REPORT

EIA & EMP REPORT FOR MNING RIGHT OF DIAMOND

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mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

ENVIRONMENTAL IMPACT ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

NAME OF APPLICANT: FIDULEX (PTY) LTD

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FILE REFEFERENCE NUMBER: NW 30/5/1/2/2/2/10113MR)

1. **IMPORTANT NOTICE.**

In terms of the Mineral and Petroleum Resources Development Act (28 of 2002 as amended), the Minister must grant a prospecting or mining right if among others the mining

“will not result in unacceptable pollution, ecological degradation or damage to the environment".

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

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

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

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

2. OBJECTIVE OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS.

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

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

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

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

(d) Determine-

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

  (ii) Degree to which these impacts -

    (aa) Can be reversed

    (bb) May cause irreplaceable loss of resources, and

    (cc) Can be avoided, managed or mitigated

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

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

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

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

PART A

SCOPE OF ASSESSMENT AND ENVIRONMENTAL IMPACT ASSESSMENT REPORT

3. Contact Person and correspondence address

a) Details of

i) Details of the EAP

Table 1:EAP Details

Name of the Practitioner	Lufuno Mutshathama
Professional Registration	SACNASP (Reg No;114437)
Postal address:	P O Box 4147, Honeydew,2040
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ii) Expertise of the EAP

(1) The qualifications of the EAP

The EAP holds a Bachelor of Environmental Science (graduated in May 2008) from the University of Venda (See certificate Appendix 1).

(2) The summery of the EAP's past experience

The EAP's curriculum vitae and record of past projects is attached as **Appendix 2.**

b) Description of the Property

The project site is located within the Bojanala District Municipality (Moses Kotane Local Municipality), in the North-West Province. The site lies approximately 50km's North- North West of Rustenburg and 16 Km Northwest of Sun City. The project area is also located approximately 1.3Km South West of the Pilanesberg National Park.

Table 2: Description of the Property

21-digit Surveyor General code	T0JP00000000020800005
Farm Name:	Palmietfontein 208 JP
Application area (Ha)	3260.8416ha
Magisterial district:	Bojanala
	The site lies approximately 50km's North-North West of Rustenburg, and 16 Km Northwest of Sun City.
Locality map	**See appendix 3**
Description of the overall activity. (Indicate Mining Right, Mining Permit, Prospecting right, Bulk Sampling, Production Right, Exploration Right, Reconnaissance permit, Technical co-operation permit, Additional listed activity)	The application is being lodged to obtain a mining right for the mining for diamonds (kimberlite). Mining activities, as well as the processing (screening, washing, scrubbing) of diamonds will be carried out.

c) Locality map

The locality map is attached as **Appendix 3.**

d) Description of the scope of the proposed overall activity

See table overleaf

Table 3: Activities underway and to Be Undertaken

NAME OF ACTIVITY **(E.g. For prospecting -** drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route **etc…etc…etc**	**Aerial extent of the Activity Ha or m²**	**LISTED ACTIVITY** (Mark with an X where applicable or affected).	**APPLICABLE LISTING NOTICE** ***(GNR 544, GNR 545 or GNR 546)***	**WASTE MANAGEMENT AUTHORISATION** (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
Mining area (pit/s)	30Ha	x	These are specified activities that forms part of the Mining Right activity which is listed as item 17 under the listing notice R984	N/A
Waste rock Dump	1	X		X
Tailings Dump	1	X		X
Topsoil storage/stockpile	0.5	X		N/A
Return water dam (storm water)	0.05	X		N/A
Processing water dam(s)	0.025	X		N/A
Salvage yard	0.1	X		
Workshop	0.1	X		
Storage yard	0.1	X		N/A
Oil and grease storage	0.05	X		N/A
Processing plant (with screens, scrubber and sorter)	0.5 Ha	X		N/A
Administration mobile offices)	1Ha	X		N/A
Access road		X		N/A

Fence		X		N/A
Mobile ablution -Sewage plant/septic tank		X		N/A

(i) Listed and specified activities (site plans attached as **Appendix 4**)

Appendix 4 is a plan that shows the positions of all the existing and proposed main activities.

(ii) Description of the activities to be undertaken

The primary activities that will be carried out as part of the mining activities are detailed below in their respective phases. These phases include:

- The Construction Phase
- The Operational Phase
- The Decommissioning Phase

The Construction Phase

Site preparation:

This phase will include the clearing of the site of any vegetation present where mining will be carried out, as well as additional areas that will be used for the listed associated facilities. Topsoil will be ripped, removed and stockpiled separately on a flat area. The stockpiled soil will be covered with a strong sack or vegetated to prevent erosion (the best or both preventative measure will be applied).

New mobile offices will be brought in to site. The diamond screening, scrubbing and sorting plant as well as all the required equipment will be placed on site. Lockable facilities for hazardous substances and bunded areas for small scale maintenance will be constructed.

Construction activities

Following site preparation, the diamond plant and additional required mining infrastructure will be constructed on site. Construction activities include:

- The construction of a Processing Plant (with screening, a scrubber and sorter). The plant will be constructed together with their components (pipes etc.)
- The construction of a clean storm water dam and storm water drains that will channel the storm water to the dam, as well as a return water dam.
- The construction of a Septic Tank and associated infrastructures for containment/storage and transportation of sewage waste from the ablution facilities.
- The construction of a fence around the project site

- The construction of workshop where the maintenance of trucks and equipment will be done, as well as storage of used oil l.
- The construction of a small salvage yard for the sorting and temporal storage of different waste such as tyres, steel etc.

Operational Phase

During the operational phase, all mining activities and processes will be fully operational. The primary activities will include the opencast mining and processing of the diamondiferous ore material from the mining area. The activities are detailed below:

Excavation

The diamondiferous ore material will be excavated using an excavator and front-end loader and bulks of the material swill be loaded on to a truck. The material will then be transported to and loaded into the processing plant for processing. If necessary, blasting will take place and will comply to the mine health and safety requirements.

Screening

The processing phase is lengthy and begins with crushing and screening the material. The material is crushed to loosen the large aggregates and retrieve smaller ore-containing material. Screening usually includes a barrel screen that scalps oversize material, standard screens that also further reduce unwanted oversize material and the Bivitec, which removes -5mm material. The removed material is then stockpiled on the waste rock dump and the required sized material is moved into the scrubber.

Washing

Once the required sized materials have been obtained through screening, washing is the next step for removing yet finer diamonds from the abundance of mined diamond ore, using a scrubber. Scrubbers process precious metals, base metal ores, minerals, aggregates, gravel and sand. They are designed to break up alluvial gravels, clay and sand. This is done through rotation and the force of particles hitting each other. As the scrubber rotates slowly, the fines are churned along with the oversize and water. As a result, the soil matrix is broken and the target material is liberated. Through this process, the diamonds are separated and abstracted from the remnant material. The muddy mixture of water and fines and oversize particles is discarded off at the slimes dam and the water draining from the slimes dam is directed to the processing water dam.

Concentration/recovery

A density based processing technology is usually used for alluvial processing. This is a particle density separation technique that relies on diamondiferous material being heavier than most of the gangue material. It typically reduces the incoming amount of material by 90%, concentrating heavy minerals. The required diamonds are recovered in this manner and the remaining material is discarded.

The diamond mining process is depicted in the image below.

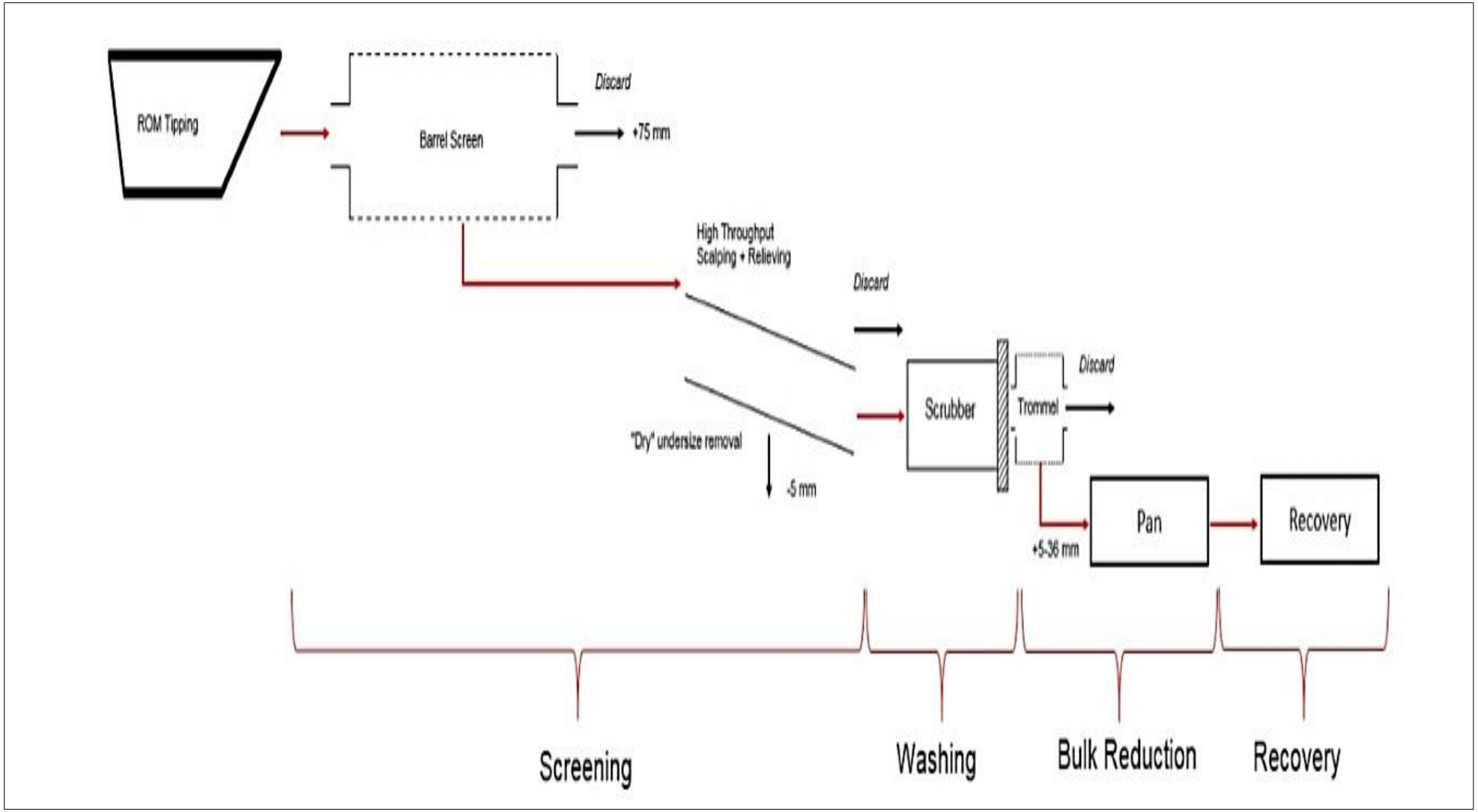


Figure 01: Diamond Processing

Decommissioning and Rehabilitation

Concurrent rehabilitation will be carried out throughout the life of the mine. During operation mined out pits will be backfilled and rehabilitated whilst mining operations proceed on other parts of the project site. The blasted and excavated pits will be backfilled with waste rock and the removed topsoil will be put back for vegetation growth. Where necessary, the slopes surface will also be graded to establish a safer slope. Backfilled areas will then be revegetated.

Upon completion of all mining operations, the entire project site will be rehabilitated. All equipment, infrastructure and mobile facilities will be removed from site, and any concrete structures including foundations will be bulldozed. The rehabilitation plan appended to this report details rehabilitation measures that should be employed to return the site to its natural state as far as practically possible.

a) Policy and legislative context.

The following is the description of the legislations applicable and used to compile this report.

Table 4: Applicable Legislation

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFFERENCE WHERE APPLIED
Constitution of the Republic of South Africa	The Bill of Rights, in the Constitution of South Africa (No. 108 of 1996), states that everyone has a right to a non-threatening environment and requires that reasonable measures are applied to protect the environment. This protection encompasses preventing pollution and promoting conservation and environmentally sustainable development. These principles are embraced in NEMA and given further expression. The development will ensure that as little damage as possible will be left on the surrounding environment and local community. This report is drafted to ensure compliance to this piece of legislation.
National Environmental Management Act, 1998	National Environmental Management Act (Act No 107, 1998) requires that measures are taken to prevent pollution and ecological degradation; promote conservation; and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development In addition, it makes provision: - That the disturbance of the environment (biological and physical) is avoided, or where

	they cannot be altogether avoided, are minimized and remedied: - That a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and - Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure. NEMA also requires that environmental authorisation is obtained for any development/ activity prior to its commencement. The Act also requires that all environmental impacts (including social impacts) due as a result of the development and/or its activities are assessed and where possible, minimised or mitigated. The following are the references where the NEMA has been applied (as per section 24 of NEMA): • Environmental Authorisation application • Public consultation • Scoping and Environmental Impact Assessment Report
National Environmental Management Act EIA Regulations 2014	• Section 24 of NEMA provides for the activities that require specific environmental authorisation. Activity 19 from the Listing Notice 2 of the NEMA regulations was triggered by the proposed development, prompting the EIA. Environmental Authorisation application, Public participation, Scoping report and this EIR are the application of this regulation.
Mineral and Petroleum Resources Development Act, 2002 as amended	The MPRDA regulates all mining related activities and requires that authorisation, permits and rights are obtained prior to the removal of any minerals or the commencement of any mining related activities. The mining activities for diamonds therefore prompts the application of a

	mining right prior to the commencement of mining operations. The following are the references where the MPRDA been applied: • Application for a right to carry out mining activities as per section 22 of the MPRDA as amended.
Mineral Petroleum Development Resources Regulations	The MPRDA regulations provide guidance on the processes and procedures of obtaining the mining rights being applied. The mining right is therefore made in accordance with the MPRDA regulations.
National Heritage Resources Act (Act 25 of 1999)	The National Heritage Resources Act seeks to -Introduce an integrated and interactive system for the management of the national heritage resources; -To promote good government at all levels, and empower civil society to nurture and conserve their heritage resources so that they may be bequeathed to future generations; -To lay down general principles for governing heritage resources management throughout the Republic; -To introduce an integrated system for the identification, assessment and management of the heritage resources of South Africa; -To establish the South African Heritage Resources Agency together with its Council to co-ordinate and promote the management of heritage resources at national level; -To set norms and maintain essential national standards for the management of heritage resources in the Republic and to protect heritage resources of national significance; -To control the export of nationally significant heritage objects and the import into the Republic of cultural property illegally exported from foreign countries;

	-To enable the provinces to establish heritage authorities which must adopt powers to protect and manage certain categories of heritage resources; -To provide for the protection and management of conservation-worthy places and areas by local authorities; and -To provide for matters connected therewith A heritage impact assessment has been conducted and findings on the assessment have been incorporated in this report will be drafted and appended to this report Should any additional heritage resource be found on site during the running of operations, the relevant authority (SAHRA) will be informed.
National Environmental Management: Biodiversity Act	The National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA) provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), vulnerable (VU) or protected. The Draft National List of Threatened Ecosystems (Notice 1477 of 2009, Government Gazette No 32689, 6 November 2009) has been gazetted for public comment. The list of threatened terrestrial ecosystems supersedes the information regarding terrestrial ecosystem status in the NSBA 2004. In terms of the EIA regulations, a basic assessment report is required for the transformation or removal of indigenous vegetation in a critically endangered or endangered ecosystem regardless of the extent of transformation that will occur. The Act also provides for listing of species as threatened or protected, under one of the following categories: • **Critically Endangered:** any indigenous species facing an extremely high risk of extinction in the wild in the immediate future.

	• **Endangered:** any indigenous species facing a high risk of extinction in the wild in the near future, although it is not a critically endangered species. • **Vulnerable:** any indigenous species facing an extremely high risk of extinction in the wild in the medium-term future; although it is not a critically endangered species or an endangered species. • **Protected species:** any species which is of such high conservation value or national importance that it requires national protection. Species listed in this category include, among others, species listed in terms of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). A biodiversity impact assessment has been conducted and findings on the assessment have been incorporated in this report will be drafted and appended to this report.
National Environmental Management: Air Quality Act, 2004 (Act no: 39 of 2004)	The National Environmental Management: Air Quality Act, 2004 (Act no: 39 of 2004) List of activities which results in atmospheric emission which have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage. Air quality assessment has been conducted and the report will be appended to this report. Findings on the assessment have been incorporated in this report

b) Need and desirability of the proposed activities

Significant diamond deposits were identified around the preferred location, this owing to the specific underlying geology of the area and the previous diamond diggings done. These reserves can be feasibly mined, and the associated mining activities will contribute to the above-mentioned benefits, providing the very much needed jobs (given the high level of unemployment), preferentially to members of the local community, contribute to the GDP and foreign exchange earnings through export.

The socio-economic analysis indicated that Moses Kotane Local Municipality has an unemployment rate of 51%. This situation is compounded by low education level. This situation implies that a need for skills development and job creation is very high and needs urgent attention. To address this situation, the municipality compiled a Local Economic Development (LED) strategy. The purpose of LED is to build up the economic capacity of a local area to improve its economic future and to improve the quality of life for all. It is a process by which public, business and nongovernmental sector partners work collectively to create better conditions for economic growth and employment creation.

The vision for LED within the municipality is that of robust and inclusive local economies that exploits local opportunities address local needs and contributes to national development objectives such as economic growth and poverty eradication. Local governments have an essential role in creating favourable environments for business success. LED is thus a partnership between local government, business and community interests. To see an improved and diversified local economy that will reduce unemployment, poverty and bring better quality of life to all.

Job Creation

In its endeavour to address unemployment and poverty the municipality has conducted a comprehensive Local Economic Development Plan or Strategy that is aimed at guiding local economic development. As part of the Plan or Strategy several projects were proposed amongst them those that aim to attract investor's particularly local people would be employed in such firms.

This development has the potential to therefore positively contribute to the municipality's goals of reducing the unemployment rate in the region, reduce poverty levels and potentially improve literacy levels.

c) Motivation for the preferred development footprint within the approved site including a full description of the process followed to reach the proposed development footprint within the approved site.

i) Details of the development footprint alternatives considered

(a) The property on which or location where it is proposed to undertake the activity;

No alternative property or location for the proposed activity was investigated as the proposed activity location is dependent on the geology of the area.

(b) The type of activity to be undertaken

No alternatives were considered in this regard. There are no feasible alternatives that can be undertaken in place of the proposed mining activities that need to be undertaken to access the reserves present on site.

(c) The design or layout of the activity

The design or layout of the proposed activity is dependent on the geology of the area and the location of the ore reserves; hence no alternatives were investigated.

(d) The operational aspects of the activity

Open cast mining methods will be undertaken at the mine. These methods are also dependent on the location and depth of the ore reserves. Hence there is no alternative for this aspect.

(e) the option of not implementing the activity

As indicated under the need and desirability of the project (Item F), the project will help improve the local and national socio-economic status of the local communities and indirectly, that of the country. The option of not implementing the activity means the opportunity of accessing the reserves and converting them into monetary value and therefore seeing an improvement in the socio economy status of the country will be forfeited. For this reason, the option of not implementing the activity is not taken into consideration.

ii) Details of the Public Participation Process followed

Table below indicates the public participation process followed using draft Scoping and EMP documents and Background Information Document (BID).

The following steps were undertaken

- Registered letters were sent to the local municipality.
- The project was advertised in a National Newspaper (Sowetan), and once in a local newspaper accessible to the local communities around the development site, providing information about the project and the applications underway.
- Site notices were placed around the project site, also providing information about the project and the associated applications underway, and inviting the general public to attend the public meeting & provide commentary on the proposed project.
- The Draft Scoping Report was sent to Interested and Affected Parties.
- The following information has been sent and explained to the land owners and interested and affected parties
    - Background Information Document for the proposed activity
    - Draft scoping Report for the proposed activity

Table 5: Consultation Of interested and Affected Parties

Interested and affected parties consulted	Manner of consultation	Status	Record appended?
Land owners affected by proposed activities	Letter	Completed	yes
Municipality	letter	Completed	yes
Neighbouring Landowners	Newspaper advert (permission form community leaders to erect site notices was not granted)	Completed	yes

General public	Newspaper advert (permission form community leaders to erect site notices was not granted)	Completed	yes
State Owned Entities	Draft scoping/EIA	Completed	yes

iii) Table 06: Summary of issues raised by I&APs

Interested and affected parties	Date comments were raised	Issues raised	Response to the issue
Land owners	See record appended (email communication with Bapolomiti)	See record appended (email communication with Bapolomiti)	See record appended (email communication with Bapolomiti)
Lawful occupiers	N/A	N/A	N/A
Landowners & lawful occupiers of adjacent land and interested parties	None to date	None	None
Municipality	None to date	None	None
Community and community leaders (same as landowner)	Same as landowner	Same as landowner	Same as landowner
Relevant state departments (READ)	28/02/2017	The development falls within a protected area (Pilanesberg National Park) and a CBA2, within which no mining is permitted	Issues have been addressed in this EIA report.

		according to the North-West Biodiversity Sector Plan 2015. Biodiversity Offsets should therefore be considered. The distance from the development site to Pilanesberg National Park should be measured and included in the report.	
Other: Federation for Sustainable Environment	14/08/2017	See record appended	See response on record appended
Other: North West Parks Board		See record appended	All comments incorporated in the report

iv) The environmental attributes associated with the development footprint alternatives

1) Baseline environment

(a) Type of environment affected by the proposed activity.

Climate

No climate data was available for the for the study area. Climate data for Sun City (located approximately 15km East-South-East of the project site) was obtained.

The site lies within the Summer Rainfall Climatic Zone and is classified as a steppe climate area (BSh). Precipitation in the area varies with about 119 mm between the driest month and the wettest month. The driest month is August during which there is an average 3 mm of precipitation. The most precipitation here falls in December, averaging 122 mm. The average annual precipitation is 641mm.

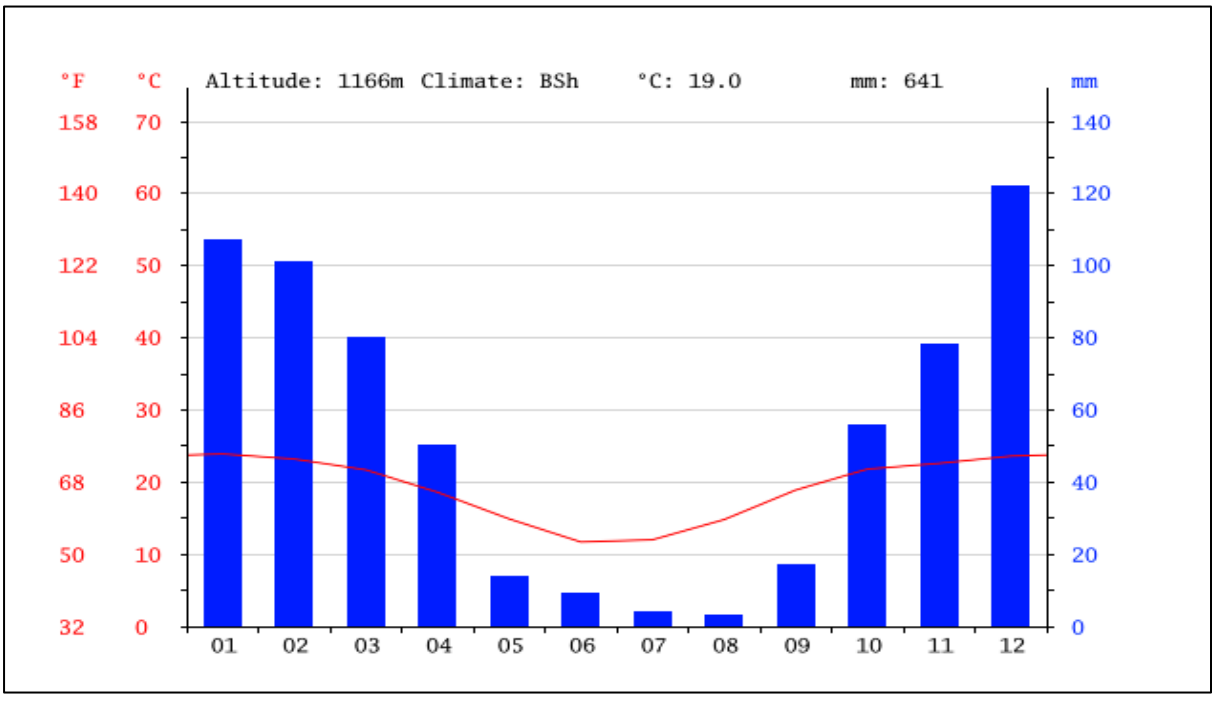


Figure 02: Sun City Average Precipitation

Source: http://www.worldweatheronline.com/ventersdorp-weather-averages/north-west/za.aspx

Temperatures vary by 12.2 °C throughout the year, with an average of 23.9 °C. January is the warmest month with temperatures rising to about 32°C. June is the coldest month, with temperatures averaging at 11.7 °C. Figure 1 below presents the monthly variation of average minimum and maximum temperatures.

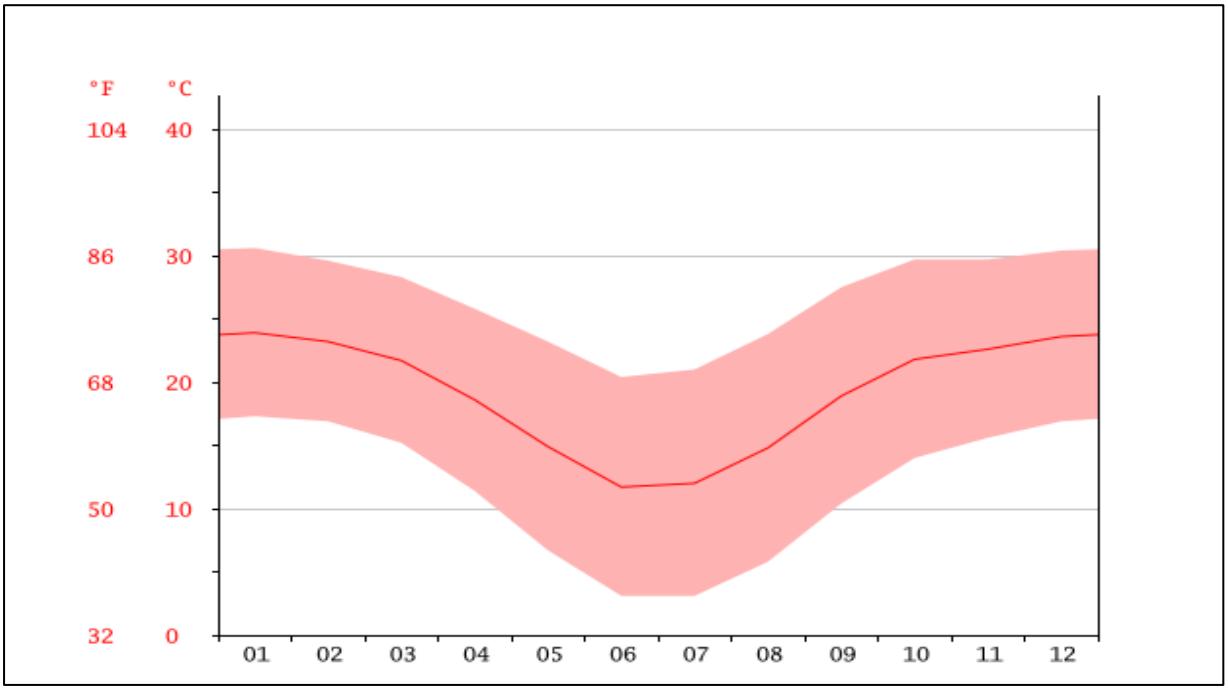


Figure 03: Sun City average high and low temperatures

Source: http://www.worldweatheronline.com/ventersdorp-weather-averages/north-west/za.aspx

Biodiversity

Floristic Characterisation

According to Mucina and Rutherford, 2011, the proposed site is located in the Savanna Biome, within the Zeerust Thornveld. The Zeerust Thornveld is distributed and is limited to the North-West Province. It extends along the plains from the Lobatsi River in the west via Zeerust, Groot Marico and Mabaalstad to the flats between the Pilanesberg and western end of the Magaliesberg in the east (including the valley of the lower Selons River).

Figure 4 below shows the vegetation cover of the project area.

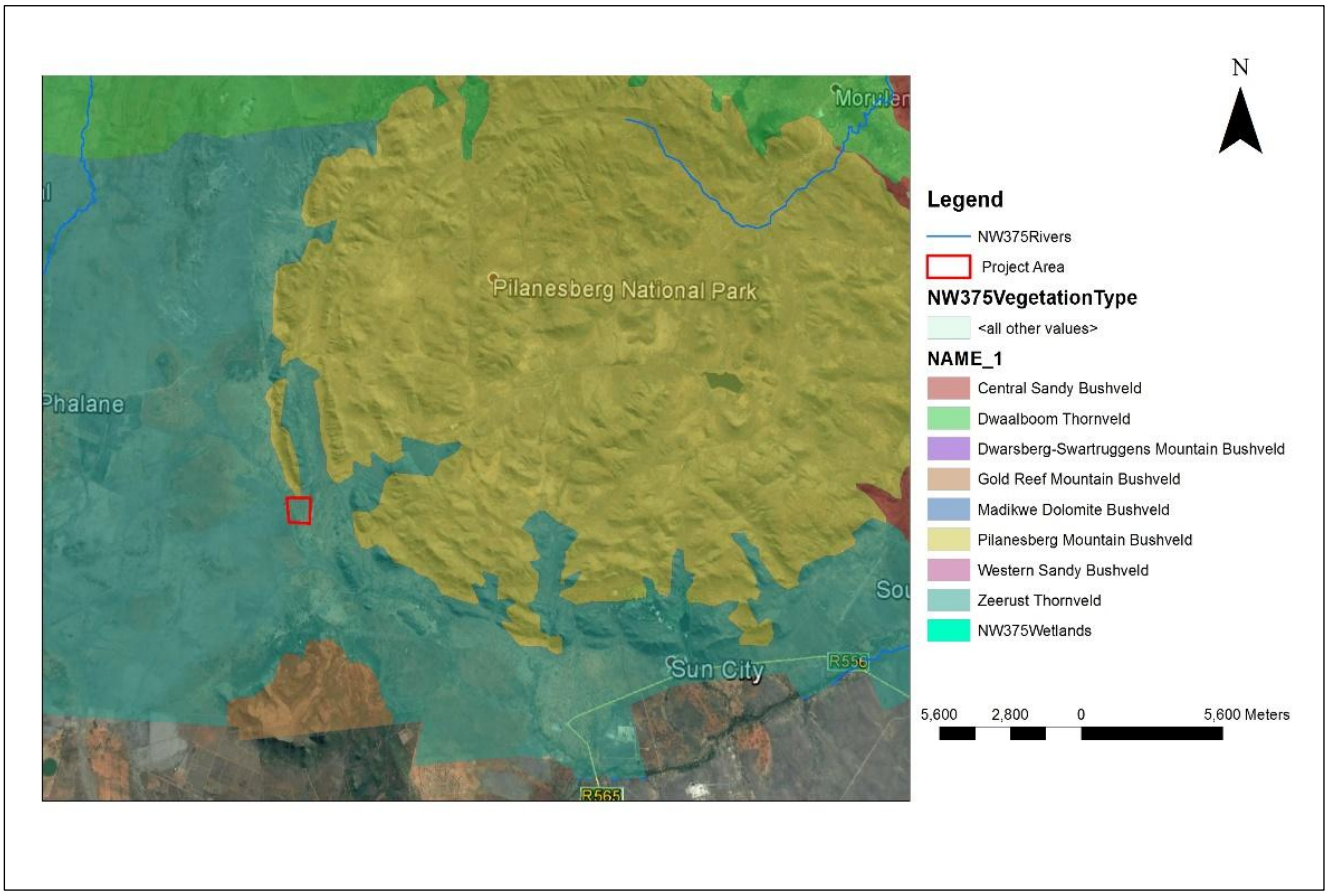


Figure 04: Project floral cover

The vegetation unit consists of deciduous, open to dense short woodland which is dominated by Acacia species with herbaceous layer mainly of grasses on deep, high bas-status and some clay soils on plains and lowlands.

Key indicator species of this vegetation type include:

- **Tall trees:** *Acacia burkei (d), A. erioloba (d),*
- **Small trees***: Acacia melifera subsp. detinens (d), A. nilotica (d). A. tortilis subsp. heteracantha (d), Rhus lancea (d), Acacia fleckii, Peltophorum africanum, Terminalia sericea;*
- **Tall shrubs:** *Diospyros lycioides subsp. lycioides, Grewia flava, Mystroxylon aethiopicum subsp. burkeanum;*
- **Low shrubs:** *Rhus maricoana (d), Agathisanthemum bojeri, Chaetacanthus costatus, Clerodendrum ternatum, Indigofera filipes, Rhus grandidens, Sida chrysantha, Stylosanthes fruticos;*

- **Grass:** *Eragrostis lehmanniana (d), Panicum pospischilii; Panicum maximum, Aristida congesta and Cymbopogon pospischilii*
- **Herbs:** *Blepharis integrifolia, Chamaecrista absus, C. mimosoides, Cleome maculate, Dicoma anomala, Kyphocarpa angustifolia, Limeum viscosum, Lophiocarpus tenuissimus.*

According to the NW Biodiversity Inventory and Database (2003) the region in which the study area is located has a floral diversity ranking of high. A total of 109 plant species were recorded during the floristic survey of the study area, which is markedly higher than the 40-plant species presented in the PRECIS dataset by SANBI (SIBIS: SABIF, 2009, internet), and can be attributed to the variable topography of the study area, and the resulting environmental heterogeneity. Based primarily on position along the slope catena, physiognomy, moisture regime, rockiness, slope and soil properties, four vegetation communities were recognised, but there is variation within these communities as a result of current and historic anthropogenic disturbance. The communities are:

- Bottomland Acacia Karroo-Acacia tortilis bushveld
- Foot slope mixed bushveld
- Upper- Midslope Acacia caffra-Combretum molle bushveld

Zeerust Thornveld is considered to be Least Threatened. The conservation target for the area is 19% and less than 4% is statutorily conserved, spreading between four reserves including the Pienaar and Marico Bushveld Nature Reserves. Some 16% of the vegetation type has been transformed, mainly by cultivation, with some urban or built up areas. A few areas are scattered with plants of the alien Cereus jamacaru and several other alien species are scattered elsewhere.

The entire area is located within a Critical Biodiversity Area 2. (Near-natural landscapes). The CBA2 areas are by:

- Ecosystems and species largely intact and undisturbed.
- Areas with intermediate irreplaceability or some flexibility in terms of area required to meet biodiversity targets. There are options for loss of some components of biodiversity in these landscapes without compromising our ability to achieve targets.
- These are landscapes that are approaching but have not passed their limits of acceptable change.

From the visual assessment, the area of the proposed area can be regarded to have medium sensitivity. This is because about 20% of the site is already cleared for previous mining activities. A high number of protected plants such as Sclerocarya birrea are likely to be removed.

Fauna

Avifauna

The NW Biodiversity Inventory and Database (2003) categorises the region in which the study area is located as having low-medium bird diversity. Data presented on SANBI's SIBIS database (SIBIS: SABIF, 2009, internet) indicates that a total of 127 bird species have been recorded in the 2526BB quarter degree grid square. During a site survey carried out by Golder Associates recorded a total of 35-bird species, which is lower than the recorded 127 species by SIBIS. This low diversity can be attributed to:

- The time of year at which the survey was undertaken – during the dry season many summer residents migrate north and only common residents would be observed;
- Mining activities, most notably blasting, would disturb many bird species in the immediate area; and
- Egg collecting by adjacent land users may reduce the abundance and diversity of resident bird species. No Red Data bird species were recorded.

Mammals

The project area covers a relatively small area; therefore, aa high diversity of mammal species is not expected. Furthermore, animal life in the area is limited to small animals, potentially as a result of anthropogenic disturbance and the low floral diversity. The mammal community consists primarily of pioneer species, such as rodents (e.g. the genus Mastomys) bats, squirrels, lizards and a few snake species, and other species that are widespread and common to most vegetation types. No Red Data mammal species were recorded.

Surface water

The project area falls within the Crocodile and Marico West Water Management Area. No surface water resource traverses the proposed mining area. Two non-perennial tributaries of the Motlhabe River flow next to the project area (approximately 200m from the project site). The tributaries are generally dry and flow only after significant rainfall. They are not utilised as water sources by the local community or livestock.

Groundwater

Groundwater Information available from previous groundwater investigations at Ruighoek (Golder, May 2007) and (Brink, D; Canahai, G; February 2012) can be summarised as follows:

- The main aquifers are secondary fractured aquifers and weathered rock aquifers;
- Groundwater levels ranged from 5.82 mbgl to 20.38 mbgl (1130 mamsl to 1133 mamsl) based on data collected in 2001;
- Yields in boreholes identified during a 2001 hydrocensus varied from dry to 10 l/s;
- Boreholes are used mostly for domestic use and stock watering; Groundwater quality generally did not meet the South African Water Quality Guidelines for domestic use due to high salinity, high Ca, high Mg and high nitrate;
- The main source of groundwater recharge was identified as high-lying ground in the Pilanesberg Mountains and low-lying areas of the Motlhabe River catchment;
- Annual groundwater abstraction was estimated at 105 m3 /yr; and the fractured/weathered rock aquifers are described as “minor”.
- Two aquifers were identified:
    - Weathered zone aquifer which extends to a depth of 5 m to 30 m. The saturated zone in this aquifer can vary from 0 m to 20 m. Porosity is of the order of 1% to 25%. Transmissivity ranges from 30 m²/day to 150 m²/day. The aquifer is of limited extent and subject to dewatering under sustained pumping conditions; and
    - Fractured rock aquifers are associated with sub-vertical fractures

Air Quality

Currently there is no measured air quality data for the vicinity of the proposed mining operations. Most of the monitoring facilities are located in the urban areas (i.e. Rustenburg) and/or on the larger platinum mines such as Impala, Lonmin and Anglo Platinum (See Figure 3). Air quality information form these nearby mines was obtained from a report by Golder Associates (2012). Data recorded at the platinum mines show infrequent exceedances of the national standard of 48 ppb for the daily SO2 concentration, several exceedances of the current national daily standard of 120 µg/m3 for PM10 and numerous exceedances of the 2015 national daily standard of 75 µg/m3. These mines are located approximately 40km to 70km south-east of the proposed mining operations and, although airborne pollutants can travel long distances, their concentrations diminish with distance from the emission source.

Potential air quality pollution sources of local significance include:

- Fugitive emissions from mining operations such as clearing operations (scraping, dozing and excavating), materials handling operations (tipping, off-loading, loading), vehicle entrainment of dust from haul roads, wind erosion from open areas, drilling and blasting. These results mainly in fugitive dust releases
- Vehicle tailpipe emissions. These include CO2, CO, SO2, NOx and hydrocarbon gases as well as particulate material and lead.
- Household fuel combustion (particularly coal and wood used by smaller communities/settlements).
- Biomass burning (veld fires in agricultural areas within the region).
- Various miscellaneous fugitive dust sources (agricultural activities, wind erosion of open areas, vehicle entrainment of dust along paved and unpaved roads).

The following sensitive receptors in the surrounding environment were identified:

- Public road 1.9 km East of site
- Informal settlement of Maologane 3.63 km North-North-West of site
- Pilanesberg Nature reserve 3.15 km East-North-East of site
- Informal settlement of Mahobieskraal 4 km South-South-East of site

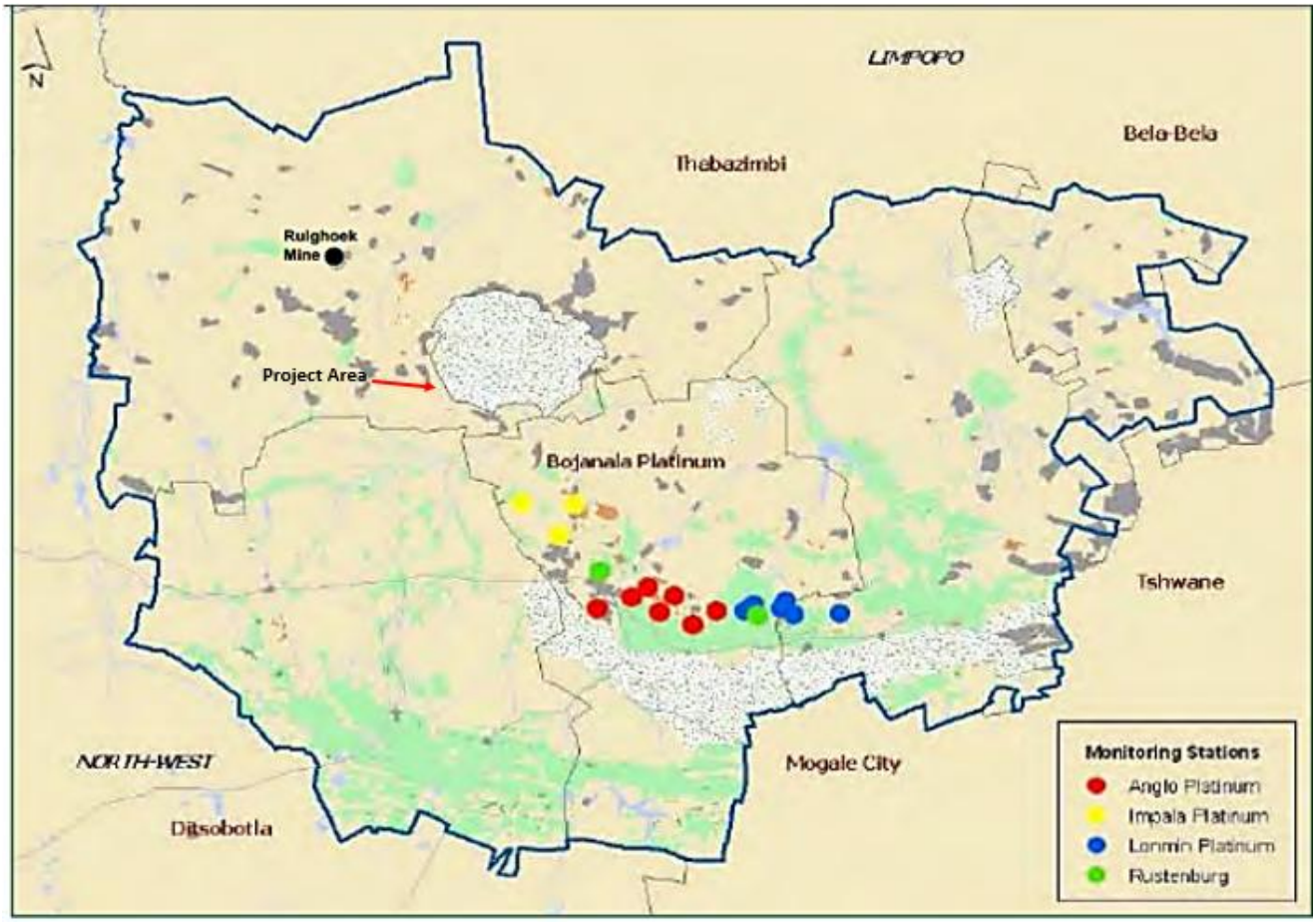


Figure 05: Platinum mines near the project location

Topography

The project area lies in the wide, shallow Motlhabe River valley which is oriented north-south and falls gently towards the north. The terrain within the valley is relatively flat, but rises abruptly at the Pilanesberg mountains which bound the valley to the east. The project area is located at the foot of the Pilanesberg mountains. The average elevation in the valley ranges from approximately 1,050 to 1,550 m above mean sea level.

(b) Description of the current land uses.

The proposed project site is primarily comprised of open natural grassland (that contain grasses and a few bushes and shrubs). Parts of the project site have also been subjected to past mining exploration activities, leaving exploration trenches and pits without any rehabilitation having been put in place.

Figure 06 a &b: Current land use/land cover

Description of specific environmental features and infrastructure on the site.

The site mainly contains a large open rocky grassland with vegetation cover that is primarily composed of grasses, shrubs and scattered tree species (primarily acacia species). The landscape is that of a uniform, gentle slope with several rocky hills. Outcrops have also been observed within the study area. There is also evidence of intense erosion as can be seen in figures 6 a & b above.

(c) Environmental land use map

The environmental and current land use map showing all environmental and current land use features is attached as **Appendix 6.**

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

Below is the list of potential impacts of the proposed mining activities. followed by the table that details the nature, significance, consequence, extent, duration and probability of the impacts as well as the degree or extent to which they can be reversed, cause irreplaceable loss of resources, and can be avoided, managed or mitigated.

List of potential impacts

- Accumulation of water into the pits
- Dust generation;
- Noise pollution;
- Animal life disruption to animals found directly on or near site;
- Removal of vegetation;
- Introduction of Weeds and Alien invasive species
- Visual and Health impacts
- Destruction of heritage resources
- Soil contamination (from oil spillages);
- Soil erosion; and
- Habitat destruction and disturbance
- Impacts on fauna
- Job Losses at mine closure

Table below indicates the potential impacts per activity, and table 11 indicates the significance of the identified impacts

Table 07: Impacts by Proposed Activities

Mining activity	Potential impact
Site establishment • Camp site preparation • Mine site preparation	• Generation of noise. • Generation of dust. • Removal of vegetation. • Habitat destruction (fragmentation) • Soil erosion as the result of exposed surfaces. • Introduction and establishment of declared weeds
Access road usage	• Generation of dust. • Increased traffic
Waste storage	• Visual and Health impacts • Water and soil/land pollution/contamination
Topsoil storage	• Soil erosion from the storage stockpile • Dust from the storage stockpile

Mining (site)	• Contamination of soil from oil leaks from vehicles and machinery • Generation of noise during open mining activities. • Increased Traffic • Increased crime in surrounding areas • Generation of dust during open mining activities. • Ground water contamination from oil leaks from vehicles and machinery • Temporary in-migration of workers and job seekers • Personal safety and hazard exposure (actual and perceived) • Removal of vegetation • Habitat destruction (fragmentation) • Impacts on fauna • Increased Traffic • Employment of local people
Processing plant	• Generation of noise • Habitat disruption and destruction
Fence	• Removal of few vegetation. • Habitat disruption and destruction • Soil erosion as the result of exposed surfaces.
Oil and grease storage	• Removal of few vegetation. • Habitat (destruction) fragmentation
Return water Dam	• Removal of few vegetation. • Habitat fragmentation (destruction)
Decommissioning and closure of mining project	• job losses

Table 08: Impacts significance

Phase	Activity	Associated Potential Impacts	Impact Significance (before mitigation)
Construction phase	a) Site establishment: Camp site, ablution facilities and parking bay preparation	- Dust generation by movement if large vehicles delivering mobile facilities	Extent: 2 Intensity: 1 Duration: 1 Probability: 4 *Weighing Factor: 2*
		- Soil erosion and reduced ground water recharge will result from reduced permeable surfaces (mobile facilities are impermeable)	Extent: 2 Intensity:1 Duration: 2 Probability: 2 *Weighing Factor: 3*
		- Job Creation: a few people (1 or 2) will be employed for general work around the site	Extent: 2 Intensity:1 Duration: 2 Probability:4 Weighing Factor:5

Phase	Activity	Associated Potential Impacts	Impact Significance (before mitigation)
		- Habitat disruption and destruction	Extent: 2 Intensity: 1 Duration: 2 Probability: 3 *Weighing Factor: 4*
		- Soil contamination by oil spills from vehicles	Extent: 1 Intensity:1 Duration: 1 Probability: 1 Weighing Factor: 2
		- Noise generation: Noise levels of about 100dB will be generated from the operation of construction vehicles and machinery. This could disrupt the community members residing near the site	Extent: 2 Intensity: 1 Duration: 1 Probability: 4 *Weighing Factor:2*

Phase	Activity	Associated Potential Impacts	Impact Significance (before mitigation)
		- Temporary in-migration of workers and job seekers	Extent: 2 Intensity: 1 Duration: 2 Probability: 1 Weighing Factor:2
		- Personal safety and hazard exposure (actual and perceived)	Extent: 2 Intensity: 1 Duration: 2 Probability: 2 Weighing Factor:3
		- Introduction and establishment of declared weeds	Extent: 2 Intensity: 1 Duration: 3 Probability:1 Weighing Factor:3
Operational Phase	a) Mining	- Noise generation	Extent: 2 Intensity: 3 Duration: 1 Probability: 4

Phase	Activity	Associated Potential Impacts	Impact Significance (before mitigation)
			Weighing Factor:3
		- Dust Generation	Extent: 2 Intensity: 3 Duration: 1 Probability: 5 *Weighing Factor: 3*
		- Habitat destruction (fragmentation)	Extent: 2 Intensity: 3 Duration: 2 Probability: 5 *Weighing Factor: 4*
		- Animal life disruption	Extent: 2 Intensity: 3 Duration: 1 Probability: 4 Weighing Factor: 4
		- Vegetation removal: some vegetation will be removed with topsoil at positions demarcated for	Extent: 1 Intensity: 1 Duration: 1

Phase	Activity	Associated Potential Impacts	Impact Significance (before mitigation)
		trenching	Probability: 4 Weighing Factor:3
		- Job Creation	Extent: 2 Intensity:1 Duration: 2 Probability:2 Weighing Factor:3
		- Conversion of land use	Extent: 2 Intensity:1 Duration: 1 Probability: 4 Weighing Factor: 2
		- Actual health and fertility from factors such as factors such as noise, VOC emissions and dust pollution	Extent: 2 Intensity:1 Duration: 2 Probability: 2 Weighing Factor: 2
		- Destruction of Heritage Resources	Extent: 1 Intensity:3

Phase	Activity	Associated Potential Impacts	Impact Significance (before mitigation)
		on site	Duration: 5 Probability: 2 Weighing Factor: 4
		- Impacts on fauna Impacts of blasting could be putting species at risk by impairing signalling and listening capabilities, foraging and mating, necessary for successful communication and survival	Extent: 2 Intensity:3 Duration: 5 Probability: 2 Weighing Factor: 5
		- Increased crime in surrounding area	Extent: 2 Intensity:3 Duration: 3 Probability: 2 Weighing Factor: 5
	b) Top soil stockpiling	- Soil erosion from stockpile	Extent: 1 Intensity:3 Duration: 1 Probability: 3 Weighing Factor: 4
	c) Waste	- Solid waste such as debris and litter	Extent: 2

Phase	Activity	Associated Potential Impacts	Impact Significance (before mitigation)
	generation and storage	can be potentially generated and deposited in and around the site. This could potentially attract nuisance and affect the natural scenery / aesthetic quality of the site.	Intensity:1 Duration: 1 Probability:3 Weighing Factor:3
Decommissioning Phase	- Rehabilitating the camp site, rehabilitation of the disturbed and contaminated areas - Re-vegetation - Removal of all infrastructures onsite. - Backfilling	- Recovery/restoration of natural habitat	Extent: 2 Intensity:3 Duration: 5 Probability:5 *Weighing Factor:5*
	- Decommissioning and closure of mining project:	- Job losses	Extent: 2 Intensity:3 Duration: 5 Probability:5 Weighing Factor:5

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

The generic criteria and systematic approach used to identify, describe and assess impacts as outlined in this report is stated under this section. In order to determine the significance of an activity each activity was rated.

TABLE 09: METHODOLOGY FOR THE ASSESSMENT OF IMPACTS

The assessment of impacts adheres to the minimum requirements in the EIA Regulations, 2014 and takes into account the applicable official guidelines.

Below is a detailed methodology of how all direct, indirect and cumulative impacts associated with all the phases of the project where assessed. The Direct, indirect and cumulative impacts associated with the proposed operation and its alternatives on the environment and socio-economic conditions will be assessed in terms of the following criteria:

- The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.

- Impact Parameter

Parameter	Description
Extent	Refers to the geographical extent of the resultant impact, whether local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high):

Duration	Refers to the duration that the resulting impact will last, whether ➢ the lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1; ➢ the lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2; ➢ medium-term (5–15 years) – assigned a score of 3; ➢ long term (> 15 years) - assigned a score of 4; or permanent - assigned a score of 5
Intensity	Refers to the intensity of destruction or benign of the impact on the environment whether it destroys the impacted environment, alters its functioning, or slightly alters the environment itself. The intensity is rated as: low, medium or high.
Probability	Refers to the probability/chances of the impact to happen. Probability will be estimated on a scale of 1–5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).

- Mitigation

Impacts that result from the development can be minimised if mitigation measures are correctly put in place. Mitigation measures should ensure that the development considers the environment and the predicted impacts in order to minimise such impacts and achieve sustainable development.

- Mitigation Efficiency (ME): The efficiency and effectiveness of mitigation measures, is measured through mitigation efficiency, as identified through professional experience and empirical evidence of how effectively the proposed mitigation measures will manage the impact. The lower the assigned value the greater the effectiveness of the proposed mitigation measures and subsequently, the lower the impacts with mitigation.

Determination of Significance – Without Mitigation:

Significance is determined through a synthesis of impact parameters as described in the above table, and provides an indication of the importance of the impact. The significance of the impact "without mitigation" is the key determinant of the nature and degree of mitigation required. Where the impact is positive, significance is noted as "positive".

Significance is rated on the following scale:

- **No significance**: The impact is not substantial and does not require any mitigation action.
- **Low:** The impact is of little importance, but may require limited mitigation.
- **Medium:** The impact is of importance and is therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.
- **High:** The impact is of major importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential.

Identifying the Potential Impacts without Mitigation Measures (WOM):

Following the assignment of the necessary weights to the respective parameters, criteria are summed and multiplied by their assigned weightings, resulting in a value for each impact (prior to the implementation of mitigation measures).

Equation 1:

Significance Rating (WOM) = (Extent + Intensity + Duration + Probability) x Weighting Factor

Determination of Significance – With Mitigation (Significance Following Mitigation (SFM):

Determination of significance with mitigation refers to the anticipatable significance of the impact after the successful implementation of the necessary mitigation measures. The efficiency of the mitigation measure determines the significance of the impact. The level of impact is therefore seen in its entirety with all considerations taken into account. Significance with mitigation is rated on the following scale:

- **No significance:** Following the implementation of mitigation measures, the impact becomes insignificant/ insubstantial.
- **Low:** The impact will be mitigated to the point where it is of limited importance.
- **Low to medium:** After mitigation, the impact is reduced to acceptable levels.
- **Medium:** Notwithstanding the successful implementation of the mitigation measures, the negative impact remains of significance, however, in relation to the overall context of the project, the persistent impact does not constitute a fatal flaw.
- **Medium to high:** The impact is of major importance but after the implementation of the correct mitigation measures, the negative impacts are reduced to acceptable levels.
- **High:** The impact is of major importance. Mitigation of the impact is not possible on a cost-effective basis. The impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. An impact regarded as high significance, after mitigation could render the entire development option or entire project proposal unacceptable.

Identifying the Potential Impacts with Mitigation Measures (WM):

In order to gain a comprehensive understanding of the overall significance of the impact, after implementation of the mitigation measures, it is necessary to re-evaluate the impact.

Equation 2:

Significance Rating (WM) = Significance Rating (WOM) x Mitigation Efficiency

Or

WM = WOM x ME0

Below is a table of all ratings allocated to the aforementioned parameters that have been accounted for in rating all identified impacts from the development.

Extent	Duration	Intensity	Probability	Weighing Factor (WF)	Significance Rating (SR)	Mitigation Efficiency (ME)	Significance Following Mitigation (SFM)
Footprint 1	Short term 1	Low 1	Probable 1	Low 1	Low 0-19	High 0.2	Low 0-19
Site 2	Short to Medium 2		Possible 2	Low to Medium 2	Low to Medium 20-39	Medium to High 0.4	Low to medium 20-39
Regional 3	Medium term 3	Medium 3	Likely 3	Medium 3	Medium 40-59	Medium 0.6	Medium 40-59
National 4	Long term 4		Highly likely 4	Medium to High 4	Medium to High 60-79	Low to Medium 0.8	Medium to High 60-79
International 5	Permanent 5	High 5	Definite 5	High 5	High 80-100	Low 1.0	High 80-100

Based on the calculated rating, all impacts can therefore be rated to be of low, low to medium, medium, medium to high or high significance before and after mitigation.

vii) The positive and negative impacts that the proposed activity (in terms of the revised site layout) and alternatives will have on the environment and the community

Positive impacts

The following are the potential positive impacts the activity will have on the community and environment

- Job creation:

The mining project will create a few general /unskilled jobs for members of the community. The project will also provide work and generate income for a few construction workers that will be carrying out the technical surface work.

Should findings confirm the presence of reserves that can be feasibly mined, through these mining activities, the following mining stages will create more employment for more local community members, generate income, and help improve the livelihoods of the community.

- Good environmental management.

The Environmental Authorisation together with the approved EIA/EMP report will guide the applicant in terms of managing the physical and socio-economic environment that is impacted by the mining activities. This will be possible through the implementation of the requirements and conditions of the Environmental Authorisation and the approved EIA/EMP report.

Negative impacts

The following are the potential negative impacts identified for the proposed activities.

- Soil pollution

Potential leakage of oil and other industrial liquids from the trucks and mining machineries. This is a potential risk of soil contamination, which will change the soil chemistry and soil nutrients of the affected soil. This could also potentially affect the vegetation growth in the contaminated areas.

- Dust

The use of the access dusty roads and the mining will result in the emission of dust into the surrounding atmosphere. This will impact on the plants surrounding the area as it (the dust) is deposited on the leaves. This interferes with the photosynthesis process of the plants. Furthermore, animals (especially livestock) that feed on the plants will be impacted upon as this will affect their forage.

- Noise

The mining machinery operation, and the movement of trucks and vehicles, all causes noise pollution. The mining activities' noise levels may go over the immediate site. The noise levels of the trucks and excavators depend on their size and this may cause the noise to be localised in the specific site.

- Soil erosion

Soil erosion on denuded areas and topsoil stockpile is a potential negative impact. Most of the areas to be worked on are flat, but do not rule out soil erosion by runoff or wind.

- Animal life disruption

The noise, dust, movement and operation of trucks and other vehicles, the potential loitering of the employees and the mining itself will disrupt the life of the animals around. This

disruption can further lead to injury or death in cases where animals fall into the trenches or pits.

- Removal of vegetation

While all means will be applied to minimise disturbance, removal of vegetation cannot be avoided altogether. Vegetation will be removed in areas where mining will be done. This removal of vegetation will leave the ground bare and prone to erosion.

- Habitat destruction

Parts of the project site have also been mined in the past, without any rehabilitation having been put in place. Several pits and burrows, and trenches are also evident on the part of the study area that has been historically mined. The grassland with its shrubs and small trees and burrows are habitat to and form part of an ecosystem that supports some of the small animals that inhabit the area. This habitat within the project site will be fragmented and destructed by the movement and operations during the mining activity. This could possibly cause the relocation of some of the animals, and disturb the ecosystem.

- Destruction of Heritage Resources

Some heritage resources were discovered during the heritage study and some heritage resources could be buried underground. These resources may be potentially damaged during the mining operations.

- Increased Immigration of job seekers

The proposed project could potentially attract an influx of job seekers who might seek work on sight or with the hopes of capitalising on the potential job opportunities should the project indicate the feasibility of diamond mining and proceedings are made into the mining phase.

- Waste generation

Solid waste such as debris (slimes), waste rock and litter will be generated and deposited in and around the site. This could potentially attract nuisance and affect the natural scenery of the site. The slimes and waste rock will be used to backfill the pits. This will be undertaken in a concurrent rehabilitation manner.

viii) The possible mitigation measures that could be applied and the level of risk. (with regard to the issues and concerns raised by the

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

There are no issues raised by the interested and affected parties or alternatives at the moment, however the table below has the list of the impacts and their possible mitigation measures considered.

Table 10: Impacts Mitigation Measures

ACTIVITIES	Associated Impacts	TYPICAL MITIGATION MEASURES
Site establishment: Camp site, ablution facilities and parking bay preparation	• Generation of noise.	- Work during the day time only to minimise disruption of animal life and noise in the night. Sound is louder during the night than during the day. - Service equipment, machineries, trucks and other vehicles regularly to minimise noise. - provide ear plugs to the employees and ensure they wear them for the protection of their ears.
	• Generation of dust.	- Suppress dust by spraying water on dust roads and onsite were possible - Regulate speed to be 40 km/h on site to reduce dust emission. - Provide dust mask to employees working on site
	• Removal of vegetation.	- Minimise removal of vegetation- where possible work on barren parts of the site. - Rehabilitate and vegetate denuded areas as soon as possible
	• Habitat disruption and destruction	- Install mobile offices and ablution facilities to minimise ground disturbance - The site office and ablution facilities must be located in an area with minimal damage or disturbance to the environment. - Establish 'NO-GO' areas for any environmental sensitive or important habitat areas as per the biodiversity assessment- where no construction personnel, equipment/machinery or vehicles are permitted.

	• Soil contamination by oil spills from vehicles	- Construct a concrete slab to avoid soil contamination by hydrocarbon leakage - Provide drip trays for all parked vehicles
	• Temporary in-migration of workers and job seekers	- Ensure that an employment criterion, for the mining crew be made public in advance to deter unqualified job seekers from moving into the area. - Employ as far as possible, local labour at each phase of the project, especially during the mining phase
	• Personal safety and hazard exposure (actual and perceived)	- Ensure that all activities comply with all the requirements of the Occupational Health and safety Act as stipulated by its health and safety policy and the health and safety plan for the mining operations; and - Communities and other Interested & Affected Parties should be informed (community awareness) of these policies and must be able to report any irregularities to the relevant competent authority.
	• Introduction and establishment of declared weeds and alien invasive species	- Monitor the establishment of any foreign/alien invasive species on site and remove if any
	• Conversion of land use	- Try as far as possible to dig trenches and place mobile facilities where the land is barren and is not used for grazing by cattle - Rehabilitate all areas transformed by the activities as far as possible, and restore to original state

Mining	• Generation of dust	- Suppress dust by spraying water on dust roads and onsite were possible - The developer of proposed project must in order to mitigate any potential impact defer mining within 500 m of the operational boundary line. - No temporary storage of soil, waste rock or discarded process material within 500 meters from the operational boundary line. - No temporary storage of soil, waste rock or discarded process material above a height of 2.5 meters. - The covering of stockpiled soil or discarded process material with vegetation. - Dust monitoring would be done at selected sites with potential significant impacts and mitigation of activities pertaining to sources would be managed accordingly. - If an activity is causing high or abnormally dusty conditions (as determined by visual assessment and prescribed licence conditions), the activity will cease until weather conditions change or appropriate dust controls are put in place to ameliorate the dust emissions.
	• Generation of noise	- Provide workers with earplugs - Ensure all mining equipment are serviced
	• Removal of vegetation	- Avoid removal of vegetation as far as practically possible. Vegetation clearing in natural areas should be kept to a minimum and restricted to the proposed mining footprint only - Place infrastructures in places that are already disturbed or degraded to avoid removal of vegetation and increasing the footprint of the activity. - Bring in and use the mobile equipment that will just need the positioning and not the construction. equipment such as the toilet and the guard house. - Where vegetation removal cannot be avoided, rehabilitate as soon as possible by revegetating - A vegetation specialist should be involved during the search and rescue operations of vulnerable or sensitive/important plant species occurring on site. All rescued plants should be bagged and kept on a designated on-site nursery,

		and should be returned to site once all construction is completed. Replanting should only occur in springs or early summer (September to November), once the first rains have fallen, in order to facilitate establishment.
	• Animal Life disruption- • Impacts on fauna	- Work during daytime to minimise the disruption of animal life. - Fence -off the trenches to prevent animals from falling into the pits - Do not disturb nests, breeding sites or young ones. Do not attempt to kill or capture snakes unless directly threatening the safety of employees. - Employees and contractors should be made aware of the presence of, and rules regarding, flora and fauna through suitable induction training and on-site signage.
	• Actual health and fertility from factors such as factors such as noise, and dust pollution	- Provide workers with safety clothing - Comply with Health and Safety Measures - Any hazardous zones on site should be monitored and the prescribed prevention measures be put in place
	• Destruction of Heritage Resources	- Make all workers aware of the heritage resources on site. The developer should induct field workers about archaeology, and steps that should be taken in the case of exposing archaeological materials. - Indicators of archaeological site that may be found during construction: • Flaked stone tools, bone tools and loose pieces of flaked stone; • Ash and charcoal; • Bones and shell fragments; • Artefacts (e.g., beads or hearths); • Packed stones which might be uncounted underground, and might indicate a grave or collapse stone walling. • Old ruins

		- Ensure that contractors are given training on how to identify and protect archaeological remains that may be discovered during construction - If archaeological materials are uncovered, work should cease immediately and the NWPHRA and SAHRA be notified - Ensure that all trenches are excavated a legal distance from any heritage resources found on site - Establish 'No-Go' areas around heritage resources and areas demarcated as of heritage importance. Find alternative locations for trenches should the current locations interfere with any heritage resources - The two cemeteries which have been documented must be protected. In the same vein consideration must be given for the protection of the two village sites and the remnant mud brick walls of the old Lutheran Church in view of the extant oral traditions connected with these sites. Since the possibility of mine operations extending to the second cemetery and village site the option archaeological salvage must be considered in consultation with the local communities / historically interested and affected parties and consensus reached.
	• Increased (attraction of) crime in surrounding areas	- Keep strong security in and around site to monitor suspicious activity around the area - Ensure security I highly (and quickly) responsive to criminal activity within and around (neighbouring) the site
Top soil stockpiles	• Soil erosion from the storage stockpile • Dust from the storage stockpile	- Avoid erosion by stockpiling topsoil properly and keep stockpile damp and covering with net to reduce erosion. Alternatively, vegetate stockpiles temporarily. - Suppress dust by spraying water on stockpiles and onsite were possible
Waste and storage	• Nuisance and visual pollution	- Littering should be prohibited and all waste generated from the site should be cleared. A 'no waste dumping' sign should also be placed next to the stream to raise caution of littering around it. - Provide rubbish bins and ensure that all waste is properly disposed of in the

		bins - Empty and dispose of waste weekly at the nearest landfill site
Oil storage	• Soil Contamination	- Place oil dip trays beneath stationary/parked trucks and machinery in use of oil to contain any oil spills - Ensure an oil spill kit is in place for any spillages, and ensure that all staff members are trained to use kits correctly.
Fence	• Removal of vegetation.	- Minimise removal of vegetation- where possible work on barren parts of the site. - Rehabilitate and vegetate denuded areas as soon as possible
Closure and decommission	• Job Loss	- Develop and implement the Local and Human Resources Plan (LHRP) that addresses the impacts associated with retrenchment, job losses and reduced demand for local goods and services; and, - Develop a closure plan which will aim to reinforce the objectives of the SLP by reducing the reliance on Fidulex for employment by promoting skills transfer to enable alternative livelihoods. - Communicate the termination conditions to all employees – including contractors and sub-contractors; - The upskilling of workers to enhance re-employment opportunities following closure and decommissioning must be implemented well in advanced of the decommissioning phase; - Where possible, Fidulex must provide assessment and counselling services for affected individuals; - Comprehensive self-employment training and re-employment programmes; - Management of expectations during the operations phase; and - Establishment of clear criteria for socio-economic projects and corporate social investment activities, that incorporate partnerships, exist strategy and sustainability

i) Motivation where no alternative sites were considered.

No alternatives have been identified as the activity or project is sorely dependent on the underlying geology and the position of the ore as per the desktop studies.

ii) statement motivating the alternative development location within the overall site.

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

d) **Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (in respect of the final site layout plan) through the life of the activity.**

The potential impacts were identified during the site visit and through literature review of the same activities. Furthermore, specialist studies were carried out to assess the proposed activities' impacts in detail. The generic criteria and systematic approach used to identify, describe and assess impacts as outlined in this report is stated under section vi above, which is summarized below. In order to determine the significance of an activity each activity was rated. The following parameters were used to calculate the impact rating:

Parameter	Description
Extent	Refers to the geographical extent of the resultant impact, whether local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high):
Duration	Refers to the duration that the resulting impact will last, whether ➢ the lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1; ➢ the lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2; ➢ medium-term (5–15 years) – assigned a score of 3;

	➢ long term (> 15 years) - assigned a score of 4; or permanent - assigned a score of 5
Intensity	Refers to the intensity of destruction or benign of the impact on the environment whether it destroys the impacted environment, alters its functioning, or slightly alters the environment itself. The intensity is rated as: low, medium or high.
Probability	Refers to the probability/chances of the impact to happen. Probability will be estimated on a scale of 1–5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).

Weighing Factor: The weighing factor is the value assigned to the impact based on its importance in affecting the surrounding environment. A weighing factor of 1 – 5 is assigned to each impact, where 1 is assigned to the least significant impacts and 5 to the most significant impacts.

Significance Rating (Without Mitigation) = (Extent + Intensity + Duration + Probability) x Weighting Factor

Significance Rating After Mitigation

Mitigation efficiency: This is the rating assigned to suggested mitigation measures for each impact. The mitigation Efficiency measures are ranked from 0.2 -1.0, where 1.0 is assigned to inefficient efficient impact mitigation measures and 0.2 to highly efficient impact mitigation

Significance Rating After Mitigation=Significance Rating (WOM) x Mitigation Efficiency

e) **Assessment of each identified potentially significant impact and risk;**

I) Assessment of each identified potentially significant impact and risk

Table 11: Impact Significance Before and After Mitigation

Phase	Activity	Associated Potential Impacts	Aspect Affected	Impact Significance (before mitigation)	Mitigation Measures	impact significance (After mitigation)
Construction phase	d) Site establishment: Camp site, ablution facilities and parking bay preparation	- Dust generation by movement if large vehicles delivering mobile facilities	- Environmental- natural habitat - Social- Surrounding community members	Extent: 2 Intensity: 1 Duration: 1 Probability: 4 *Weighing Factor: 2* **Rating:** (2+1+1+4) *2= 16 (Low to Medium)	- Suppress dust by spraying water on dust roads and onsite were possible - Regulate speed to be 40 km/h on site to reduce dust emission. - Provide dust mask to employees working on site - The developer of proposed project must in order to mitigate any potential impact defer mining within 500 m of the operational boundary line. - No temporary storage of soil, waste rock or discarded process material within 500 meters from the operational boundary line. - No temporary storage of soil, waste rock or discarded process material above a height of 2.5 meters. - The covering of stockpiled soil or discarded process material with vegetation.	Mitigation Efficiency: 0.4 **Rating:** Rating without Mitigation * Mitigation Efficiency =16*0.2 =3.2 (Low)

Phase	Activity	Associated Potential Impacts	Aspect Affected	Impact Significance (before mitigation)	Mitigation Measures	impact significance (After mitigation)
					- Dust monitoring would be done at selected sites with potential significant impacts and mitigation of activities pertaining to sources would be managed accordingly. - If an activity is causing high or abnormally dusty conditions (as determined by visual assessment and prescribed licence conditions), the activity will cease until weather conditions change or appropriate dust controls are put in place to ameliorate the dust emissions.	

Phase	Activity	Associated Potential Impacts	Aspect Affected	Impact Significance (before mitigation)	Mitigation Measures	impact significance (After mitigation)
		- Soil erosion and reduced ground water recharge will result from reduced permeable surfaces (mobile facilities are impermeable)	- Environmental- natural habitat	Extent: 2 Intensity:1 Duration: 2 Probability: 2 *Weighing Factor: 3* **Rating:** 21 (Low to Medium)	- Avoid erosion by stockpiling topsoil properly and keep stockpile damp to reduce erosion	Mitigation Efficiency: none **Rating:** =21 (Low to Medium)
		- Job Creation: a few people (1 or 2) will be employed for general work around the site	- Socio-economic	Extent: 2 Intensity:1 Duration: 2 Probability:4 Weighing Factor:5 **Rating:** 45(Medium)	- Employ local labour as much as possible	N/A
		- Habitat disruption and destruction	- Environmental- natural habitat	Extent: 2 Intensity: 1 Duration: 2	- Install mobile offices and ablution facilities to minimise ground disturbance - The site office and ablution	Mitigation Efficiency: 0.6

Phase	Activity	Associated Potential Impacts	Aspect Affected	Impact Significance (before mitigation)	Mitigation Measures	impact significance (After mitigation)
				Probability: 3 *Weighing Factor: 4* **Rating:** 32(Low to Medium)	facilities must be located in an area with minimal damage or disturbance to the environment. - Establish 'NO-GO' areas for any environmental sensitive or important habitat areas as per the biodiversity assessment- where no construction personnel, equipment/machinery or vehicles are permitted.	**Rating**: 19.2(Low)
		- Soil contamination by oil spills from vehicles	- Environmental- natural habitat	Extent: 1 Intensity:1 Duration: 1 Probability: 1 Weighing Factor: 2 **Rating:** 8(Low)	- Construct a concrete slab to avoid soil contamination by hydrocarbon leakage - Provide drip trays for all parked vehicles	Mitigation Efficiency: 0.4 **Rating:**3.2 (Low)
		- Noise generation: Noise levels of about 100dB will be generated from the operation of	- Environmental- natural habitat - Social- Surrounding community	Extent: 2 Intensity: 1 Duration: 1 Probability: 4 *Weighing*	- Work during the day time only. Sound is louder during the night than during the day to minimise disruption of animal life and noise in the night - Service equipment, machineries, trucks and other vehicles regularly	Mitigation Efficiency: 0.8 **Rating:** 12.8(Low)

Phase	Activity	Associated Potential Impacts	Aspect Affected	Impact Significance (before mitigation)	Mitigation Measures	impact significance (After mitigation)
		construction vehicles and machinery. This could disrupt the community members residing near the site	members	*Factor:2* **Rate:** 16 (Low)	to minimise noise. - provide ear plugs to the employees and ensure they wear them for the protection of their ears.	
		- Temporary in-migration of workers and job seekers	- Social-Surrounding community members	Extent: 2 Intensity: 1 Duration: 2 Probability: 1 Weighing Factor:2 Rate: 12 (Low)	- Ensure that an employment criterion, for the mining crew be made public in advance to deter unqualified job seekers from moving into the area. - Employ as far as possible, local labour at each phase of the project, especially during the mining phase	Mitigation Efficiency: 1.0 Rating: 12(Low)
		- Personal safety and hazard exposure (actual and perceived)	- Social-Surrounding community members	Extent: 2 Intensity: 1 Duration: 2 Probability: 2 Weighing	- Ensure that all activities comply with all the requirements of the Occupational Health and safety Act as stipulated by its health and safety policy and the health and safety plan for the mining; and - Communities and other Interested & Affected Parties should be	Mitigation Efficiency: 0.4 Rating: 8.4(Low)

Phase	Activity	Associated Potential Impacts	Aspect Affected	Impact Significance (before mitigation)	Mitigation Measures	impact significance (After mitigation)
				Factor:3 Rate: 21 (Low to medium)	informed (community awareness) of these policies and must be able to report any irregularities to the relevant competent authority.	
		- Introduction and establishment of declared weeds	- Environmental- natural habitat	Extent: 2 Intensity: 1 Duration: 3 Probability:1 Weighing Factor:3 Rate: 21(Low to medium)	- Monitor the establishment of any foreign/alien invasive species on site and remove if any	
Operational Phase	e) Trenching /excavating	- Noise generation	- Social- Surrounding community members	Extent: 2 Intensity: 3 Duration: 1 Probability: 4 *Weighing Factor:3* **Rate:**	- Work during the day time only. Sound is louder during the night than during the day to minimise disruption of animal life and noise in the night - Service equipment, machineries, trucks and other vehicles regularly to minimise noise. - provide ear plugs to the employees and ensure they wear them for the protection of their	Mitigation Efficiency: 0.6 **Rating:** 18 (Low)

Phase	Activity	Associated Potential Impacts	Aspect Affected	Impact Significance (before mitigation)	Mitigation Measures	impact significance (After mitigation)
				30(Low to medium)	ears.	
		- Dust	- Environmental- natural habitat - Social- Surrounding community members	Extent: 2 Intensity: 3 Duration: 1 Probability: 5 *Weighing Factor: 3* **Rating:** 33 (Low to Medium)	- Suppress dust by spraying water on dust roads and onsite were possible - Provide dust mask to employees working on site - The developer of proposed project must in order to mitigate any potential impact defer mining within 500 m of the operational boundary line. - No temporary storage of soil, waste rock or discarded process material within 500 meters from the operational boundary line. - No temporary storage of soil, waste rock or discarded process material above a height of 2.5 meters. - The covering of stockpiled soil or discarded process material with vegetation. - Dust monitoring would be done at selected sites with potential significant impacts and mitigation of activities pertaining to sources would be managed accordingly.	Mitigation Efficiency: 0.2 **Rating:** 6.6(Low)

Phase	Activity	Associated Potential Impacts	Aspect Affected	Impact Significance (before mitigation)	Mitigation Measures	impact significance (After mitigation)
					- If an activity is causing high or abnormally dusty conditions (as determined by visual assessment and prescribed licence conditions), the activity will cease until weather conditions change or appropriate dust controls are put in place to ameliorate the dust emissions. -	
		- Habitat disruption and destruction	- Environmental- natural habitat	Extent: 2 Intensity: 3 Duration: 2 Probability: 5 *Weighing Factor: 4* **Rating:** 48(Medium)	- Establish 'NO-GO' areas for any environmental sensitive or important habitat areas as per the biodiversity assessment- where no construction personnel, equipment/machinery or vehicles are permitted.	Mitigation Efficiency: 0.6 **Rating:** 28.8 (Low to medium)
		- Animal life disruption - Impacts of blasting on species (impairing signalling and	- Environmental: animal	Extent: 2 Intensity:3 Duration: 5 Probability: 2 Weighing Factor:	- Work during daytime to minimise the disruption of animal life. - Fence -off the trenches to prevent animals from falling into the pits - Do not disturb nests, breeding sites or young ones. Do not attempt to kill or capture snakes	Mitigation Efficiency: 0.6 Rating: 36(Low to medium)

Phase	Activity	Associated Potential Impacts	Aspect Affected	Impact Significance (before mitigation)	Mitigation Measures	impact significance (After mitigation)
		listening capabilities, foraging and mating)		5 Rating: 60(Medium to High)	unless directly threatening the safety of employees. - Employees and contractors should be made aware of the presence of, and rules regarding, flora and fauna through suitable induction training and on-site signage.	
		- Vegetation removal: some vegetation will be removed with topsoil at positions demarcated for trenching	- Environmental- natural habitat	Extent: 1 Intensity: 1 Duration: 1 Probability: 4 Weighing Factor:3 **Rating:** 21(Low to Medium)	- Avoid removal of vegetation as far as practically possible. Vegetation clearing in natural areas should be kept to a minimum and restricted to the proposed mining footprint only - Place infrastructures in places that are already disturbed or degraded to avoid removal of vegetation and increasing the footprint of the activity. - Where vegetation removal cannot be avoided, rehabilitate as soon as possible by revegetating - Trans-locate sensitive species prior to operations and any site clearance. A vegetation specialist should be involved during the search and rescue operations of	Mitigation Efficiency: 0.8 **Rating:** 16.8(Low)

Phase	Activity	Associated Potential Impacts	Aspect Affected	Impact Significance (before mitigation)	Mitigation Measures	impact significance (After mitigation)
					sensitive species occurring on site. All rescued plant species should be bagged and kept on a designated on-site nursery, and should be returned to site once all activities are completed. - Replanting should only occur in springs or early summer (September to November), once the first rains have fallen, in order to facilitate establishment. - Employees and contractors should be made aware of the presence of, and rules regarding, flora and fauna through suitable induction training and on-site signage.	
		- Job Creation	- Social- Surrounding community members	Extent: 2 Intensity:1 Duration: 2 Probability:2 Weighing	- Employ local labour as much as possible	N/A

Phase	Activity	Associated Potential Impacts	Aspect Affected	Impact Significance (before mitigation)	Mitigation Measures	impact significance (After mitigation)
				Factor:3 Rating: 18(Low)		
		- Increased (attraction of) crime in surrounding areas	- Social-Surrounding community members	Extent: 2 Intensity:3 Duration: 3 Probability: 2 Weighing Factor: 5 Rating: 50 (Medium)	- Keep strong security in and around site to monitor suspicious activity around the area - Ensure security I highly (and quickly) responsive to criminal activity within and around (neighbouring) the site -	Mitigation Efficiency: 0.6 Rating: 30(Low to Medium)
		- Conversion of land use	- Environmental- natural habitat - Social-Surrounding community members	Extent: 2 Intensity:1 Duration: 1 Probability: 4 Weighing Factor: 2 Rating: 16 (Low)	- Try as far as possible to dig trenches and place mobile facilities where the land is barren and is not used for grazing by cattle - Rehabilitate all areas transformed by the activities as far as possible, and restore to original state	Mitigation Efficiency: 1.0 Rating: 16(Low)
		- Destruction of Heritage	- Heritage Resources	Extent: 1 Intensity:3	- Make all workers aware of any heritage resources on site. The	Mitigation Efficiency: 0.4

Phase	Activity	Associated Potential Impacts	Aspect Affected	Impact Significance (before mitigation)	Mitigation Measures	impact significance (After mitigation)
		Resources on site		Duration: 5 Probability: 2 Weighing Factor: 4 Rating: 44(Medium)	developer should induct field workers about archaeology, and steps that should be taken in the case of exposing archaeological materials. - Indicators of archaeological site that may be found during construction: • Flaked stone tools, bone tools and loose pieces of flaked stone; • Ash and charcoal; • Bones and shell fragments; • Artefacts (e.g., beads or hearths); • Packed stones which might be uncounted underground, and might indicate a grave or collapse stone walling. • Old ruins - Ensure that contractors are given training on how to identify and protect archaeological remains that may be discovered during construction - If archaeological materials are uncovered, work should cease immediately and the NWPHRA	Rating: 17.6(Low to medium)

Phase	Activity	Associated Potential Impacts	Aspect Affected	Impact Significance (before mitigation)	Mitigation Measures	impact significance (After mitigation)
					and SAHRA be notified - Ensure that all mining pits are excavated a legal distance from any heritage resources found on site - Establish 'No-Go' areas around heritage resources and areas demarcated as of heritage importance. Find alternative locations for trenches should the current locations interfere with any heritage resources - The two cemeteries which have been documented must be protected. In the same vein consideration must be given for the protection of the two village sites and the remnant mud brick walls of the old Lutheran Church in view of the extant oral traditions connected with these sites. Since the possibility of mine operations extending to the second cemetery and village site the option archaeological salvage must be considered in consultation with the local communities / historically	

Phase	Activity	Associated Potential Impacts	Aspect Affected	Impact Significance (before mitigation)	Mitigation Measures	impact significance (After mitigation)
					interested and affected parties and consensus reached.	
	f) Top soil stockpiling	- Soil erosion from stockpile	- Environmental- natural habitat	Extent: 1 Intensity:3 Duration: 1 Probability: 3 Weighing Factor: 4 Rating: 32 (Medium)	- Avoid erosion by stockpiling topsoil properly and keep stockpile damp to reduce erosion	Mitigation Efficiency: 0.2 **Rating:** 6.4(Low)
	g) Waste generation and storage	- Solid waste such as debris and litter can be potentially generated and deposited in and around the site. This could potentially attract nuisance and affect the natural scenery /	- Environmental- natural habitat	Extent: 2 Intensity:1 Duration: 1 Probability:3 Weighing Factor:3 Rating: 21(Low to Medium)	- Littering should be prohibited and all waste generated from the site should be cleared. A 'no waste dumping' sign should also be placed next to the stream to raise caution of littering around it. - Provide rubbish bins and ensure that all waste is properly disposed of in the bins - Empty and dispose of waste weekly at the nearest landfill site	Mitigation Efficiency: 0.2 Rating: 4.2(Low)

Phase	Activity	Associated Potential Impacts	Aspect Affected	Impact Significance (before mitigation)	Mitigation Measures	impact significance (After mitigation)
		aesthetic quality of the site.				
Decommissioning Phase	h) Rehabilitating the camp site, rehabilitation of the disturbed and contaminated areas Re-vegetation **i)** Removal of all infrastructures onsite.	- Recovery/restoration of natural habitat	- Environmental- natural habitat	Extent: 2 Intensity:3 Duration: 5 Probability:5 *Weighing Factor:5* **Rating:** 75(Medium to High)	- N/A	N/A
	j) Mine Closure	- Job Loss	- Social	Extent: 2 Intensity:3 Duration: 5 Probability:5 Weighing Factor:5 Rating: 75(Medium to High)	- Develop and implement the Local and Human Resources Plan (LHRP) that addresses the impacts associated with retrenchment, job losses and reduced demand for local goods and services; and, - Develop a closure plan which will aim to reinforce the objectives of the SLP by reducing the reliance on Fidulex for employment by promoting skills transfer to enable	Mitigation Efficiency: 0.6 Rating: 45(Medium)

Phase	Activity	Associated Potential Impacts	Aspect Affected	Impact Significance (before mitigation)	Mitigation Measures	impact significance (After mitigation)
					alternative livelihoods. - Communicate the termination conditions to all employees – including contractors and sub-contractors; - The upskilling of workers to enhance re-employment opportunities following closure and decommissioning must be implemented well in advanced of the decommissioning phase; - Where possible, Fidulex must provide assessment and counselling services for affected individuals; - Comprehensive self-employment training and re-employment programmes; - Management of expectations during the operations phase; and - Establishment of clear criteria for socio-economic projects and corporate social investment activities, that incorporate partnerships, exist strategy and sustainability	

f) **Summary of specialist reports**

Table 12: Summary Of Specialist Report

List Of Studies Undertaken	Recommendations Of Specialist Reports	Specialist Recommendations That Have Been Included in The EIA Report (Mark with an X Where Applicable)	Reference to Applicable Section of Report Where Specialist Recommendations Have Been Included
Biodiversity studies	• Areas designated for vegetation clearing should be identified and visibly marked off. Vegetation clearing in natural areas should be kept to a minimum and restricted to the proposed mining footprint only. • Ensure that the disturbance footprint is kept to a minimum. • Translocating any sensitive species found on site prior to construction. one species of concern/importance (Sclerocarya birrea) was recorded on site and according to the National Forest Act, 1998 (Act No. 84 of 1998) these species are listed as	X X X X	Items (viii and i)

	protected. In terms of section 15(1) of the National Forests Act, 1998, no person may cut, disturb, damage or destroy any protected tree; or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any product derived from a protected tree, except under a licence or exemption granted by the Minister of Agriculture, Forestry and Fisheries		
	• In terms of section 15(1) of the National Forests Act, 1998, no person may cut, disturb, damage or destroy any protected tree; or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any product derived from a protected tree, except under a licence or exemption granted by the Minister of Agriculture, Forestry and Fisheries.	X X X	
	• Several medicinal plants were identified on the site. These plants include: ➢ Opuntia ficus-indica Prickly pear ➢ Rhus lancea Karee ➢ Ziziphus mucronata Buffalo thorn ➢ Aloe Marlothii Mountain aloe It is advised that such plants should be protected where possible.	X	
	• A vegetation specialist should be involved during the search and		

	rescue operations of plant species occurring on site. All rescued plants should be bagged and kept on a designated on-site nursery, and should be returned to site once all construction is completed. Replanting should only occur in springs or early summer (September to November), once the first rains have fallen, in order to facilitate establishment. • Removed topsoil should be stockpiled and used to rehabilitate disturbed areas. • Monitor the establishment/introduction of alien invasive species, and implement the alien invasive management plan as detailed in section 10 of the biodiversity assessment report should any such species be found on site. • Where biodiversity impacts cannot be avoided altogether following the implementation of the management and mitigation measures detailed in the EMP, consider employing biodiversity offsets detailed in the biodiversity assessment report as the project area is located within the buffer of a protected area. The offset recommendations include: ➢ Secure a statutory management authority for the offset area ➢ Acquire the land (or the rights to the land) as quickly as possible ➢ Pursue complementary approaches in the environmental mitigation, monitoring and adaptive management, and offset	X X X	

	arenas, with the social and labour plan and sustainable development objectives or opportunities, as well as other large-scale developments in the region ➢ Seek to involve local parties as partners in implementation, especially to optimise any local socio-economic benefits. • Do not disturb nests, breeding sites or young ones. Do not attempt to kill or capture snakes unless directly threatening the safety of employees. No animals should be intentionally killed or destroyed including fishing should not be permitted on the site. • Employees and contractors should be made aware of the presence of, and rules regarding, flora and fauna through suitable induction training and on-site signage. • It is recommended that a visual impact assessment is carried out to assess the visual impacts of the proposed development on its natural surroundings		
Social Impact Study	• Where possible infrastructure should be located as far away from homesteads as possible; • Stakeholder engagement channels and grievance procedure mechanisms need to be developed prior to construction and need to be ongoing and frequent; • Management of employment expectations through distribution of appropriate and timely information	X X X	

	• Adhere to employment standards regarding the employment of local versus regional work seekers • Compile and implement the management measures relating to influx detailed in the SLP; • Prioritise the employment of the communities residing within the local community for semi-skilled and unskilled job opportunities during construction and operational phases; • The upskilling of workers to enhance re-employment opportunities following closure and decommissioning must be implemented well in advanced of the decommissioning phase; • Establishment of clear criteria for socio-economic projects and corporate social investment activities, that incorporate partnerships, exist strategy and sustainability	X X X X X	
Heritage Impact Assessment	In two places, there were stones some of which were arranged into a rectangle or lines (Sites S2 and S6, see attached heritage resource assessment report). According to an oral tradition received from the informants, this was Mamotoko Village predating the establishment of the farm; the occurrence of pottery and an upper grindstone seemed to confirm this dating. Furthermore, two large cemeteries located close to the villages where identified apparently where the village residents were interred.		

	Lastly, located 100m east in the middle ground between the village (Site S4) and the Pilanesberg hills are the remains of an old Lutheran church building of mud bricks and plaster. This remnant structure dates to the 19th century contact period when missionaries and traders entered the area ahead of the Voortrekkers. Recommendations are as follows: • The two cemeteries which have been documented must be protected. In the same vein consideration must be given for the protection of the two village sites and the remnant mud brick walls of the old Lutheran Church in view of the extant oral traditions connected with these sites. Since the possibility of mine operations extending to the second cemetery and village site the option archaeological salvage must be considered in consultation with the local communities / historically interested and affected parties and consensus reached. • If in the future any archaeological or historical material of significance are found all activities should temporarily be stopped in the specific area for inspection by an archaeologist or other specialists appointed by SAHRA or the provincial heritage authority	X X	
Air Quality Assessment	The proposed mining and trenching activities will have limited impact on the ambient air quality of the Bojanala Platinum District region, during		

	all phases of the proposed project. Of all the regulated pollutants that were considered the only pollutant that might have an impact to the proposed region would be that of TSP (Total suspended particulates). The greatest impact to the atmosphere and surrounding environment would be due to TSP or deposition dust. Deposition dust is however only relevant from a nuisance point of view and can easily be mitigated to prevent impact. The following measures are recommended: • The developer of proposed project must in order to mitigate any potential impact defer mining within 500 m of the operational boundary line. • No temporary storage of soil, waste rock or discarded process material within 500 meters from the operational boundary line. • No temporary storage of soil, waste rock or discarded process material above a height of 2.5 meters. • The covering of stockpiled soil or discarded process material with vegetation. • The normal wetting of roads should also always be implemented on daily bases. • The distance prediction was made for a re-suspension of dust at a height of 1 meter and any temporary storage of soil or material should therefore only be of a height of 2.5 meter if created at a distance of 500 meters of operational boundary line.	X X X X X X	

	• The deposition of dust from stockpiles higher than 2.5 meters could impact beyond the 500-meter mark as daily events on high windy days during September and could affect bushveld and should be visually monitored and managed accordingly • Dust monitoring would be done at selected sites with potential significant impacts and mitigation of activities pertaining to sources would be managed accordingly. • All site staff will be responsible for reporting high or abnormally dusty conditions to the Site Manager as soon as is reasonably practicable. • If an activity is causing high or abnormally dusty conditions (as determined by visual assessment and prescribed licence conditions), the activity will cease until weather conditions change or appropriate dust controls are put in place to ameliorate the dust emissions.	X X X X	

a) **Environmental impact statement**

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

The following are the key findings of the environmental impact assessment:

Biodiversity Impacts

The primary impacts on biodiversity associated with the development are likely to occur during the construction and operational phases of the development, during which top soil and vegetation cover will be removed for replacement, therefore disturbing the natural habitat as well as the animals within the habitat. This will cause a slight change in the land use. The trenches/pits that will be excavated may also a pose a risk on small mammals that inhabit the area as they may fall and get trapped in the trenches. The movement of construction vehicles and workers on site will also disturb some of the small Mammalia in the area.

Numerous alien plant species were recorded in the study area at the time of the survey; most notably the extensive invasions by species such as Melia azedarach, Opuntia ficus-indica and Cereus jamacaru also have the potential to form dense stands.

One species of concern/importance (Sclerocarya birrea) was recorded on site and according to the National Forest Act, 1998 (Act No. 84 of 1998) these species are listed as protected. In terms of section 15(1) of the National Forests Act, 1998, no person may cut, disturb, damage or destroy any protected tree; or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any product derived from a protected tree, except under a licence or exemption granted by the Minister of Agriculture, Forestry and Fisheries.

Some parts of the mining area have been impacted by past mining activities, after which no rehabilitation measures were implemented. This means the land capability and aesthetic value of this area had already been degraded. The remaining parts of the application area however, still contain natural land that will be affected by the mining activities.

The project area is located within a buffer of a protected area (approximately 1.3Km from the Pilanesberg National Park) a Critical Biodiversity Area 2. CBA2 areas are near-natural landscapes characterised by:

- Ecosystems and species largely intact and undisturbed.

- Areas with intermediate irreplaceability or some flexibility in terms of area required to meet biodiversity targets. There are options for loss of some components of biodiversity in these landscapes without compromising our ability to achieve targets.
- These are landscapes that are approaching but have not passed their limits of acceptable change.

From the visual biodiversity assessment, the area of the proposed area can be regarded to have medium sensitivity. This is because about 20% of the site is already cleared for previous mining activities. A high number of protected plants such as Sclerocarya birrea are likely to be removed.

It is imperative that the biodiversity of project area is rehabilitated as far as possible to its original natural state and biodiversity support capacity in accordance to its biodiversity classification so as to avoid a complete loss of biodiversity in addition to the biodiversity loss due to past mining activities. Where biodiversity components cannot be restored, it I advised that biodiversity offsets are carried out to account for the loss. Section 9 of the biodiversity assessment report details suggested offset measures that can be carried out.

It is also important that all rehabilitation measures as per the rehabilitation plan are diligently carried out with all measures taken to ensure that rehabilitation targets are met, and that the re-establishment of the natural environment is carefully monitored.

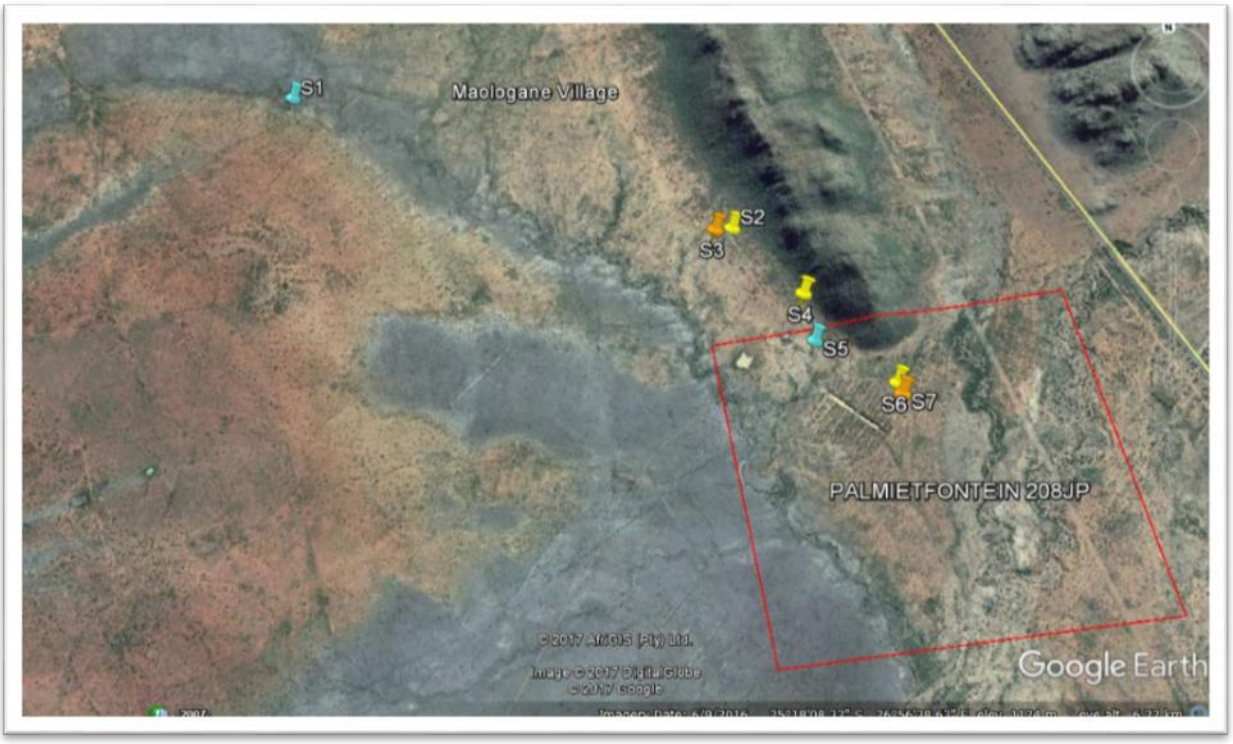
Air Quality Impacts

The proposed mining and trenching activities will have limited impact on the ambient air quality of the Bojanala Platinum District region, during all phases of the proposed project. Of all the regulated pollutants that were considered during the air quality assessment, the only pollutant that might have an impact to the proposed region would be that of TSP (total suspended particulates) and dust. TSP is not respirable and therefore only have an impact due to the nuisance effect it has on the public. TSP may also have a negative effect on crops of agricultural land which is of no relevance as the site is surrounded by bushveld habitat. Deposition dust is however only relevant from a nuisance point of view and can easily be mitigated to prevent impact.

Heritage Resources Impacts

Three heritage resources were found within and near the project site. These include a cemetery with about 40 graves (S7), an old village indicated by rectangular stone foundations (S6-Mamotoko Village predating the establishment of the farm) with the

occurrence of pottery and an upper grindstone seemed to confirm this dating, and remains of the first Lutheran Church building (S4-Rectangular mud brick structure measuring 3.50m x 25.0m and walls up to 1.80m high). Other heritage resources (S3,2 and 1) were also found near the project site as can be seen in the image below, indicating the position of all heritage resources around the site.



These resources may be impacted upon / destroyed by the mining activities. The developer has to ensure that these areas are marked as No-Go (with activities being carried at a legal distance from these resources) areas and protected from destruction by any of the mining activities. Should it be found inevitable that any of these resources are displaced or removed, the South African Heritage Resource Agency has to be informed and authority has to be granted prior to such action. Furthermore, should any additional heritage resources buried underground be discovered during the construction and /o operational phase of the project, operations should be temporarily stopped and the South African Heritage Resource Agency and should be informed. It is therefore important that workers are trained on how to identify any heritage resources that may be found on site.

Social Impact Assessment Report

The project area under application is owned by a neighbouring community and is surrounded by a few rural communities. The social impacts on these parties at a local scale were assessed and are summarised below:

Economic and job opportunities: Construction and Operation of mining project resulting in economic and job expectations

While it is expected that a considerable number of skilled jobs and unskilled jobs will be available, it is possible that mostly the skilled jobs will be contracted out and as a result construction worker may be brought in by contractors from outside of the project area. Thus, opportunities at local level will be restricted to unskilled jobs.

The combination of expectations for jobs, limited skills levels, high unemployment rates and growing levels of poverty, may require management as a result of the limited ability of the local community to meet expectations of the skilled job opportunities that will be created.

Driver 4: Decommissioning and closure of mining project: job losses

During decommissioning and closure, all mining activities will cease and therefore employment opportunities will be lost. It is anticipated that there will be a negative effect on employees as a result of job losses. Additionally, decommissioning and closure would bring about the termination of any socio-economic projects associated with social and labour plans and corporate social investment projects.

It is therefore important that the developer undertakes the following:

- Communicates the termination conditions to all employees well in time – including contractors and sub-contractors;
- Develops a closure plan which will aim to reinforce the objectives of the SLP by reducing the reliance on Fidulex for employment by promoting skills transfer to enable alternative livelihoods.
- Ensures the upskilling of workers to enhance re-employment opportunities following closure and decommissioning must be implemented well in advanced of the decommissioning phase;

Manmade features dissecting the landscape which will impact on the rural and sense of place:

- In some instances, community members have lived on their properties since birth, and have had the knowledge of that specific farm passed down to them by their fathers and grandfathers;

- Some community members may wish to pass down the principles and lifestyle instilled and experienced by them passed from their generations to their children and generations to come;
- Community members may wish to pass the land on to their children, who might want to live on adjacent, neighbouring farm.
- Some community members might have identified special, sentimental places on the proposed site farm which might be of great personal value to themselves and their families.

Issues relating to the mine establishment appear to be of greatest concern to consulted stakeholders who were consulted during the Public Participation Process (PPP) of the scoping phase of the EIA process. Community members have indicated that they don't appreciate or support the need for the mine to go ahead. This issue is not conclusive at this stage and will be further explored and ascertained in the next phases of this study. This might be due to the assumption that the desirability of the area for these interested and affected communities is not financial, and rather it is aesthetic value and the tranquillity that the farm brings. Further community engagement will need to be done to ascertain the reason of the community objecting to the proposed landuse.

(ii) Final site map

There are no identified and preferred alternatives, therefore the final site layout is still the same as the initial site layout attached as Appendix 4 and 5

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

The potential impacts identified include small scale job creation, temporary in-migration of job seekers, health impacts, personal safety and hazard exposure, introduction of weeds, dust emission, noise generation, habitat disruption, possible destruction of heritage resources, possible removal of vegetation, possible contamination of soil, and soil erosion. All these impacts were assessed and rated for their significance. The summary of positive and negative impacts is provided in the tables below.

Negative Impacts:

Table 13: Summary of Negative Impacts

Activity	Associated Potential Impacts	Impact Significance (before mitigation)	impact significance (After mitigation)
a) Camp site and core storage establishment	- Soil erosion	21 (Low to Medium)	21 (Low to Medium)
	- Dust generation	16 (Low to Medium)	3.2 (Low)
	- Habitat disruption	32(Low to Medium)	19.2(Low)
	- Soil contamination	8(Low)	3.2(Low)
	- Temporary in-migration of workers and job seekers	12(Low)	12(Low)
	- Personal safety and hazard exposure (actual and perceived)	21(Low to medium)	8.4(Low)
	- Introduction and establishment of declared weeds	21(Low to medium)	8.4(Low)
b) Mining (pits)	- Noise generation	30(Low to medium)	18 (Low to medium)
	- Dust emission	33 (Low to Medium)	6.6(Low)
	- Soil erosion	36 (Low to Medium)	21.6(Low to medium)
	- Habitat disruption	48(Medium)	28.8 (Low to medium)
	- Soil erosion from stockpile	32 (Low to Medium)	6.4(Low)
	- Soil/land contamination	10(Low)	4 (Low)
	- Impact on fauna (animal life disturbance)	60(Medium)	36(Low to Medium)
	- Conversion of land use	16 (Low)	16(Low)
	- Actual health and fertility impacts	14 (Low)	5.6(Low)
	- Destruction of Heritage Resources on site	44(Medium)	17.6 (Low to Medium)
	- Increased (attraction) crime in surrounding areas	50 (Medium)	30 (Low to Medium)
c) Waste generation and storage	- Nuisance and affect the natural scenery / aesthetic quality	21(Low to medium)	4.2(Low)

Positive Impacts:

Table 14: Summary Of Positive Impacts

Activity	Associated Potential Impacts	Impact Significance (before mitigation)	impact significance (After mitigation)
Camp site and core storage establishment	- Job Creation	45(Medium)	N/A
Rehabilitating the camp site, rehabilitation of the disturbed and contaminated areas Re-vegetation Removal of all infrastructures onsite.	- Recovery/restoration of natural habitat	75(Medium to High)	N/A
	- Job Loss	75(Medium to High)	45(Medium)

b) Proposed impact management objectives and the impact outcomes for inclusion in the EMPr.

See section viii

c) Final proposed alternatives

There are no alternatives identified.

d) Aspects for inclusion as conditions of Authorisation

Below are aspects to be included as conditions of authorisation.

- The recommendations and monitoring requirements as set out in the biodiversity, social and heritage impact assessment reports should form part of the conditions of the environmental authorisation for the proposed project.
- No animal burrows found on site should be destroyed, and no wild animals found during the operations should be killed.
- Any pit left open temporarily (not backfilled during the operations) should be fenced off to prevent animals from falling into the pit
- All topsoil stockpiles must be removed and the soil be reused as topsoil again on the

denuded areas.

- All denuded backfill and the surfaces revegetated upon completion of operations.
- All pits should be excavated within a legal distance from any heritage resources identified on site.

e) Description of any assumptions, uncertainties and gaps in knowledge.

It is assumed that the information provided by the specialists from the various assessments is accurate. The gaps and/or limitations in the specialist studies are detailed below:

Biodiversity assessment

- All species included in the plant species list (Appendix A) were observed and recorded in the study area during the time of the study;
- The bird species list was augmented by the desktop study;
- Due to time limitations, the study could not be carried out during both the wet and dry seasons.
- All comments or observations made in this regard are based on observations, literature review, the expert knowledge and relevant professional experience of the specialist.

Heritage assessment

- The heritage report is based on survey and assessment techniques which are limited by time and budgetary constraints relevant to the type and level of investigation undertaken and Integrated.
- As with any survey, archaeological materials may be under the surface and therefore unidentifiable to the surveyor until they are exposed once construction resume.

Social Impact Assessment

- Analysis of the anticipated social impacts was centred on the potential impacts of the mining activities (as described in this SIA report as well as the Scoping report) will have to the community. The analysis was based mainly on secondary data as there was no primary data collection which will be done in the next phase of the impact assessment.
- This study was carried out with the information available to the specialist at the time of executing the study, within the available timeframe and budget. The sources consulted are not exhaustive and additional information, which might strengthen arguments or contradict information in this report, might exist.

- The specialists did endeavour to take an evidence-based approach in the compilation of this report and did not intentionally exclude scientific information relevant to the assessment.
- It was assumed that the motivation for, and the ensuing planning and feasibility studies of the project were done with integrity, and that the information provided to date by the project proponent, the independent environmental assessment practitioner was accurate.
- Due to community objection of the project it was not possible at this stage for the specialist to do extensive engagement of the affected community in the compilation of this report rather results of the public consultation meetings was used as a base reference for this report

Air Quality Assessment

None

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

i) Reasons why the activity should be authorised or not

The activity must be authorised considering the following reasons:

Joan constriction and projects as the appointed EAP recommends that on the conditions that all the requirements, conditions, and measures listed in this document and associated appendices be adhered to, that there is no reason why this activity should not be authorised.

- The greatest impact the project will have is that of the destruction of the remaining natural habitat on site and its biodiversity. Although the project area lies within a Critical Biodiversity Area type 2, it is evident that parts of the site has been disturbed by past mining activities. Some of the mining activity will be undertaken on the

disturbed areas. Further ecological or biodiversity degradation can be restored if the developer implements all management measures as per the EMP and rehabilitation plan. The re-establishment and/restoration of the natural habitat can be monitored and aided if re-vegetation of indigenous species, and fertilisation is carried out, and caution is taken in ensuring that no protected species are destroyed. Caution can also be taken in ensuring that no animal species are killed during operations.

- Heritage resources evident on site can be protected.
- Minimal air quality impacts resulting from the project are anticipated.
- The proposed activity will possibly provide a few jobs to locals, under the condition that only local members of the community are employed or given first preference. The project could add to social upliftment if any social programmes are established through the project.
- If all management and mitigation measures are fully implemented, the development activities will leave very minimal damages / impacts on the receiving environment and community, and the site will be restored to its natural state.

ii) conditions that must be included in the authorisation

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

All requirements stipulated by the final EIR, as well as the developed Fidulex (pty) ltd Mine Rehabilitation Closure and Liability plan, Specialist studies and comments received from the I&AP be incorporated into the final EMPr.

It is also imperative that continuous consultation and communication is carried out with the neighbouring community and landowner (Bapolomiti Communal property Association) as they have expressed a disapproval and discontent with the proposed project.

2) Rehabilitation requirements.

The rehabilitation requirements have been detailed in the Rehabilitation Plan attached to this report (Appendix 6)

g) Period for which the environmental authorisation is required.

The authorisation is required for 5 years.

h) Undertaking

The undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Environmental Impact Assessment report and the Environmental Management Programme report.

i) Financial provision

The amount that is required to both manage and rehabilitate the environment in respect of rehabilitation is reflected in the quantum of financial provision under section 2 of the report.

i) Explain how the aforesaid amount was derived.

The amount was derived from using the quantum of financial provision calculation table.

ii) Confirm that this amount can be provided for from operating expenditure.

The amount will be provided from the operating expenditure.

j) Deviations from the approved scoping report and plan of study.

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

A deviation in the size of the project site was made. The mining activities will only be carried out on a portion of portion 5 of farm Palmietfontein 208 JP and not portions 3,4,5, and 6 as indicated in the scoping report, and as such, a smaller size of the farm (approximately 35Ha) will be affected by the proposed mining activities.

ii) Motivation for the deviation.

The Kimberlite to be mined does not traverse the other farm portions, therefore no mining activities in these portions are not necessary.

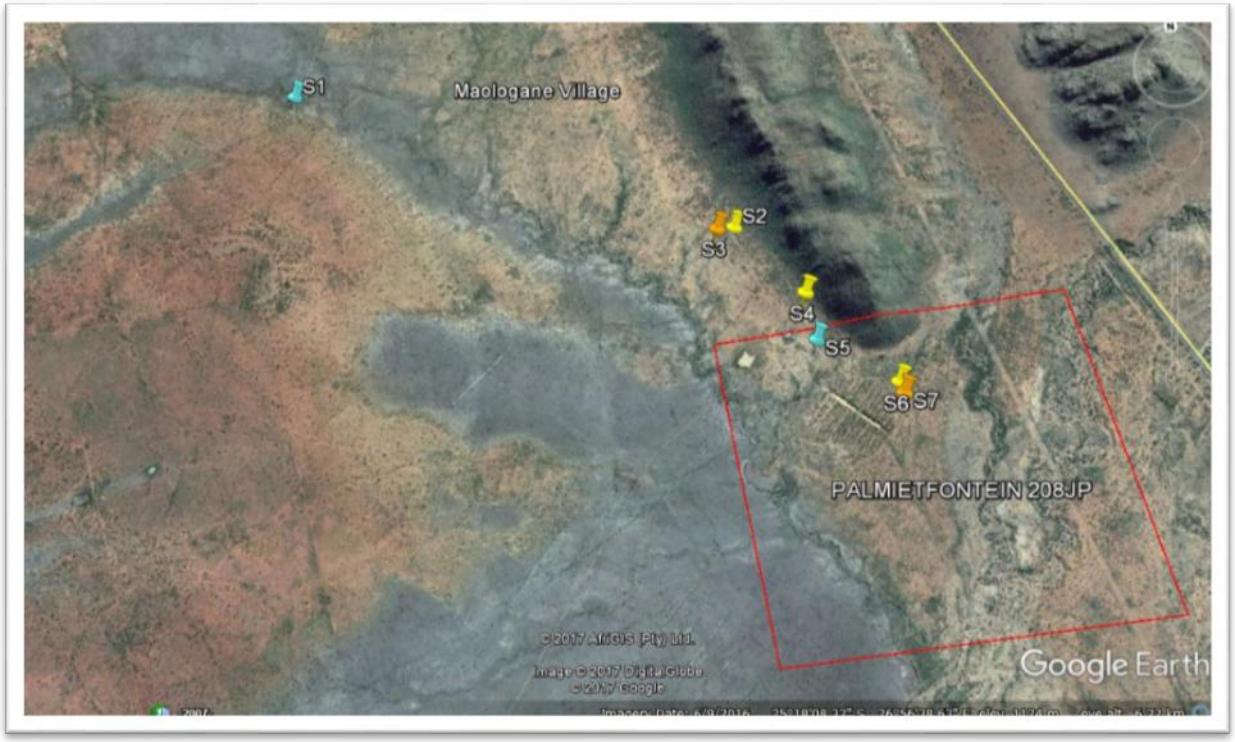
k) Other information required by the competent authority.

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

The mining activities such as increased movement of vehicles around the farm, the increased noise levels from running machinery (process plants), trucks and blasting activities and increased dust emissions from truck movements on the access roads and the open cast mining operations. The project will however also have a positive impact on the socio-economic conditions of the local communities in that it will generate jobs and income for the unemployed members of local communities and therefore improve their livelihoods and standards of living.

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

Some heritage resources were discovered within the project site during the heritage assessment. The locations of the heritage resources are highlighted in the image below:



In two places, there were stones some of which were arranged into a rectangle or lines (Sites S2 and S6). According to an oral tradition received from the informants, this was Mamotoko Village predating the establishment of the farm; the occurrence of pottery and an upper grindstone seemed to confirm this dating. Furthermore, two large cemeteries (one cemetery at S7) located close to the villages where identified apparently where the village residents were interred. Lastly, located 100m east in the middle ground between the village (Site S4) and the Pilanesberg hills are the remains of an old Lutheran church building of mud bricks and plaster. This remnant structure dates to the 19th century contact period when missionaries and traders entered the area ahead of the Voortrekkers.

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

All relevant information is indicated in the relevant section of the report.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1) Draft environmental management programme

a) Details of the EAP

It is hereby confirmed that the requirements for the provision of the details and expertise of the EAP are already included in PART A, section 1(a) herein as required

b) Description of the aspects of the activity

It is hereby confirmed that the requirement to describe the aspects of the activity that are covered in the draft environmental management programme is already included in PART A, section 1(h) herein as required.

c) Composite map

See land use map

d) Description of Impact management objectives including management statements

i) Determination of closure objectives

The broad rehabilitation objectives include the following three aspects:

- Restoration of previous land use capability
- Restore as far as possible, the natural state of the area
- The affected parties play a role in determining the end land use

Rehabilitation/closure objectives need to be tailored for the Project at hand and be aligned with the Environmental Management Plan (EMP). Therefore, the overall rehabilitation objectives for the proposed project are as follows:

- Maintain and minimise impacts to the ecosystem within the study area
- Re-establishment of the pre-development land capability to allow for a suitable post mining land use
- Rehabilitate the disturbed area back to its natural state or as close as possible.
- Remove all infrastructure and all other items used during mining operation
- Remove and dispose of all waste types
- Final rehabilitation will be completed within specified period as guided by the Regional Manager
- Prevent soil, surface water and groundwater contamination;
- Maintain and monitor the rehabilitated areas.
- Comply with the relevant local and national regulatory requirements.

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

The table below indicates the manner in which any ecological degradation will be mitigated or managed.

Note that there is no extraneous water (resulting from the activity or existing) and therefore no pumping or treatment of such.

Table 15: Management of Ecological Degradation

Potential environmental damage, pollution or ecological degradation	Possible mitigation Management measures
Surface/ soil pollution	• Check and ensure that all vehicles and machinery are serviced, and in good working order before activities commence. • Maintain and fix equipment to avoid leakage of oils and other industrial liquids throughout the project lifecycle. • Place drip trays under parked vehicles and machineries to contain any unnoticed leakage. • Service the portable/mobile toilet properly, regularly • Only trained personnel must service the toilet. • In the case of any spillage, immediately dig out contaminated soil and dispose properly.
Noise	• Work during the day time only. Sound is louder during the night than during the day. to minimise disruption of animal life and noise in the night • Service equipment, machineries, trucks and other vehicles regularly to minimise noise. • provide ear plugs to the employees and ensure they wear them for the protection of their ears.
Dust	• Spray the dusty road and working area with water • Regulate speed to be 40 km/h on site to reduce dust emission. • Provide dust masks to employees to help them avoid inhaling the dust particles. • The developer of proposed project must in order to mitigate any potential impact defer mining within 500 m of the operational boundary line. • No temporary storage of soil, waste rock or discarded process

	material within 500 meters from the operational boundary line. • No temporary storage of soil, waste rock or discarded process material above a height of 2.5 meters. • The covering of stockpiled soil or discarded process material with vegetation. • Dust monitoring would be done at selected sites with potential significant impacts and mitigation of activities pertaining to sources would be managed accordingly. • If an activity is causing high or abnormally dusty conditions (as determined by visual assessment and prescribed licence conditions), the activity will cease until weather conditions change or appropriate dust controls are put in place to ameliorate the dust emissions.
Animal life disruption /Impact on fauna	• Work during daytime to minimise the disruption of animal life. • Fence -off the trenches to prevent animals from falling into the pits
Removal of vegetation, soil erosion and Habitat destruction	• Place infrastructures in places that are already disturbed or degraded to avoid removal of vegetation and increasing the footprint of the activity. • Bring in and use the mobile equipment that will just need the positioning and not the construction. equipment such as the toilet and the guard house. • Replace removed topsoil and revegetate any natural habitat destructed as a result of the project activities
Impact or loss of sensitive plant species during construction and operational phase	• Ensure that the disturbed footprint is kept to a minimum, • Refrain from destroying or removing sensitive species if found on site. Mark areas containing such species as no-go areas prior to construction/mining site clearance and ensuring compliance to the recommended mitigation measures by any contractors (project proponent) used on the project.

Impact on heritage resources	• Make all workers aware of the heritage resources on site if discovered during the operation. The developer should induct field worker about archaeology, and steps that should be taken in the case of exposing archaeological materials. • Indicators of archaeological site that may be found during construction: ➢ Flaked stone tools, bone tools and loose pieces of flaked stone; ➢ Ash and charcoal; ➢ Bones and shell fragments; ➢ Artefacts (e.g., beads or hearths); ➢ Packed stones which might be uncounted underground, and might indicate a grave or collapse stone walling. • Ensue that contractors are given training on how to identify and protect archaeological remains that may be discovered during construction • If archaeological materials are uncovered, work should cease immediately and the NWPHRA and SAHRA be notified • Establish 'No-Go' areas around heritage resources and areas demarcated as of heritage importance. Find alternative locations for trenches should the current locations interfere with any heritage resources • The two cemeteries which have been documented must be protected. In the same vein consideration must be given for the protection of the two village sites and the remnant mud brick walls of the old Lutheran Church in view of the extant oral traditions connected with these sites. Since the possibility of mine operations extending to the second cemetery and village site the option archaeological salvage must be considered in consultation with the local communities / historically interested and affected parties and

	consensus reached.

iii) Potential risk of Acid Mine drainage

The potential risk for acid mine drainage was not determined as the proposed diamond related mining activities are not expected to be afflicted by acid-producing wastes. The proposed activities do not pose any potential risk of acid mine drainage.

iv) **Steps taken to investigate, assess, and evaluate that** impacts of acid mine drainage.

No steps were taken to investigate, assess, and evaluate the impact of acid mine drainage, as this potential risk is not foreseen as part of diamond related mining activities.

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

Not applicable

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

Not applicable

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

viii) Has the water use license been applied for?

No

i) Impacts to be mitigated in their respective phases

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

e) Impact Management Outcomes

Table 16: Impact Management Outcomes

Phase	Activity	Size and Scale	Mitigation Measures	Compliance with Standards
Construction phase	Site establishment: Camp site, ablution facilities, storage, process plant, process and return water dams	2.425Ha	Dust generation - Suppress dust by spraying water on dust roads and onsite were possible - Regulate speed to be 40 km/h on site to reduce dust emission. - Provide dust mask to employees working on site	- Occupational health and safety standards South Africa - National ambient air quality standards - Environmental management standards

Phase	Activity	Size and Scale	Mitigation Measures	Compliance with Standards
			Soil erosion - Avoid erosion by stockpiling topsoil properly and keep stockpile damp to reduce erosion	- Environmental management standards
			Job Creation - Employ local labour as much as possible	- Employment Best Practices
			Habitat disruption and destruction - Install mobile offices and ablution facilities to minimise ground disturbance - The site office and ablution facilities must be located in an area with minimal damage or disturbance to the environment. - Establish 'NO-GO' areas for any environmental sensitive or	- Environmental management standards

Phase	Activity	Size and Scale	Mitigation Measures	Compliance with Standards
			important habitat areas as per the biodiversity assessment- where no construction personnel, equipment/machinery or vehicles are permitted.	
			Soil contamination - Construct a concrete slab to avoid soil contamination by hydrocarbon leakage - Provide drip trays for all parked vehicles	- Environmental management standards
			Noise generation: - Work during the day time only. Sound is louder during the night than during the day to minimise disruption of animal life and noise in the night - Service equipment, machineries, trucks and other vehicles regularly to minimise noise. - provide ear plugs to the employees and ensure they wear them for the protection of their ears.	- Environmental management standards - Occupational health and safety standards South Africa

Phase	Activity	Size and Scale	Mitigation Measures	Compliance with Standards
			Temporary in-migration of workers and job seekers - Ensure that an employment criterion, for the mining crew be made public in advance to deter unqualified job seekers from moving into the area. - Employ as far as possible, local labour at each phase of the project, especially during the mining phase	- Employment Best Practices
			Personal safety and hazard exposure (actual and perceived) - Ensure that all activities comply with all the requirements of the Occupational Health and safety Act as stipulated by its health and safety policy and the health	- Environmental management standards - Occupational health and safety standards South Africa

Phase	Activity	Size and Scale	Mitigation Measures	Compliance with Standards
			and safety plan for the mining; and - Communities and other Interested & Affected Parties should be informed (community awareness) of these policies and must be able to report any irregularities to the relevant competent authority.	
			Introduction and establishment of weeds and alien invasive plants - Monitor the establishment of any foreign/alien invasive species on site and remove if any	- Environmental management standards - NEM:BA Conservation Standards
Operational Phase	Mining (pits)	30Ha	Noise generation - Work during the day time only. Sound is louder during the night than during the day to minimise disruption of animal life and noise in the night - Service equipment, machineries, trucks and other vehicles	- Environmental management standards - Occupational health and safety standards South Africa

Phase	Activity	Size and Scale	Mitigation Measures	Compliance with Standards
			regularly to minimise noise. - provide ear plugs to the employees and ensure they wear them for the protection of their ears.	
			Dust - Suppress dust by spraying water on dust roads and onsite were possible - Provide dust mask to employees working on site - The developer of proposed project must in order to mitigate any potential impact defer mining within 500 m of the operational boundary line. - No temporary storage of soil, waste rock or discarded process material within 500 meters from the operational boundary line. - No temporary storage of soil, waste rock or discarded process material above a height of 2.5 meters. - The covering of stockpiled soil or discarded process material with vegetation.	- Occupational health and safety standards South Africa - National ambient air quality standards - Environmental management standards

Phase	Activity	Size and Scale	Mitigation Measures	Compliance with Standards
			- Dust monitoring would be done at selected sites with potential significant impacts and mitigation of activities pertaining to sources would be managed accordingly. - If an activity is causing high or abnormally dusty conditions (as determined by visual assessment and prescribed licence conditions), the activity will cease until weather conditions change or appropriate dust controls are put in place to ameliorate the dust emissions.	
			Habitat disruption and destruction - Establish 'NO-GO' areas for any environmental sensitive or important habitat areas as per the biodiversity assessment- where no construction personnel, equipment/machinery or vehicles are permitted.	- NEM:BA Conservation Standards - Environmental management standards

Phase	Activity	Size and Scale	Mitigation Measures	Compliance with Standards
			Animal life disruption - Work during daytime to minimise the disruption of animal life. - Fence -off the trenches to prevent animals from falling into the pits - Do not disturb nests, breeding sites or young ones. Do not attempt to kill or capture snakes unless directly threatening the safety of employees. - Employees and contractors should be made aware of the presence of, and rules regarding, flora and fauna through suitable induction training and on-site signage.	- Environmental management standards
			Vegetation removal - Avoid removal of vegetation as far as practically possible. Vegetation clearing in natural areas should be kept to a minimum and restricted to the	- Environmental management standards - NEM:BA Conservation Standards

Phase	Activity	Size and Scale	Mitigation Measures	Compliance with Standards
			proposed mining footprint only - Place infrastructures in places that are already disturbed or degraded to avoid removal of vegetation and increasing the footprint of the activity. - Where vegetation removal cannot be avoided, rehabilitate as soon as possible by revegetating - Trans-locate sensitive species prior to operations and any site clearance. A vegetation specialist should be involved during the search and rescue operations of sensitive species occurring on site. All rescued plant species should be bagged and kept on a designated on-site nursery, and should be returned to site once all activities are completed. - Replanting should only occur in springs or early summer (September to November), once the first rains have fallen, in	

Phase	Activity	Size and Scale	Mitigation Measures	Compliance with Standards
			order to facilitate establishment. - Employees and contractors should be made aware of the presence of, and rules regarding, flora and fauna through suitable induction training and on-site signage.	
			Job Creation - Employ local labour as much as possible	- Employment Best Practices
			Conversion of land use - Try as far as possible to dig trenches and place mobile facilities where the land is barren and is not used for grazing by cattle - Rehabilitate all areas transformed by the activities as far as possible, and restore to original state	- Environmental management standards
			Actual health and fertility from factors such as factors such as noise, VOC emissions and dust pollution	- Occupational health and safety standards South Africa

Phase	Activity	Size and Scale	Mitigation Measures	Compliance with Standards
			- Provide workers with safety clothing - Comply with Health and Safety Measures - Any hazardous zones on site should be monitored and the prescribed prevention measures be put in place	
			Destruction of Heritage Resources on site - Make all workers aware of the heritage resources on site. The developer should induct field worker about archaeology, and steps that should be taken in the case of exposing archaeological materials. - Indicators of archaeological site that may be found during construction: • Flaked stone tools, bone tools and loose pieces of flaked stone; • Ash and charcoal;	South African Heritage Resources Agency Standards

Phase	Activity	Size and Scale	Mitigation Measures	Compliance with Standards
			• Bones and shell fragments; • Artefacts (e.g., beads or hearths); • Packed stones which might be uncounted underground, and might indicate a grave or collapse stone walling. - Ensure that contractors are given training on how to identify and protect archaeological remains that may be discovered during construction - If archaeological materials are uncovered, work should cease immediately and the NWPHRA and SAHRA be notified - Establish 'No-Go' areas around heritage resources and areas demarcated as of heritage importance. Find alternative locations for trenches should the current locations interfere with any heritage resources -	
	Top soil	2.5Ha	Soil erosion from stockpile	- Environmental management

Phase	Activity	Size and Scale	Mitigation Measures	Compliance with Standards
	stockpiling		- Avoid erosion by stockpiling topsoil properly and keep stockpile damp to reduce erosion	standards
	Waste generation and storage	0.0001Ha	Solid waste generated - Littering should be prohibited and all waste generated from the site should be cleared. A 'no waste dumping' sign should also be placed next to the stream to raise caution of littering around it. - Provide rubbish bins and ensure that all waste is properly disposed of in the bins - Empty and dispose of waste weekly at the nearest landfill site	- Environmental management standards
Decommissioning Phase	Rehabilitating the camp site, excavated sites, disturbed and contaminated areas	35	- N/A	- Environmental management standards

Phase	Activity	Size and Scale	Mitigation Measures	Compliance with Standards
	Re-vegetation Removal of all infrastructures onsite.			
	Mine Closure	35	- Develop and implement the Local and Human Resources Plan (LHRP) that addresses the impacts associated with retrenchment, job losses and reduced demand for local goods and services; and, - Develop a closure plan which will aim to reinforce the objectives of the SLP by reducing the reliance on Fidulex for employment by promoting skills transfer to enable alternative livelihoods. - Communicate the termination conditions to all employees – including contractors and sub-contractors; - The upskilling of workers to enhance re-employment opportunities following closure and decommissioning must be implemented well in advanced of the decommissioning	- Employment Best Practices

Phase	Activity	Size and Scale	Mitigation Measures	Compliance with Standards
			phase; - Where possible, Fidulex must provide assessment and counselling services for affected individuals; - Comprehensive self-employment training and re-employment programmes; - Management of expectations during the operations phase; and - Establishment of clear criteria for socio-economic projects and corporate social investment activities, that incorporate partnerships, exist strategy and sustainability -	

f) Impact Management Actions

Table 17: Impact Management Actions

Phase	Activity	Associated Potential Impacts	Mitigation Measures	Time Period for Implementation	Standard to Be Achieved
Construction phase	Site establishment : Camp site, ablution facilities and parking bay preparation	- Dust generation	- Suppress dust by spraying water on dust roads and onsite were possible - Regulate speed to be 40 km/h on site to reduce dust emission. - Provide dust mask to employees working on site	- Daily - Once Off- Prior commencement of activities - Daily	- Occupational health and safety standards South Africa - National ambient air quality standards - Environmental management standards
		- Soil erosion	- Avoid erosion by stockpiling topsoil properly and keep stockpile damp with water to reduce erosion	- Daily	- Environmental management standards
		- Job Creation	- Employ local labour as much as possible	- Once Off- Prior commencement of activities	- Employment Best Practices
		- Habitat disruption and	- Install mobile offices and ablution facilities to minimise	- Once Off- Prior	- Environmental management

Phase	Activity	Associated Potential Impacts	Mitigation Measures	Time Period for Implementation	Standard to Be Achieved
		destruction	ground disturbance - The site office and ablution facilities must be located in an area with minimal damage or disturbance to the environment. - Establish 'NO-GO' areas for any environmental sensitive or important habitat areas as per the biodiversity assessment- where no construction personnel, equipment/machinery or vehicles are permitted.	commencement of activities - Prior commencement of activities - Prior commencement of activities	standards
		- Soil contamination	- Construct a concrete slab to avoid soil contamination by hydrocarbon leakage - Provide drip trays for all parked vehicles	- Once Off- Prior commencement of activities - Once Off- Prior	- Environmental management standards

Phase	Activity	Associated Potential Impacts	Mitigation Measures	Time Period for Implementation	Standard to Be Achieved
				commence ment of activities	
		- Noise generation:	- Work during the day time only. Sound is louder during the night than during the day to minimise disruption of animal life and noise in the night - provide ear plugs to the employees and ensure they wear them for the protection of their ears. - Service equipment, machineries, trucks and other vehicles regularly to minimise noise.	- Daily - Daily - Once Off- Prior commence ment of activities	- Environmental management standards - Occupational health and safety standards South Africa

Phase	Activity	Associated Potential Impacts	Mitigation Measures	Time Period for Implementation	Standard to Be Achieved
		- Temporary in-migration of workers and job seekers	- Ensure that an employment criterion, for the mining crew be made public in advance to deter unqualified job seekers from moving into the area. - Employ as far as possible, local labour at each phase of the project, especially during the mining phase	- Once Off- Prior commence ment of activities - Once Off- Prior commence ment of activities	- Employment Best Practices
		- Personal safety and hazard exposure (actual and perceived)	- Ensure that all activities comply with all the requirements of the Occupational Health and safety Act as stipulated by its health and safety policy and the health and safety plan for the mining operations; and - Communities and other Interested & Affected Parties should be informed (community awareness) of these policies and must be able to report any irregularities to the relevant competent authority.	- Monthly - Once Off- Prior commence ment of	- Environmental management standards - Occupational health and safety standards South Africa

Phase	Activity	Associated Potential Impacts	Mitigation Measures	Time Period for Implementation	Standard to Be Achieved
				activities	
		- Introduction and establishment of declared weeds	- Monitor the establishment of any foreign/alien invasive species on site and remove if any (follow alien invasive management plan)	- Weekly	- Environmental management standards - NEM:BA Conservation Standards
Operational Phase	Mining (pits)	- Noise generation	- Work during the day time only. Sound is louder during the night than during the day to minimise disruption of animal life and noise in the night - Provide ear plugs to the employees and ensure they wear them for the protection of their ears. - Service equipment, machineries, trucks and other vehicles regularly to minimise noise	- Daily - Daily - Prior Commencement of activities	- Environmental management standards - Occupational health and safety standards South Africa

Phase	Activity	Associated Potential Impacts	Mitigation Measures	Time Period for Implementation	Standard to Be Achieved
		- Dust	- Suppress dust by spraying water on dust roads and onsite were possible - Provide dust mask to employees working on site	- Daily - Daily	- Occupational health and safety standards South Africa - National ambient air quality standards - Environmental management standards
		- Habitat disruption and destruction	- Establish 'NO-GO' areas for any environmental sensitive or important habitat areas as per the biodiversity assessment- where no construction personnel, equipment/machinery or vehicles are permitted.	- Prior Commencement of activities	- NEM:BA Conservation Standards - Environmental management standards
		- Animal life disruption/Impact on fauna	- Employees and contractors should be made aware of the presence of, and rules regarding, flora and fauna through suitable induction training and on-site signage. - Fence -off the trenches to prevent animals from falling into the pits - Work during daytime to	- Prior Commencement of activities	- Environmental management standards

Phase	Activity	Associated Potential Impacts	Mitigation Measures	Time Period for Implementation	Standard to Be Achieved
			minimise the disruption of animal life. -Do not disturb nests, breeding sites or young ones. Do not attempt to kill or capture snakes unless directly threatening the safety of employees.	- Daily - Daily	
		- Vegetation removal	-Avoid removal of vegetation as far as practically possible. Vegetation clearing in natural areas should be kept to a minimum and restricted to the proposed mining footprint only -Place infrastructures in places that are already disturbed or degraded to avoid removal of vegetation and increasing the footprint of the activity. -Trans-locate sensitive species prior to operations and any site clearance. A vegetation specialist should be involved during the search and rescue operations of sensitive species	- Prior Commencement of activities	- Environmental management standards - NEM:BA Conservation Standards

Phase	Activity	Associated Potential Impacts	Mitigation Measures	Time Period for Implementation	Standard to Be Achieved
			occurring on site. All rescued plant species should be bagged and kept on a designated on-site nursery, and should be returned to site once all activities are completed. - Employees and contractors should be made aware of the presence of, and rules regarding, flora and fauna through suitable induction training and on-site signage. - Where vegetation removal cannot be avoided, rehabilitate as soon as possible by revegetating - Revegetation should only occur in springs or early summer (September to November), once the first rains have fallen, in order to facilitate		

Phase	Activity	Associated Potential Impacts	Mitigation Measures	Time Period for Implementation	Standard to Be Achieved
			establishment.	- After completion of all activities	
		- Job Creation	- Employ local labour as much as possible - Create and follow social labour plan	- Prior Commencement of activities	- Employment Best Practices
		- Conversion of land use	- Try as far as possible to dig trenches and place mobile facilities where the land is barren and is not used for grazing by cattle - - Rehabilitate all areas transformed by the activities as far as possible, and restore to original state	- Prior Commencement of activities - After completion of all activities	- Environmental management standards
		- Actual health and fertility from factors	- Provide workers with safety clothing - Comply with Health and Safety	- Daily	- Occupational health and safety standards South Africa

Phase	Activity	Associated Potential Impacts	Mitigation Measures	Time Period for Implementation	Standard to Be Achieved
		such as factors such as noise, VOC emissions and dust pollution	Measures - Any hazardous zones on site should be monitored and the prescribed prevention measures be put in place	- Weekly	
		- Increased Crime	- Keep strong security in and around site to monitor suspicious activity around the area - Ensure security I highly (and quickly) responsive to criminal activity within and around (neighbouring) the site	- Daily	- Safety Stamdards
	k) Top soil stockpiling	- Soil erosion from stockpile	- Avoid erosion by stockpiling topsoil properly and keep stockpile damp to reduce erosion	- When required	- Environmental management standards
	l) Waste generation and storage	- Solid waste generated	- Littering should be prohibited and all waste generated from the site should be cleared. A 'no waste dumping' sign should also be placed next to the stream to raise caution of littering around it.	- Prior to commenc ement of activities	- Environmental management standards

Phase	Activity	Associated Potential Impacts	Mitigation Measures	Time Period for Implementation	Standard to Be Achieved
			- Provide rubbish bins and ensure that all waste is properly disposed of in the bins - Empty and dispose of waste weekly at the nearest landfill site	- Bi weekly	
Decommissioning Phase	m) Rehabilitating the camp site, rehabilitation of the disturbed and contaminated areas n) Re-vegetation **o)** Removal of all infrastructures onsite.	- Recovery/restoration of natural habitat	- N/A	- Upon completion of all activities	- Environmental management standards
	p) Mine Closure	- Job Loss	- Develop and implement the Local and Human Resources Plan (LHRP) that addresses the	-	-

Phase	Activity	Associated Potential Impacts	Mitigation Measures	Time Period for Implementation	Standard to Be Achieved
			impacts associated with retrenchment, job losses and reduced demand for local goods and services; and, - Develop a closure plan which will aim to reinforce the objectives of the SLP by reducing the reliance on Fidulex for employment by promoting skills transfer to enable alternative livelihoods. - Communicate the termination conditions to all employees – including contractors and sub-contractors; - The upskilling of workers to enhance re-employment opportunities following closure and decommissioning must be implemented well in advanced of the decommissioning phase; - Where possible, Fidulex must provide assessment and counselling services for affected individuals; - Comprehensive self-employment training and re-employment programmes;		

Phase	Activity	Associated Potential Impacts	Mitigation Measures	Time Period for Implementation	Standard to Be Achieved
			- Management of expectations during the operations phase; and - Establishment of clear criteria for socio-economic projects and corporate social investment activities, that incorporate partnerships, exist strategy and sustainability		

i) Financial Provision

1) Determination of the amount of Financial Provision

(a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under Regulation 22(2) (d) as described in 2.4 herein.

The closure objectives primarily entail the following:

- Rehabilitate the disturbed area back to its pre- project state as close as possible.
- Backfilling all the pits as soon as work is completed
- Removing all infrastructure and all other items used and constructed during mining period
- All waste will be removed and be disposed properly.
- Final rehabilitation will be completed within specified period as guided by the Regional Manager

The cost of these listed activities has been considered and accounted for in the final financial provision calculations

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

The report with the closure objectives has been given to the land owner and interested and affected parties.

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

The rehabilitation plan is attached as Appendix 6

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

The rehabilitation plan is aligned with the closure plan which is aligned with the baseline information.

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

The quantum of financial provision calculation table is attached overleaf.

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

The financial provision will be provided as determined.

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures	m3	0	13.7	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	190.3	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0.425	280.46	1	1	119.1955
3	Rehabilitation of access roads	m2	0	34.05	1	1	0
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	330.5	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	180.3	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	380.6	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	30	193716.3	1	1	5811489
7	Sealing of shafts adits and inclines	m3	0	102.17	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	2.5	133017.19	1	1	332542.975
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	165670.5	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	481185.7	1	1	0
9	Rehabilitation of subsided areas	ha	0	111381.9	1	1	0
10	General surface rehabilitation	ha	2	105372.05	1	1	210744.1
11	River diversions	ha	0	105372.05	1	1	0
12	Fencing	m	0	120.2	1	1	0
13	Water management	ha	0	40065.4	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	35	14022.9	1	1	490801.5
15 (A)	Specialist study	Sum				1	0
15 (B)	Specialist study	Sum				1	0
					Sub Total 1		6845696.771
1	Preliminary and General		821483.6125		**weighting factor 2** 1		821483.6125
2	Contingencies		684569.6771				684569.6771
					Subtotal 2		8351750.06
					VAT (14%)		1169245.01
					Grand Total		**ZAR 9,520,995.07**

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

(d) Monitoring of Impact Management Actions

Monitoring of the impact management actions will be done by an Environmental Control Officer that will frequent the site, as well as the project manager.

(e) Monitoring and reporting frequency

Monitoring will be done as required depending on the aspect to be monitored. An ECO will be appointed to monitor compliance with this EMP. The reporting to the competent authority will be done annually or when required by the competent authority.

(f) Responsible persons

For this EMP to be implemented effectively, all role players involved in this project need to comply with the directives set out. A concise description of impacts and their mitigation/management measures will be provided and understood by all role players responsible for the implementation and monitoring of the mitigation measures

This project will comprise of the following responsible role players:

- Lead Authority (DMR- North West Regional)
- The Environmental Control Officer;
- The Contractor;
- The project manager and
- The Developer (right holder).

These parties will ensure that all conditions stated on the right are adhered to and that all environmental management requirements are met. Each person's responsibility is detailed in the Table below.

Table 18 6: Project Roles And Responsibilities

Function	Responsibility
Right holder	Ensuring compliance to the EMP and conditions contained in the Environmental Authorisation (EA). Contracting the Environmental Control Officer as an independent appointment to objectively monitor and implement the applicable environmental legislation.
Project Manager	Complete responsibility of the whole project and any contracted parties and ensuring that all environmental management facets are adhered to. The Manager will be supported by the ECO. The roles and responsibilities of the Manager during the development will include:

	• Review the annual reports compiled by the Environmental Control Officer (ECO); • Identify the need for remedial measures with regard to proposed works; • Communicate directly with the Contractors; and • Issue non-conformance notifications to Contractors that do not comply with the requirements as set out in the EMP.
Environmental Control Officer	Objectively monitor, implement applicable environmental legislation, conditions of Environmental Authorisations (EA's) and the EMP. Conduct audits on compliance to applicable environmental legislation, conditions of EA's and the EMP. Including size and sensitivity of the development (on grounds of the EIA). Liaison between the relevant authorities and project team. Any changes in environmental conditions, registration and updating of all EMP documentation should be communicated and carried out by the ECO Develop environmental awareness training for all new site personnel (e.g. posters, tool box talks, signage); Undertake visual inspections of the activities of employees with regard to implementation of the requirements outlined in the EMP; Immediately notify the Construction Manager of any non-compliance with the EMP, or any other complaints or issues of environmental concern; Review and approve Method Statements; and Ensure that all environmental monitoring programmes (sampling, measuring, recording etc.) are carried out according to protocols and schedules
Lead Authority (DMR)	The department responsible for approving the Environmental Authorisation application. Ensuring that the monitoring and adherence to EMPs is carried out, by going through/reviewing audit reports submitted by the ECO and conducting regular site visits.
Contractor	A Contractor will be employed by the developer for different components of the project. The Contractor's primary responsibilities are to construct the works and ensure compliance with the EMP whilst carrying out the work.

(g) Time period for implementing impact management action

The impact management actions must be implemented immediately or within a day of being approved.

(h) Mechanisms for monitoring compliance

Table 19: Impact Management Monitoring

Activity	Associated Potential Impacts	Functional Requirements for Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency and Time Periods for Implementing Impact Management Actions
Site establishment: Camp site, ablution facilities and parking bay preparation	- Dust generation	- Keep a complaint register for community members to make remarks on dust generation if not well managed	- ECO	- Inspect Weekly through an internal audit to ensure that complaints are well recorded and addressed
	- Soil erosion	- A visual site Inspection of the stockpile for approval by the ECO	- ECO	- Weekly Monitoring
	- Habitat disruption and destructio	- ECO to keep record of 'NO-GO' areas if any, and do weekly inspections of any disruption around the	- ECO	- Weekly Inspections

Activity	Associated Potential Impacts	Functional Requirements for Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency and Time Periods for Implementing Impact Management Actions
	n	areas - ECO to do visual inspections to assess whether habitat destruction is limited to activities footprint.		
	- Soil contamination	- Daily visual Inspection of any leaks	- Project Manager	- Daily Monitoring
	- Noise generation:	- Keep a complaint register for community members to make remarks on noise levels if not well managed - Inspect the service record and functioning of equipment, machineries, trucks and other vehicles operating on site.	- ECO - Project Manager	- Weekly Monitoring, Monthly reporting - Monthly Monitoring
	- Personal safety and hazard exposure (actual and perceived)	- Maintain and inspect a checklist against Health and Safety requirements for workers on site - Maintain and inspect an incidence report in case of any injuries to workers or surrounding community members	- ECO - ECO	- Weekly monitoring, monthly reporting - Weekly Monitoring and reporting

Activity	Associated Potential Impacts	Functional Requirements for Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency and Time Periods for Implementing Impact Management Actions
	- Introduction and establishment of declared weeds	- Monitor the establishment of any foreign/alien invasive species on site	- ECO (with the help of the biodiversity specialist)	- Monthly Monitoring
Mining (Pits)	- Noise generation	- Keep a complaint register for community members to make remarks on noise levels if not well managed - Inspect the service record and functioning of equipment, machineries, trucks and other vehicles operating on site.	- ECO - Project Manager	- Weekly Monitoring - Weekly Monitoring
	- Dust	- Keep a complaint register for community members to make remarks on dust generation if not well managed - Visual inspection of dust generation on site and access roads	- ECO	- Weekly
	- Habitat disruption and destruction	- ECO to keep record of 'NO-GO' areas if any, and do weekly inspections of any disruption around the areas - ECO to do visual inspections to assess whether habitat destruction is limited to activities footprint.	- ECO	- Weekly Monitoring
	- Increased Crime	- Maintain responsive security with daily monitoring of suspicious criminal activity in and	- Heasd of security	- Daily monitoring

Activity	Associated Potential Impacts	Functional Requirements for Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency and Time Periods for Implementing Impact Management Actions
		around site		
	- Vegetation removal	- Visual inspection of any vegetation removal in areas outside the activities footprint - Visual inspection of appearance of sensitive vegetation most likely to be found in the area as stipulated by the biodiversity report	- ECO - ECO (with biodiversity assistance)	- Weekly Monitoring - Weekly Monitoring
Waste generation and storage	- Solid waste generated	- Ensure that waste site is clear of waste and that waste bins are disposed of at the nearest landfill site	- Project Manager	- Weekly
Rehabilitating the camp site, rehabilitation of the disturbed and contaminated areas Re-vegetation Removal of all infrastructures onsite.	- Recovery/ restoration of natural habitat	- Visual inspection of the rehabilitated site	- ECO	- Final approval of site closure by ECO

(a) **Indicate the frequency of the submission of the performance assessment report**

The performance assessment report will be submitted to the competent authority annually.

(a) Environmental awareness plan

An environmental control officer will undertake awareness of different environmental aspects and will train the employees on how to deal with emergency situations and how to remediate such emergencies*.*

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

The environmental control officer will have monthly meetings to conduct environmental awareness with all the employees. There will also be monthly environmental topics of which the notices will be pasted at the site office for the employees to see every morning as they clock- in.

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

There will be a working guideline policy regarding addressing all risks which every employee will have to abide with.

(b) **Specific information required by the Competent Authority**

The financial provision will be reviewed annually.

2) **UNDERTAKING**

The EAP HEREWITH CONFIRMS

a) The correctness of the information provided in the reports
b) The inclusion and inputs from stakeholders and I& A parties
c) The inclusion and inputs from specialist report where relevant.
d) The acceptability of the project in relation to the finding of the assessment and level of mitigation proposed

APPENDIX 1: EAP DEGREE CERTIFICATE

University of Venda

This is to Certify that the Degree of

Bachelor of Environmental Sciences

was Awarded to

MUDOVHANI LUFUNO PRISCILLA

at a Ceremony held on the

08-MAY-2008

in Accordance with the Provisions of the Act and Statute

Vice Chancellor

University Registrar

Executive Dean

APPENDIX 2: EXPERIENCE AND PAST PROJECTS UNDERTAKEN

CURRICULUM VITAE OF LUFUNO PRECILLA MUTSHATHAMA

Surname	: Mutshathama
First Name	: Lufuno Precilla
Identity Numbers	: 8510020398080
Date of Birth	: 1985 October 02
Gender	: Female
Marital Status	: Married
Home Language	: Tshivenda
Nationality	: South African
Physical Address	:45 Mayers Estate, Bassoon Avenue, Struben Valley, 1724
Contact numbers	: 073 912 0800/073 805 5481, 011 074 6866
Fax No	: 086 2355 142
Email address	: Joanprojects@gmail.com

TERTIARY COMPETENCES

Name of Institution : University of Venda
Qualification : BEnvSc (Bachelor of Environmental Sciences)

Duration of study : 2005 – 2007
Major courses :

Ecology and Resources Management

- Environmental Impact Assessment & Modelling
- Hydrology & water resources
- Conservation biology
- Environmental Pollution and management
- Resources Evaluation and Information Systems

Geography

- Geographic Information System (GIS)
- Remote sensing
- Population and demography
- Climatology
- Biogeography

- Tourism geography

CURRENT OCCUPATION

Name of Employer : Joan Construction and Projects

Job Title : Director: Mineral licensing and Environmental Consultant

Company : Joan Construction and Projects (Pty) Ltd

Duration : June 2013 to date

Duties :

- Conduct Environmental Impact Assessment
- Compile scoping reports
- Compile Environmental Management Plans
- Compile Basic Assessment report
- Conduct public participation (stakeholder engagements)
- Compile Environmental Performance Assessment Reports
- Amend Environmental Management Plans and programmes
- Compile mine closure plans
- Compile Integrated Water use Licence application
- Compile financial provision report and calculate financial provision quantum
- Select and appoint appropriate specialists to undertake specialist studies and draw up sound Terms of Reference for the specialists that address the particular needs of that project or piece of work.

PREVIOUS WORK EXPERIENCE

Name of Employer : Village Main Reef Limited
Job Title : Group Environmental Officer

Duration : January 2012 to July 2013

Duties:

Environmental Management:

- Enforce Compliance of MPRDA 2002(Act no 28 of 2002), NWA1998 (Act no 36 of 1998) and NEMA 1998 (Act no 107 of 1998) through conducting environmental monitoring & auditing in four (4) mines and one exploration site.
- Compilation of EMPs
- Assessment of EM Programmes before they are submitted to the DMR
- Compilation of rehabilitation plans
- Liaison with the regulators (DMR, DWA, DEA)
- Compilation of performance assessments for all operations
- Calculation and updating rehabilitation financial liability
- Compilation of closure applications for Prospecting Rights

- Conduct public participation

Mineral and Prospecting Right Legal Tenure

- Apply and follow up on section 11s (cessions)
- Apply and follow up on section 102s(amendments/variations)
- Follow ups on conversion applications
- Apply and follow up on Mining Permits

Name of the employer : Department of Minerals Resources
Directorate : Mineral Regulation

Job title : Environmental Officer

Duration : September 2008 to December 2011

Duties :

Environmental Management:

- Evaluation & assessment of EMPs, EIAs Scoping Reports, Performance Assessment Report, Closure Plans, rehabilitation plans Environmental Liability and other Environmental Technical Reports.
- Management of mining related impacts on the components of the natural environment.
- Compliance and enforcement of MPRDA 2002(Act no 28 of 2002), NWA1998 (Act no 36 of 1998) and NEMA 1998 (Act no 107 of 1998) through conducting Inspections, environmental monitoring & auditing
- Consult with relevant state departments that administer matters relating to the environment.
- Identifying area that are sensitive and protected before mining can resume.

Mineral and Prospecting Right Legal Tenure

- Assist clients with lodging applications on SAMRAD system.
- Capture mining spatial areas (polygons/ farms) applied for on the work -based GIS(ArcIMS) software for mining right, prospecting right and mining permit
- Digitising/geo-coding mining polygons
- Advice the regional manager on settlement and environmentally sensitive areas under the mining Application

Name of the employer : Department of Minerals Resources
Directorate Mineral Regulation

Job title : Intern (Environmental & GIS officer)

Duration : April 2008 to September 2008

Duties :

- Capture mining spatial areas (polygons/ farms) applied for on the work -based GIS(ArcIMS) software for mining right, prospecting right and mining permit
- Digitising/geo-coding mining polygons
- Advice the regional manager on settlement and environmentally sensitive areas under the mining Application
- Give monthly statistic of all mining application in Limpopo

REFERENCES

Name and Surname	:	Mr. Daubable Ncube
Company name	:	Village Main Reef limited
Title	:	Managing Director
Contact details	:	072 3341965|011 2744600|Ncube@villagemainreef.co.za

Name and Surname	:	Mr. Aaron Kharivhe
Name of institution	:	Department of Mineral Resources
Title	:	Regional Manager, Limpopo Region
Contact details	:	082 467 0912 Aaron.Kharivhe@dmr.gov.za

Appendix 3: Locality map

Appendix 4: Site Plan

APPENDIX 5: Land Use Map

Appendix 6: Rehabilitation Plan

Appendix 7: Public Consultation

7.1) Landowner consultation

7.2) Public Consultation -Advert & meeting

7.3) Municipality Consultation

7.4) State Owned Departments Consultation

7.5) Interested and Affected Parties Comments

7.1) Landowner consultation

7.2) Public Consultation -Advert and Meeting

7.3) Municipality Consultation

7.4) State Owned Departments Consultation

7.5) Interested and Affected Parties Comments

Appendix 8: Specialist Reports

Appendix 8.1: Heritage Impact Assessment

Appendix 8.2: Social Impact Assessment

Appendix 8.3: Biodiversity Impact Assessment

Appendix 8.4: Air Quality Impact Assessment