Water and Sanitation (DWS) for development of a mine within 500m of a wetland and other related uses;
- Obtain Environmental Authorisation under the provisions of the NEMA from DMR;
- Obtain a Waste Management License (WML) permit under the provisions of the National Environmental: Waste Act (Act 59/2008) (NEMWA) and its 2014 amendment from DMR

As of December 2014 DMR has been delegated the powers to grant environmental authorisation and waste management licenses under the National Environmental Management Act (Act 107/1998) (NEMA) and as inserted under the NEMWA. Thus DMR is the competent authority in this application. The approvals and permits will be obtained through an integrated authorisation process approach.



As part of the EIA process, we are required to inform Interested and Affected Parties (I&Aps) about the proposed project to solicit their views, comments and recommendations on the project.

You are hereby invited to register as an I&AP and to participate in this integrated process for a WULA, EIA process and WML by completing the enclosed Comments and Registration Form sheet in the enclosed Background Information Document (BID). Please submit your name, contact information and interest in the matter to Ms. Marissa Botha and/or Mr. Desmond Musetsho at the following details;

Contact us on 015 296 3988 or send us your comments by email to [botham@naledzi.co.za](mailto:botham@naledzi.co.za) / [dmusetsho@naledzi.co.za](mailto:dmusetsho@naledzi.co.za) or either by fax number to 015 296 4021.

You may:

- Register as an I&APs
- Submit any comments/view on the project on the comments and registration form provided;
- Notify any other parties/stakeholders that you might be affected or interested in the project by encouraging them to register.

Thank you in advance for your participation.

Sincerely,



Marissa Botha

**For Naledzi Group Pty Ltd**

Physical address: 141 Thabo Mbeki Street, Fauna Park, Polokwane, 0700

Postal address: Suite #320, Postnet Library Gardens, Private Bag X 9307, Polokwane, 0700

Tel: 015 296 3988 Fax: 015 296 4021 Cell: 084 226 5584 (Marissa) / 083 410 1477 (Desmond)

Email: [botham@naledzi.co.za](mailto:botham@naledzi.co.za) or [dmusetsho@naledzi.co.za](mailto:dmusetsho@naledzi.co.za)