1.1.1.1.1

BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT FOR THE APPLICATION OF A MINING PERMIT SITUATED ON PORTION 1 OF THE FARM WITKLIP 6, IN THE MAGISTERIAL DISTRICT OF LICHTENBURG, NORTH WEST

FOR
HRI VAN DER MERWE

DMR REF. NO. NW 10999 MP

Compiled by: Engedi Minerals and Energy

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mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

AND

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORISATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL 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:	HRI VAN DER MERWE
REFERENCE NUMBER:	NW 10783 MP
PROJECT NAME:	Portion 1 of the Farm Witklip 6
DATE:	04 March 2022
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ABBREVIATIONS USED IN THIS REPORT

DMR	:	Department of Mineral Resources
DRPW	:	Department of Roads and Public Works
DWS	:	Department of Water and Sanitation
ECO	:	Environmental Control Official
EIA	:	Environmental Impact Assessment
EMP	:	Environmental Management Programme
NW	:	North West
IAPs	:	Interested and Affected Parties
LOM	:	Life of Mine
MPRDA	:	Minerals and Petroleum Resources Development Act
NEMA	:	National Environmental Management Act
SAHRA	:	South African Heritage Resources Agency
SAPS	:	South African Police Services

1.2 IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002, as amended), the Minister must grant a mining or mining right if among other the mining "will not result in unacceptable pollution, ecological degradation or damage to the environment".

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

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

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorization for listed activities triggered by an application for a right or a permit 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 a failure to meet the requirements of the Regulation and will lead to the Environmental Authorization being refused.

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

1.3 OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

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

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

(c) Describe the need and desirability of the proposed alternatives;

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

i. The nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and

ii. The degree to which these impacts –

   a. Can be reversed

   b. May cause irreplaceable loss of resources; and

   c. Can be managed, avoided or mitigated;

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

i. Identify and motivate a preferred site, activity and technology alternative;

ii. Identify suitable measures to manage, avoid or mitigate identified impacts; and

iii. Identify residual risks that need to be managed and monitored.

PROJECT DETAILS

Name of Project:	Portion 1 of the Farm Witklip 6
Mining Permit:	NW 10999 MP
Name of Applicant:	HRI Van Der Merwe
Responsible person:	Henry Robert Van der Merwe
Physical Address:	Lichtenburg
Postal Address:	Lichtenburg
Telephone:	N/A

Environmental Consultant (EAP):	Mr T Mulaudzi
Responsible Person:	Mr T Mulaudzi
Physical Address:	15 Barnes Street, Langebaan building, Bloemfontein 9301
Postal Address:	P.O. Box 29567, Danhof, 9310
Telephone:	015 4301748
Facsimile:	086 556 2568
E-mail:	info@engedime.com
Expertise of EAP:	Refer to Part A (3) (a) (ii) on the expertise of EAP

PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1.4 Contact details of

a) Details of

i. Details of the EAP

Name of the Practitioner: Tshimangadzo Mulaudzi

Tel No.: 051 430 1748

Fax No.:086 556 2568

Email address: info@engedime.com

ii. Expertise of the EAP

1) **The qualifications of the EAP** (attached as Appendix A)

Tshimangadzo Mulaudzi holds an Honours Degree in Mining and Environmental Geology from the University of Venda. Has since been working as an environmental geologist and environmental practitioner. He has 5 years' experience in Environmental Science, 5 years' experience in Geology, and 5 years' experience in public participation.

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

Tshimangadzo Mulaudzi has been carrying out Environmental Impact Assessment Procedure since 2012, in 2012, he joined a large mining consulting company in Kimberly called Breeze Court Investments 47 (Pty) Ltd (Geologist and Mining Consulting firm). This is where Mr Mulaudzi acquired in-depth experience and know how in the mining consulting business by assisting the large to small scale mining companies to obtain prospecting right, mining rights, mining permits, technical co-operate permits, reconnaissance permits, exploration rights, production rights, integrated water use license, and environmental authorisation among other licenses.Mulaudzi has five years working experience in environmental management, geology and public participation process.

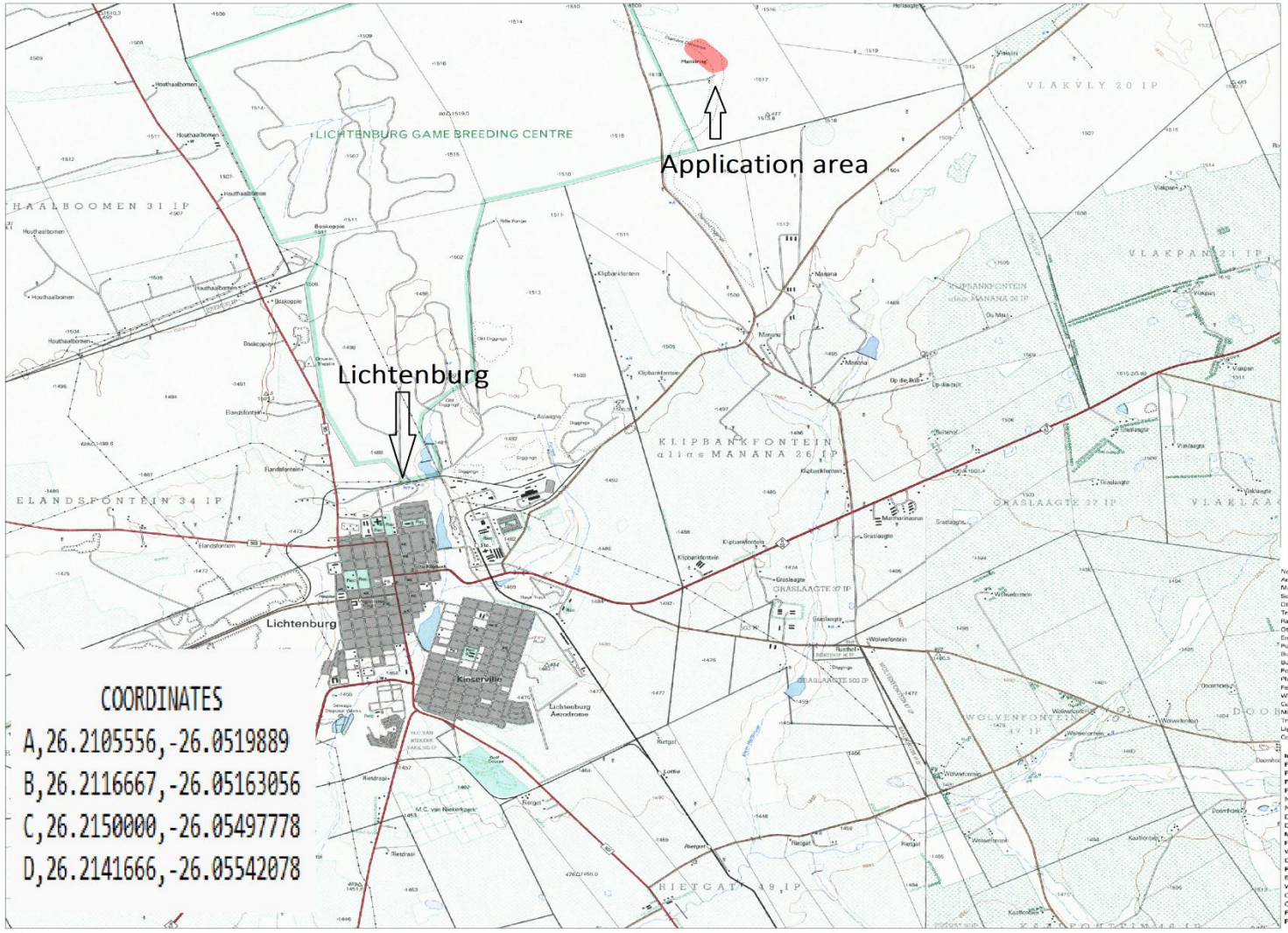
b) Location of the overall Activity

Farm name:	Portion 1 of the farm Witklip 6
Application area (Ha):	5 Hectares
Magisterial district:	Lichtenburg
Distance and direction from nearest town:	About 7.46 km North East of Lichtenburg
21 digit Surveyor General Code for each farm portion:	T0IP00000000000600001

c) Locality map

(Show nearest town, scale not smaller than 1:250 000)

Locality Map of a Portion of Portion 1 of the Farm Witklip 06



Prepared by Engedi Minerals and Energy

d) Description of the scope of the proposed overall activity

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

The activity is for the mining permit which will involve the mining of diamond (alluvial), diamond (general), sand (general) and one aggregate gravel at the proposed area. The activities include the dredging or removal of sand, mechanically removing the diamondiferous gravel through excavation. The sand and gravel will be stockpiled and screened.

e) Listed and specified activities

NAME OF ACTIVITY **E.g. for mining** – excavation, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and pitting and trenching, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, **etc.**)	**AERIAL EXTENT OF THE ACTIVITY** (Ha or m^2)	**LISTED ACTIVITY** **(**Mark with an **X** where applicable or affected**)**	**APPLICABLE LISTING NOTICE (*GNR 324, GNR 325 OR GNR 327)***
Excavation	0.5 Ha	X	Listing Notice 1, Activity No. 21
Stock piles	0.04 Ha	X	Listing Notice 1, Activity No. 21
Loading, hauling, and transport		X	Listing Notice 1 Activity No. 21
Access road	0.4 Ha	X	Listing Notice 1, Activity No. 21
Dumps	0.01 Ha	X	Listing Notice 1 Activity No. 21

i. Description of the activities to be undertaken

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

The activity is for the Mining Permit, which will involve the mining of diamond (alluvial), diamond (general), sand (general) and one aggregate gravel and an excavator will be used to excavate the sand. The material will be excavated and loaded directly into the trucks to be transported to the stock piles. The processing of sand will not be necessary.

f) Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	**REFERENCE WHERE APPLIED**	**HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.** (E.g. in terms of the National Water Act a Water Use License has/has not been applied for)
National Environmental Management Act (NEMA), No. 107 of 1998, as amended	Section 24	In terms of the National Environmental Management Act, an application for an Environmental Authorisation has been applied for.

Regulation 982. National Environmental Management Act (Act No. 107 of 1998): Environmental Impact Assessment Regulations, 2014	Regulation 19	In terms of the NEMA EIA Regulations a Basic Assessment Report (BAR) and Environmental Management Programme (EMPr) were prepared to submit to the competent authority.
Regulation 983. National Environmental Management Act (Act No. 107 of 1998): Listing notice 1: List of activities and competent authorities identified in terms of sections 24(2) and 24D	Regulation 20	In terms of NEMA EIA Regulations R.983, Listing notice 1, the activity triggers regulation 21 which refers to a mining permit application and therefore needs an Environmental Authorizations to proceed as well as follow procedures as prescribed in regulation 19 of R.982 (EIA Regulations, 2014).
Mineral and Petroleum Resources Development Act (Act No. 28 of 2002)	Section 27	In terms of the MPRDA, any person who wishes to apply for a mining permit must lodge the application in the prescribed manner.
Mineral and Petroleum Resources Development Amendment Act (Act No. 49 of 2008)	Section 23	In terms of the MPRDA, any person who wishes to apply for a mining permit must simultaneously apply for an environmental authorisation and must lodge the application to requirements contemplated by competent authority.

g) Need and desirability of the proposed activities

(Motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of the preferred location)

The need for the proposed development is of paramount importance as it is going to assist the local community of Lichtenburg in terms of poverty alleviation through job creation, black economic empowerment in terms of the mining charter which will contribute to the nation's visions of job creation.

h) Motivation for the overall preferred site, activities and technology alternative

The proposed mining site is preferred because:

1. It contains the right quality of proposed minerals bearing material required for the recovering and has a history of good quality of those minerals;
2. The mining site still has good high grade bearing material of the proposed minerals;
3. The site is close to the processing plant, thus minimizing transportation costs;
4. The area was cleared for previous mine support structures, hence preferred than opening a new area which could entail cutting down some trees.
5. There won't be a need to start excavating on virgin ground since the recovering will only be focused on the material along the historic rail line skeletons.

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

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

i. Details of the development footprint alternatives considered.

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

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

b. The type of activity to be undertaken;

c. The design or layout of the activity;

d. The technology to be used in the activity;

e. The operational aspects of the activity; and

f. The option of not implementing the activity

No alternatives are applicable to this project since the commodities applied for are contained in the proposed area. Locating the development to another area will result in the commodities possibly not being found and the economy and society not benefitting from proposed mining activity.

ii. Details of the Public Participation Process Followed

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

Definitions:

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

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

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

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

The following I&APs were contacted:

- Land owner
- North West Department of Rural, Environment and Agricultural Development
- Chief Director: Department of Rural Development and Land Reform (North West);
- Ngaka Modiri Molema District Municipality – Municipal Office;
- Ditsobotla Local Municipality- Municipal Office;
- Department of Water and Sanitation
- Other relevant parties or departments.

The identified I&APs were provided with information regarding the applied proposed mining. The final location of the planned excavations will be decided in consultation with the landowners during mining. All comments from the identified I&APs will be noted and taken into consideration.

After the directly affected land owner has been identified, these parties were consulted per email or mail. No negative feedback has since been received by the office of the EAP.

The public participation process mainly comprises engagement with Interested and Affected Parties (I&APs) and is of utmost importance in any environmental assessment process. The public participation process, *inter alia*, involves the following:

- Inform, raise awareness, educate and increase understanding of a broad range of environmental issues that might be arise with the proposed extension in the size of mining operation.
- Establish lines of communication between stakeholders, I&APs and the project team.
- Provide opportunity to all parties for the exchange of information and expression of views and concerns.
- Obtain contributions of stakeholders and I&APs and ensure that all views, issues, concerns and queries raised are fully documented.
- Identify all the significant issues associated with the proposed extension of project

Engedi Minerals and Energy (Pty) Ltd was appointed by **HRI VAN DER MERWE** as the independent consultant to conduct the public participation process as part of the Basic Assessment Report and Environmental Management Programme Report. As stipulated in Section 27 (5) (b) of the MPRDA (Act 28 of 2002) as amended by the MPRDA (Act 49 of 2008) and Regulations, Interested and Affected Parties (I&APs) need to be notified and consulted with, as part of a mining permit application and extension thereof.

The public participation process aims to provide I&APs with objective information in order to assist them to:

- Raise issues of concern and make suggestions for enhanced benefits;

- Contribute local knowledge and experience;
- Verify that their issues have been captured;
- Verify that their issues have been considered; and
- Comment on the findings of the EMP.

An email explaining the project and the background information was sent to all other I&APs introducing the project. The draft BAR and EMPr was made available for all the registered I&APs. The draft BAR and EMPr was made available to inform the I&APs of the activities, background information of the area, the possible impacts and mitigation measures and other relevant information, and to request input and comment on it.

1.5 THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES

(The environmental attributed described must include socio-economic, social, heritage, cultural, geographical, physical and biological aspects).

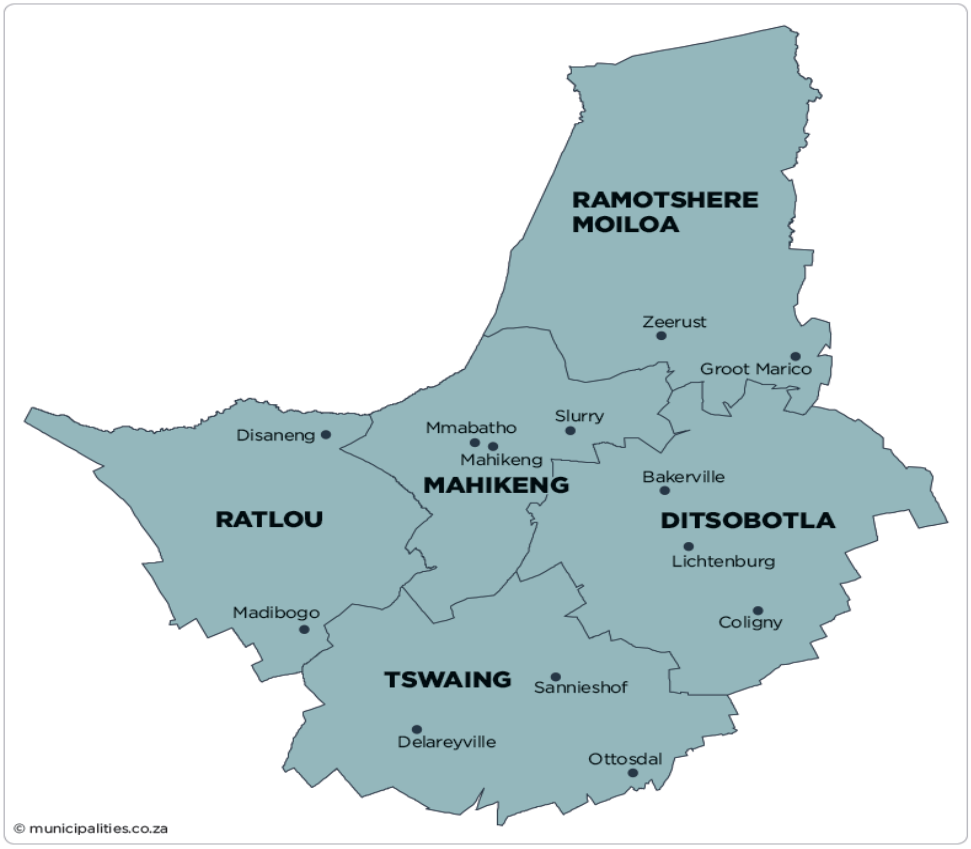
a) Type of environment affected by the proposed activity

(Its current geographical, physical, biological, socio-economic, and cultural character)

1.4.1 Baseline Environment

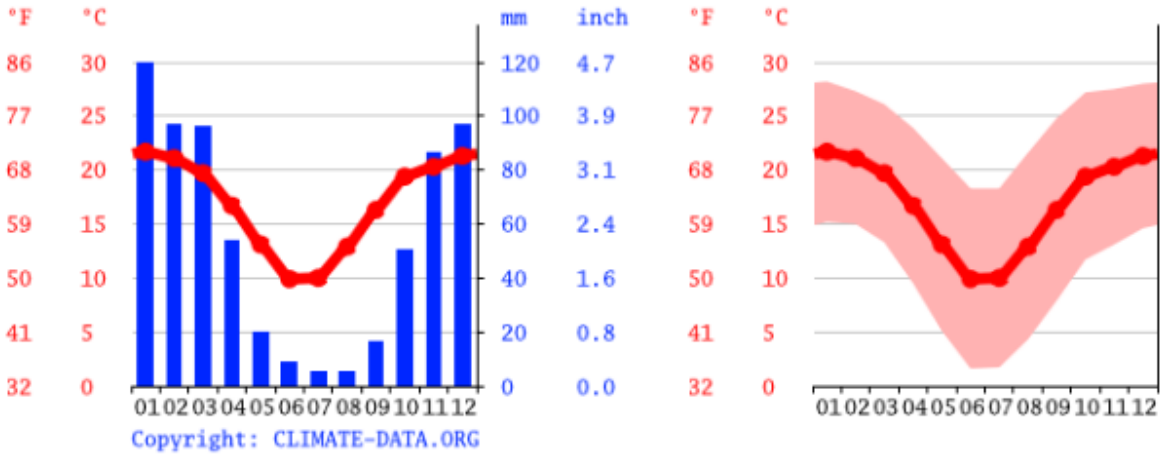
Location

Lichtenburg is a town situated in North West Province. It is the administrative centre of Ditsobotla Local Municipality. The town was established in 1873.



Climate

Lichtenburg's climate is a local steppe climate. There is not much rainfall in Lichtenburg all year long. The Köppen-Geiger climate classification is BSk (cold semi-arid climate). The temperature here averages 16.9 °C. The rainfall here is around 601 mm per year. The graphs below show the climate and average temperature for Lichtenburg.



Topography and Elevation

The topography within 2 miles of Lichtenburg contains only modest variations in elevation, with a maximum elevation change of 161 feet and an average elevation above sea level of 4,855 feet. Within 10 miles also contains only modest variations in elevation. Within 50 miles contains only modest variations in elevation.

Geology and Soils

Diamond-bearing gravels of the Lichtenburg-Ventersdorp area of the North West Province are associated with north-south orientated sinuous ‘runs’ that occur almost entirely on a flat erosional surface of the Malmani dolomites (Transvaal super group) at some 1 500 m elevation. East to west, this dolomite plain measures 150 km, and north to south it is on average 40 km wide. This unconformity which first developed before the Pretoria Group sedimentation over a period of at least 80 Myr, is marked by siliceous breccias (palaeo-karst infill) and conglomerates (reworked breccias). It was exhumed in pre-Karoo and post-Gondwana times. Glacial pavements and remnants of thin layer Karoo sediments are also found on this polyphase surface.

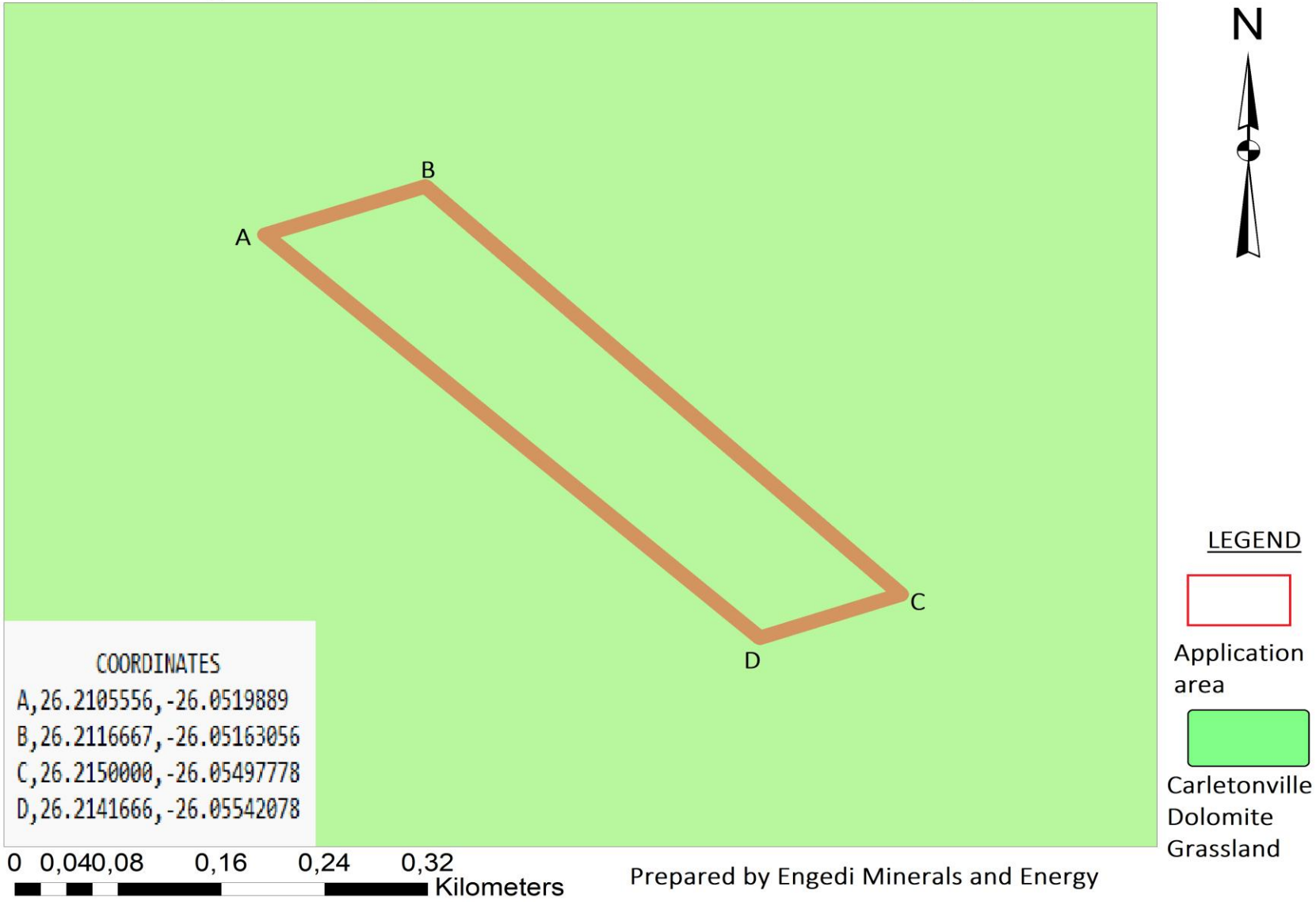
2.4.1 Biological Environment

Vegetation

The study area is situated in the Grassland biome and Dry Highveld Grassland Bioregion. The vegetation in and surrounding the study area is Carletonville Dolomite Grassland (Gh 15).

The distribution of the vegetation type is mostly found within the North-West Province extending into Gauteng and a small portion of the Free State Province. This vegetation type is mostly associated with the Potchefstroom, Ventersdorp and Carletonville regions, extending westwards to the vicinity of Ottoshoop, but also occurring as far east as Centurion and Bapsfontein in Gauteng Province. This vegetation type is mainly found between elevations of 1 360 – 1 620 m but mostly between 1 500 – 1 560 m. This vegetation type has been described by Mucina and Rutherford (2006) as species-rich grasslands forming a complex mosaic pattern across slightly undulating plains dissected by prominent rocky chert ridges.

Vegetation Map of a Portion of Portion 1 of the Farm Witklip 06



Mammals

The potential diversity of mammals within the study area is high with as many as 98 terrestrial mammals potentially occurring within the area. Of the 98 mammals that have a distribution that includes the study area, 53 are known to occur in QDSs 2626AA and 2526CC (MammalMap, 2018). Of the species that have a distribution that includes the study area, 41 species are regarded as Conservation Important Species with 21 species either listed as Red Data species or as a Protected Species within the National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) (refer to Table 16). Due to the relative homogenous nature of the study area, it is however expected that the diversity within the study area itself will be moderate, with an expected 41 species likely to inhabit the study area and 24 with a moderate potential to occur within the study area.

A number of antelope species have been recorded by the ADU (Animal Demographic Unit) within the 2626AA and 2526CC QDSs. Most of these antelope species are confined by fences and occur only where farmers have introduced them or allow them to persist and should be considered as part of the farming system rather than as wildlife per se. Some of these South African indigenous antelope species do not have a natural distribution within the specific region but as mentioned have been introduced by farmers. Such antelope species include; Blue Wildebeest (*Connochaetes taurinus*), Grey Rhebok (*Pelea capreolus*), Mountain Reedbuck (*Redunca fulvorufula*) Red Hartebeest (*Alcelaphus buselaphus*), Impala (*Aepyceros melampus* subsp. *melampus*) and African Savanna Buffalo (*Syncerus caffer*). Both Duiker (*Sylvicapra grimmia*) and Steenbok (*Raphicerus campestris)* are adaptable species that are able to tolerate high levels of human activity and are not likely to be highly sensitive to the disturbance associated with the development.

There are however, several factors which will reduce the actual number of species present with the study area. This includes fractured landscape, surrounding agricultural practices (especially cultivation), the presence of large roads and other anthropogenic activities.

Conservation areas

There are currently no formally protected areas at the proposed site.

3.4.1 Surface water

According to the Lower Vaal WMA Overview of Water Resources Availability Report, DWAF (2003a), "As a result of the low rainfall, flat topography and sandy soils over much of the water management area, little usable surface runoff is generated in the water management area. The runoff which does occur, is highly variable and intermittent. Although occasional runoff occurs in the upper reaches of the Molopo River, no record exists of flow having reached the Orange River. Previous recordings of flow in the lower reaches of the Molopo and/or Kuruman Rivers were in 1933 and again in the 1974/5 and 1975/76 seasons." "Flow in the Vaal River, which is the main source of water in the water management area, virtually all originates from the Upper Vaal and Middle Vaal water management areas.

Water Management Area

Lower Vaal Water Management Area.

Rivers and dams

Bloemhof Dam on the Vaal River. The dam wall and outlet works are located within the Lower Vaal water management area immediately where the river enters the water management area from the Middle Vaal water management area. Most of the reservoir basin falls in the Middle Vaal water management area. The yield from the dam, however, is available in the Lower Vaal water management area. Internal Strategic Perspective for Central Region : Lower Vaal Water Management Area DWAF Report No P WMA 10/000/00/0304 2-10

Vaalharts Weir is a main diversion weir on the Vaal River while the Douglas Weir falls just outside the water management area, immediately upstream of the confluence of the Vaal River with the Orange River.

Wentzel, Taung and Spitskop Dams on the Harts River.

No large dams occur in the Molopo sub-catchment. "The bulk of the surface water found in the water management area is in the Vaal River, most of which is transferred along the river from the Upper Vaal water management area and via the Middle Vaal water management area, to the Lower Vaal water management area."

4.4.1 Socio-economic setting

Population(2011)

Total	9,553
Density	250/km^2

Race

Population group	Percentage
Black African	94.0%
Coloured	3.1%
Indian or Asian	0.9%
White	1.8%
Other	0.2%

Language

First language	Percentage
Sesotho	84.6%
Afrikaans	7.0%
isiXhosa	2.6%
English	3.0%
Other	2.8%

Economy

The economy of the North West Province generates slightly less income for the domestic economy in comparison to the relative size of the provincial population. According to Statistics South Africa, the growth rate in the North West was 0.7% between 1996 and 2003 compared with 2.8% at the national level (Statistics South Africa, 2006). This is confirmed by the fact that, historically, the Province used to contribute more to the domestic economy than its population size warranted. In 1990, the Province contributed 6% to the GDP and 5% in 2002. This decrease in the relative contribution can, to a large extent, be attributed to a negative growth in mining at

an average rate of -4% p.a. for the period 1980 to 1999. The mining sector used to be the mainstay of the Provincial economy. It needs to be taken into account that the North west is not surrounded by a prosperous economic environment of big businesses and industries, as are some other Provinces with huge infrastructural and economic activities. However, over the past two years the economic growth rate has increased. The key economic challenges for the Province are to absorb the shock of the declining mining sector, maintain the existing contribution of agriculture, increase the global link, and address inherent inequities in the economy.

Employment

Unemployment is the most serious issue the economy faces (Burger and Marinkov, 2005). According to the official definition, national unemployment rose from 20% in 1994 to over 30% in 2003 (Mohr, 1998). Even though this figure is high, it still disguises the fact that some Provinces suffer disproportionately from unemployment, thereby indicating a spatial dimension to unemployment. In the North west, Limpopo and KwaZulu-Natal, where unemployment is most acute, the rate was respectively 30.6%, 32.4% and 31.7% in 2005 (Table 2.8 and Figure 2.3). In September 2006, the rate of unemployment decreased in the North west to 26.5%

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b) Description of the current land uses

Agricultural and mining.

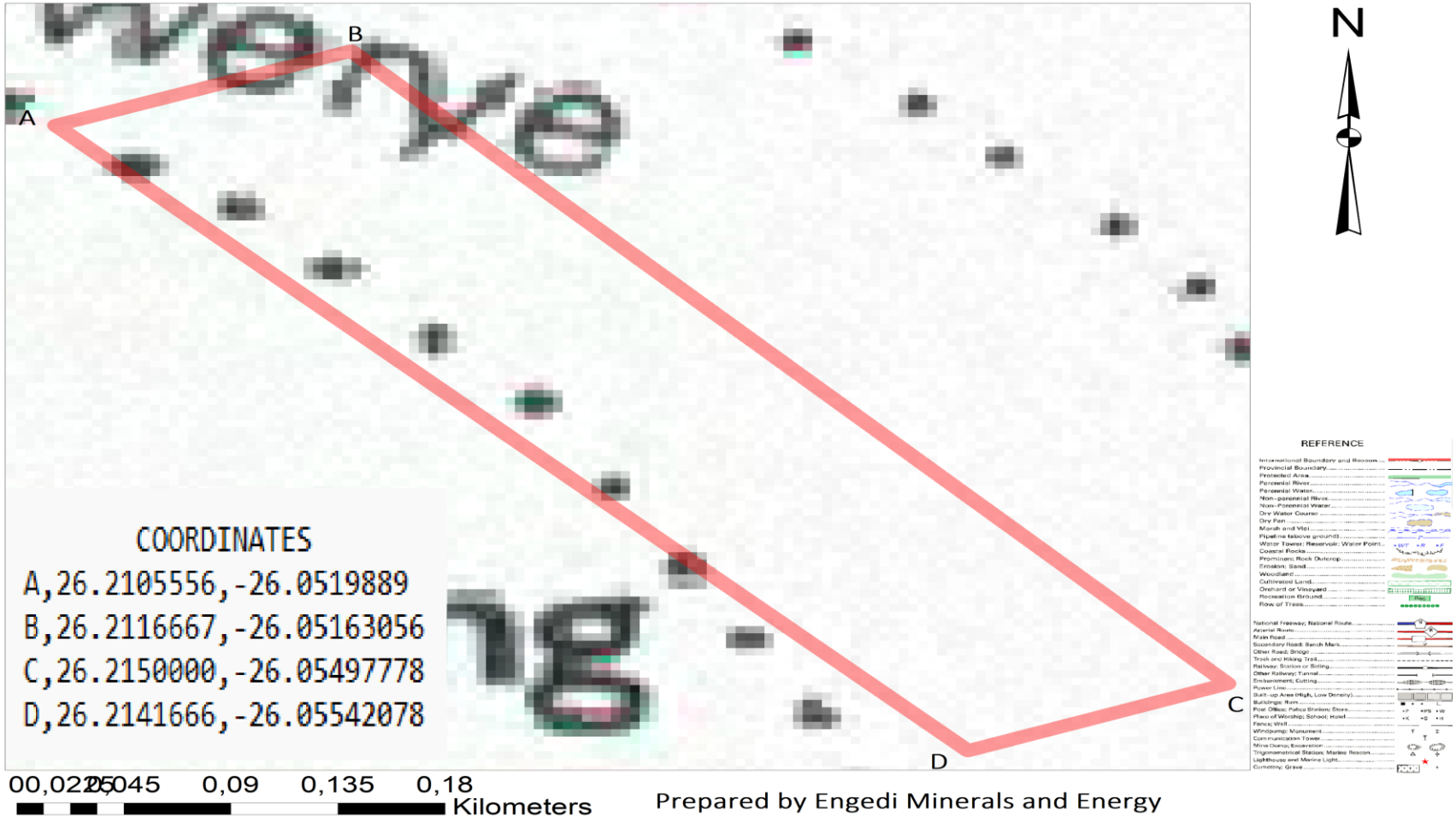
c) Description of specific environmental features and infrastructure on the site

Mining and Agriculture. Vegetation also available for grazing.

d) Environmental and current land use map

(Show all environmental and current land use features)

Layout Map of a Portion of Porton 1 of the Farm Witklip 06



iii. **Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of impacts, including the degree to which these impacts** (Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impact of such activities, and as informed by the consultations with affected parties together with the significance, probability, and duration of these impacts. Please indicate the extent to which they can be reversed, the extent to which they may cause irreplaceable loss of resources and can be avoided, managed or mitigated).

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

No	Activity	Impact	Duration	Intensity	Probability	Significance Rating	
1	Site Preparation	Loss of vegetation	3	5	10	80	High
		Habitat Destruction	3	5	10	80	High
		Visual scarring	3	4	8	56	Medium
		Soil erosion	3	4	6	42	Low
2	Excavations	Dust emissions	2	5	8	56	Medium
		Surface disturbances	4	4	10	80	high
		Drainage interruption	4	4	10	80	high
		Slope instability	4	3	3	42	low
		Noise	2.5	5	10	75	high
		Visual Scarring	3	4	8	56	medium

		Soil erosion	3	4	6	42	low
4	Stockpiles	Dust	2	5	8	56	medium
		Surface disturbances	3	5	10	80	high
		Drainage disruption	2.5	5	10	75	high
4	Loading, Hauling and transportation	Dust	2	5	10	70	medium
		Increased risk of accidents	2	4	4	16	low
		Noise	2.5	5	10	75	high
		Soil contamination from oil/fuel leaks	3	3	6	36	low

- **Potential cumulative impacts**

Since there are other mining companies around, the cumulative impact will be noise and dust.

- **Potential impact on heritage resources**

No heritage sites may be present on the site, which may be disturbed and/or damaged during mining.

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

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

Expectations could be created that numerous job and business opportunities will become available during mining. All Interested and Affected Parties (I&APs) need to be informed throughout the Mining.

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

The draft BAR and EMPr was made available to the interested and affected parties for comment and input. The list of potential impacts was included in the draft BAR and EMPr.

- **Confirmation of specialis**t **report appended**

(Refer to guideline)

No specialist studies were conducted for this BAR and EMPr. The baseline information contained herein is based on a desktop study and one site visit.

iv. **Methodology used in determining and ranking nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;** (Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which they initial site layout needs revision).

Criteria of assigning significance to potential impacts

The significance of the impacts was determined through the consideration of the following criteria:

Probability:	Provides a description of the likelihood/probability of the impact occurring
Extent:	Describes the spatial scale over which the impact will be experienced
Duration:	The period over which the impact will be experienced
Intensity:	The degree/order of magnitude/severity to which the impact affects the health and welfare of humans and the environment
Significance:	Overall significance of the impact on components of the affected environment and whether it is a negative or positive impact

The impacts were individually described and assessed using the criteria drawn from the Environmental Impact Assessment (EIA) Regulations, published by the DEA in terms of the NEMA (Act 107 of 1998).

The significance of each impact is assessed using the following formula (before and after mitigation):

Significance Point (SP) = (Probability + Extent + Duration) x Intensity

The maximum value is 150 SP. The impact significance will then be rated as follows:

SP > 75	Indicates **high** environmental significance	An impact that could influence the decision about whether or not to proceed with the project regardless of any possible mitigation.
SP 30 – 75	Indicates **moderate** environmental significance	An impact or benefit which is sufficiently important to require management and which could have an influence on the decision unless it is mitigated.
SP < 30	Indicates **low** environmental significance	Impacts with little real effect and which should not have an influence on or require modification of the project design.
+	Positive impact	An impact that is likely to result in positive consequences/effects.

Probability (P)		
None (N)	1	The possibility of the impact occurring in none, due either to the circumstances, design or experience (0%).
Possible (P)	2	The possibility of the impact occurring is very low, due either to the circumstances, design or experience (25%).
Likely (L)	3	There is a possibility that the impact will occur to the extent that provisions must therefore be made (50%).
Highly likely (H)	4	It is most likely that the impacts will occur at some stage of the development and plans must be drawn up before carrying out the activity (75%).
Definite (D)	5	The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied on (100%).
Extent (E)		
Footprint (F)	1	The impact area extends only as far as the activity which occurs within the total site area.

Site (S)	2	The impact could affect the whole site or a significant portion of the site.
Regional (R)	3	The impact could affect the area including the neighbouring farms, the transport route and/or the adjoining towns.
National (N)	4	The impact could have an effect that expands throughout the country.
International (I)	5	Where the impact has international ramifications that extend beyond the boundaries of the country.
Duration (D)		
The period over which the impact will be experienced		
Temporary (T)	1	0 – 3 years (or confined to the construction period).
Short term (S)	2	3 – 10 years (or confined to the construction and part of the operational period).
Medium term (M)	3	10 – 15 years (or confined to the construction and whole operational period).
Long term (L)	4	For the whole life of mine (including closure and rehabilitation period).
Permanent (P)	5	Beyond the anticipated lifetime of the project.
Intensity (I)		
Insignificant (I)	2	Will have a no or very little impact on the health and welfare of humans and environment
Low (L)	4	Will have a slight impact on the health and welfare of humans and environment
Moderate (M)	6	Will have a moderate impact on the health and welfare of humans and environment
High (H)	8	Will have a significant impact on the health and welfare of humans and the environment
Very high/	10	Will have a severe impact on the health and welfare of humans

don't know (V)		and the environment

v. **Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;**

No alternatives were considered. The summary of identified positive and negative risks is as follows.

Negative Impacts:

- Visual Impacts
- Noise Impacts
- Air Quality Deterioration
- Disruption of surface drainage
- Destruction of flora and loss of habitat
- Loss of soil and agricultural potential
- Water pollution
- Erosion
- Safety and Security Impacts
- Land Degradation

Positive impacts:

- Creation of employment opportunities
- Training and skills development opportunities

e) The possible mitigation measures that could be applied and the level of risk

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

MANAGING SOIL IMPACTS

These measures are targeted at managing soil erosion, soil contamination, compaction of soil and removal of topsoil

- The area that is stripped of vegetation should be kept to an absolute minimum
- Contractor shall at all times carefully consider what machinery is appropriate to the task while minimizing the extent of environmental damage and unnecessary movements should be prohibited
- The topsoil, including the existing grass cover is to be shallowly ripped (only the depth of the topsoil) before removal. This is to ensure that organic plant material, and the natural seed base is included in the stripping process. The soil is to be stored and the soil stockpiles shall not be higher than 2 m or stored for a period longer than one year. The slopes of soil stockpiles shall not be steeper than 1 vertical to 2.5 horizontal.
- Topsoil shall be stored separately from subsoil and other overburden material.
- No vehicles shall be allowed access onto the stockpiles after they have been placed.
- Stockpiles shall not be allowed to become contaminated with oil, diesel, petrol, garbage or any other material, which may inhibit the later growth of vegetation.
- The contractor shall apply soil conservation measures to the stockpiles to prevent erosion.
- Ensure regular maintenance of equipment to prevent diesel and hydraulic spillages.
- Where possible ensure low work surface gradients so that run-off flows at a controlled rate so as to minimize channeling and soil erosion during high rainfall.
- At the end of operations, all disturbed areas shall be re-vegetated

LOSS OF VEGETATION

- No protected species must be removed without a permit. A final walkthrough must be done by an ecologist to ensure that the areas where vegetation is to be cleared do not have protected species.
- Clearance of vegetation should be restricted to the absolute minimum required to facilitate access and undertake proposed mining activities. Disturbance of topsoil and vegetation rootstock must be minimized as far as possible.
- Any declared category 1 invasive species identified should be cleared.
- Rehabilitation strategies following operational activities must ensure that appropriate indigenous plant species are used and should be done as per rehabilitation plan.

DUST AND VEHICLE FUMES

- Avoid unnecessary excessive vehicle movement.
- Limit vehicle speeds on unsurfaced roads.
- Rehabilitate disturbed areas with vegetation as soon as operation is completed.
- Maintain equipment and vehicles in good working order to avoid excessive emissions.
- Proposed mining working floors should be sprayed with water from time to time to reduce dust emission during operations.
- Use rubber curtains/other material to limit dust during screening should be considered.
- Spray roads, material stockpiles and screening areas with water if dust becomes problematic.
- No fires should be allowed on the proposed mining site.

WASTE DISPOSAL

- All personnel must be instructed to dispose of waste in a proper manner in the

correct designated areas.

- Suitable receptacles shall be available at all times and conveniently placed for the disposal of waste.
- No waste shall under any circumstance be disposed of in the veld. No burning of waste is permitted on site and the proposed mining area should be protected from illegal dumping of waste.
- All used oils, grease or hydraulic fluids shall be placed in appropriate impervious containers and these receptacles will be removed from the site on a regular basis for disposal at a registered or licensed disposal facility or sent for recycling/reuse with a registered facility.
- Spills should be cleaned up immediately by removing the spillage together with the polluted soil and by disposing of them at a recognised facility. In areas where the spills are some, an absorbent agent can be used and the area treated.
- Contaminated materials and residues from machinery maintenance and other sources contaminated with hazardous waste should be stored in proper containers that avoid seepage to ground.
- The reduce, reuse, recycle waste management philosophy will be used where possible.
- Only authorized registered waste disposal contractors should be hired for collection of waste for all waste streams.

SOCIAL IMPACTS

- Effective two-way public disclosure and public consultation should be implemented to allay community perceptions. There should be an opportunity provided for the resolution of grievances or complaints received and recorded from individuals in the community.
- Community should be adequately informed of activities being done at the proposed mining that are likely to affect them.
- Labour recruitment should occur in a manner that is objective, transparent, and wherever possible, provide opportunities for people from the local area.
- The activities of contractors, consultants, and company employees should be

routinely reviewed to ensure good community relations are being maintained. The project proponent should use its influence as employer to encourage responsible behavior among employees.

STABILITY OF EXCAVATIONS

- Excavations shall take place only within the approved demarcated proposed mining area and appropriate barriers should be put as necessary.
- The proposed mining operator shall ensure that a place of work, whether temporary or permanent in or near the excavation has a structure and solidity appropriate to its use is operated, supervised and maintained, so as to withstand the environmental forces anticipated and be safe.
- The proposed mining operator shall ensure that material is not placed, stacked or used at the proposed mining near the edge of any excavation, where it is likely to endanger people at work and equipment or where it is likely to cause collapse of the side of the excavation.
- Excavations should be routinely inspected. If cracks occur in any structure they need to be investigated to ascertain if there is a risk to safety
- Overburden rocks and coarse material shall be placed concurrently in the excavations or stored adjacent to the excavation, if practicable, to be used as backfill material once the mineral or gravel has been excavated.
- An appropriate drainage provisions must be constructed as necessary to accommodate the surface water movement. If the water table is reached during excavations appropriate pumping facilities should be provided.
- Excavated areas should be kept in a safe and stable manner. No unstable block should be present. Reshaping of the proposed mining may need to be done to ensure that this objective is reached. The profiling should be done to match the surrounding landscape
- The proposed mining should be finished in such a manner that it is self draining
- Top soil should be put back on the surfaces and the areas re-vegetated.

VISUAL IMPACTS

- The excavated area must serve as a final depositing area for the placement of overburden. Rocks and coarse material removed from the excavation must be dumped into the excavation.
- Once excavation parts that can be filled have been refilled with overburden, rocks and coarse natural materials, the borrow pit shall be profiled with acceptable contours and erosion control measures, the topsoil previously stored shall be returned to its original depth over the area. The profiling shall be done to match the surrounding landscape as far as is reasonable possible.
- The area shall be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix in order to propagate the locally or regionally occurring flora.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, there may be need for the soil to be analyzed and any deleterious effects on the soil arising from the borrow pit, be corrected and the area be seeded with an indigenous vegetation seed mix that matches the surrounding flora.

EQUIPMENT USED ON SITE

- Only well-maintained vehicles and equipment should be operated onsite and all machinery should be serviced regularly during the proposed mining operation.
- The maintenance of vehicles and some equipment used for any purpose during the proposed mining operation will take place only in the maintenance workshops which are not located on the excavations. No vehicle may be extensively repaired in any place other than in the maintenance yard
- A maintenance schedule should be prepared in order to ensure that equipment is in is best form so as to no cause unnecessary pollution such as noise, emissions and makes effective use of energy.
- Equipment used in the proposed mining process must be adequately maintained so that during operations it does not spill oil, diesel, fuel, or hydraulic fluid.
- Machinery or equipment used on the proposed mining area must not constitute a pollution hazard. No equipment leaking oil should be used. Drip tray should be used to prevent pollution.

NOISE

- Construction activities required outside normal working hours must be approved by the Project Manager, and where necessary, advance warning provided to adjacent residents.
- Noise levels exceeding 85dB shall only be permitted where approved and with appropriate advanced warning to adjacent residents (minimum of 2 days) being provided.
- Noise that could cause a major disturbance should only be carried out during daylight hours and with advance warning provided as above.
- Adequate ear protection should be provided to employees in noisy areas.
- No amplified music shall be allowed at the site.
- Construction vehicles and plant to be in good working order.

f) Motivation where no alternative sites were considered

No location alternatives are applicable to this project since the commodities are contained in the proposed mining area. Locating the development to another area will result in the commodities not being found and the economy and society not benefitting from future proposed possible mining activities. The proposed site for the proposed mining is located within an area which is already severely disturbed as a result of agricultural activities and previous mining practice compare to the breaking down of a new virgin ground.

g) Statement motivating the alternative development location within the overall site

(Provide a statement motivating the final site layout that is proposed.)

The mining of the site is motivated by the need to improve life of the community of Lichtenburg, which is currently faced with poverty due to high unemployment rate and through this project poverty will be alleviated. The proposed mining site is preferred as it is situated on the rightful spot for the mining of the applied commodities reflecting to the previous mining which was taking place thereby.

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

(Including

(i) a description of all the environmental issues and risks that were identified during the environmental impact assessment process and

(ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)

An activity mapping exercise was conducted for the proposed activity, then potential environmental impacts where identified. The DEA impact assessment matrix was used. The impact with medium to high significance requires mitigation/control measures, the following are the possible impacts the project will have on the environment:

- Dust generated during excavation, loading, transportation and offloading of sand and gravel and dust generated by movement of vehicles from mining site to construction site causing air pollution.
- Noise generated by machinery during sand and gravel mining and vehicles while transporting from mining site to construction site.
- Vegetation destruction due to clearing of the site for mining purposes.
- Ecosystem disturbance due to vegetation clearing.
- Erosion causes by removal of vegetation and stripping of top soil to extract the sand and gravel.
- Visual impact due to mining activities, excavations will be enlarged and machinery around the site will disturb the natural visual landscape.
- Exposure of animals to open excavations filled with water resulting in drowning and death.
- Open excavations a danger to animals falling in and breaking limps.
- Improper disposal of waste resulting in land pollution.
- Fuel and oil leakages causing ground and surface water pollution.

i) Assessment of each identified potentially significant impact and risk

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

NAME OF ACTIVITY **E.g. For mining –** excavations, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and pitting and trenching, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, **etc…etc…etc)**	**POTENTIAL IMPACT** (Including the potential impacts for cumulative impacts) (E.g. dusts, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc…etc…etc…)	**ASPECTS AFFECTED**	**PHASE In which impact is anticipated** (e.g. Construction, commissioning, operational, decommissioning, closure, post-closure)	**SIGNIFICANCE If not mitigated**	**MITIGATION TYPE** (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc…etc…etc)	**SIGNIFICANCE If mitigated**
Site Establishment activities (fencing, signage, access formation, etc)	Loss of vegetation	Visual character, Land use	Pre-mining	Medium	Remedy through rehabilitation, Limit footprint	Low
	Habitat	Visual	Pre-mining	Medium	Remedy through rehabilitation,	Low

	Destruction	character			Limit footprint	
	Visual scarring	Visual character	Pre-mining	Medium	Remedy through rehabilitation	Low
	Soil erosion	Visual character, Land use	Pre-mining	Medium	Remedy through rehabilitation, Limit footprint, Control through storm water control	Low
Excavation	Dust emissions	Air quality	Operational Phase	Medium	Control through dust control measures	Low
	Drainage disruption	Drainage	Operational Phase	Medium	Control through storm water controls	Low
	Slope instability	Topography	Operational Phase	Low	Control through slope management controls Low	Low
	Noise	Noise	Operational Phase	Low	Control through noise control measures	Low

	Visual Scarring	Visual Character	Operational Phase	Medium	Remedy through rehabilitation of already worked areas	Low
	Soil erosion	Land use	Operational Phase	Low	Remedy through the rehabilitation of already worked areas, Control through slope control, Stop through appropriate storage of topsoil	Low
	Destruction of heritage resource	Heritage issues	Operational Phase	Low	Avoidance	Low
Waste Disposal and Material storage	Soil contamination	Land degradation	Operational Phase	Low	Avoidance	Low
	Water pollution	Water	Operational Phase	Low	Avoidance	Low
	Increased risk of fire	Safety	Operational Phase	Low	Avoidance	Low

Material handling, hauling and transportation	Dust	Air quality	Operational Phase	Low	Control through dust control measures	Low
	Increased risk of accidents	Safety	Operational Phase	Low	Stop through site management protocols	Low
	Noise	Noise	Operational Phase	Low	Control through noise control measures	Low
	Soil contamination from oil/fuel leaks	Land degradation	Operational Phase	Low	Stop through operational control measures e.g. drip trays and use of well serviced machinery	Low
Removal of infrastructure & equipment and re-shaping of proposed mining	Noise	Noise	Decommissioning and closure	Low	Control through noise control measures	Low
	Dust	Air quality	Decommissioning and closure	Low	Control through dust Control measures	Low
	Soil contamination	Land	Decommissioning	Low	Stop through operational	Low

	from oil/fuel	degradation	and closure		Control measures, e.g. drip trays and use of well serviced machinery	
	Disruption of surface drainage	Water movement	Decommissioning and closure	Low	Control through storm water controls, remedy through rehabilitation	Low
Community and labour relations management	Community conflicts and tensions	Community relations	Operational	Low	Control through Site Management protocols	Low
	Increase risk of fire	Fire risk	Operational	Low	Control through Site Management protocols	Low
	Reduced security on area	Safety Issues	Operational	Low	Control through Site Management protocols	
	Improved employment Improved skills	Community relations Community relations	Operational	Low	Control through Site Management protocols	Low

j) Summary of specialist reports

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

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
There were no specialist reports.			

Attach copies of Specialist Reports as appendices.

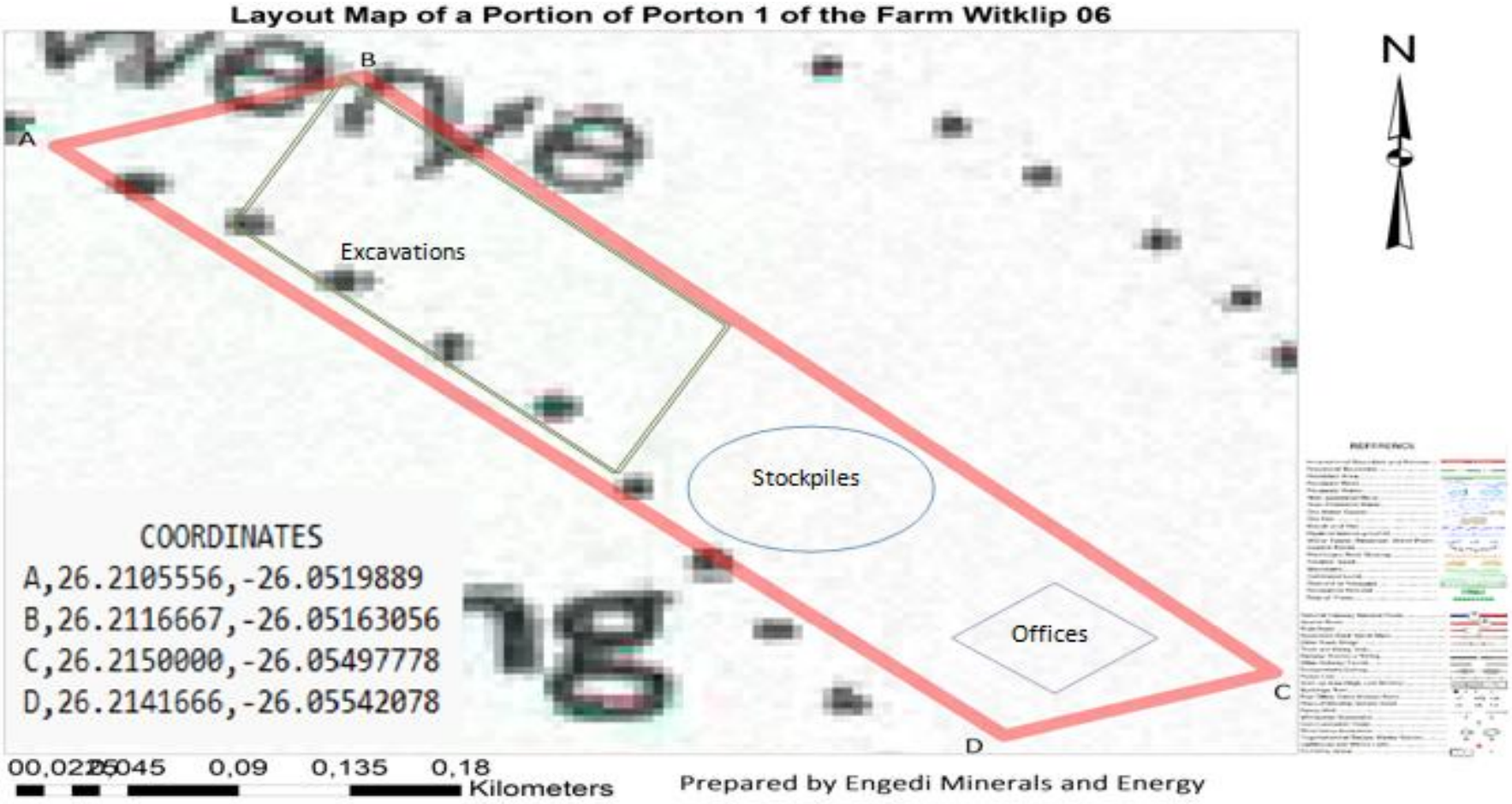
k) Environmental impact statement

i. Summary of the key findings of the environmental impact assessment;

In general, it is recognized that the proposed mining activities has the potential to pose various risks to the environment as well as to the residents or businesses in the surrounding area. Therefore, it is important that these possible risks and key issues are identified during the draft phase of the BAR compilation. These impacts, issues and risks will be addressed in consultation with the I&APs, through an internal process based on similar developments.

ii. Final Site Map

(Provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers) **Attach as Appendix C**



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

No alternatives were considered. The summary of identified positive and negative risks is as follows.

Negative Impacts:

- Visual Impacts
- Noise Impacts
- Air Quality Deterioration
- Disruption of surface drainage
- Destruction of flora and loss of habitat
- Loss of soil and agricultural potential
- Water pollution
- Erosion
- Safety and Security Impacts
- Land Degradation

Positive impacts:

- Creation of employment opportunities
- Training and skills development opportunities

l) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

Based on the assessment and where applicable the recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation

The objectives of impact management are to avoid and/or minimize negative impacts of a proposed development to ensure minimal impact on the environment.
The mitigation measures are detailed in the EMPr which must be provided to the contractor at tendering stage, implemented and monitored.

It is therefore recommended that an Environmental Control Officer be appointed to monitor and audit the project during mining activities to ensure adherence to the recommendations of the EMPr.

m) Aspects for inclusion as conditions of Authorization

Any aspects which must be made conditions of the Environmental Authorization

EMPr must be on site

- The contractor and key personnel must get an understanding of the EMPr.
- An Environmental Control Officer must be appointed to ensure that environmental controls are being implemented, and quarterly reports must be forwarded to the Competent Authority (DMR among others).
- The proponent and contractor must be made aware that they are responsible for rehabilitating the environment they damage to the pre-state of which they found it to be.
- Upon getting done with the mining activity, closure report must be submitted to the competent authority ensuring that all the disturbed environmental features are rehabilitated to the pre mining state.

n) Description of any assumptions, uncertainties and gaps in knowledge

(Which relate to the assessment and mitigation measures proposed)

No specialist were engaged hence some impacts could have been missed.

o) Reasoned opinion as to whether the proposed activity should or should not be authorized

i. **Reasons why the activity should be authorized or not.**

The project will have an advance community development and to fulfill the Integrated Development Plan and mandate of the local municipality to provide services to the community in terms of job creation.

ii. **Conditions that must be included in the authorization**

EMPr must be on site;

- The contractor and key personnel must get an understanding of the EMPr
- An Environmental Control Officer must be appointed to ensure that environmental controls are being implemented, and quarterly reports must be forwarded to the Competent Authority.
- The proponent and contractor must be made aware that they are responsible for rehabilitating the environment they damage to the pre-state of which they found it to be.
- Upon getting done with the mining activity, closure report must be submitted to the competent authority.

p) Period for which the Environmental Authorisation is required

The Environmental Authorisation is required for the duration for which a mining permit is being applied for a period of 5 years

q) **Undertaking**

Confirm that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Basic Assessment Report and the Environmental Management Programme report.

Herewith I, the person whose name and identity number is stated below, confirm that I am the person authorised to act as representative of the applicant in terms of the resolution submitted with the application, and confirm that the above report comprises BAR and EMPr compiled in accordance with the guideline on the Departments official website and the directive in terms of sections 29 and 39 (5) in that regard, and the applicant undertakes to execute the Basic Assessment Report and Environmental Management Programme as proposed.	
Full Names and Surname	**TSHIMANGADZO MULAUDZI**
Identity Number	**8803265731082**

r) Financial provision

State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation. The amount will be R 72 933-25.

i. **Explain how the aforesaid amount was derived.**

The financial provisions were derived in order to ensure that the amount of money required for rehabilitation and remediation of environmental impacts and associated damage as well as close-out is provided for and adequately calculated. The money would cover decommissioning and final closure of the operation; and post closure management of residual and latent environmental impacts. The amount was based on an assessment of the expected operational activities that will take place, the level of disturbance damage expected, the sensitivity of the area and the amount of work that is required to bring the site back to a self-sustaining ecosystem again. Consideration on how much it will cost to get labour, material and equipment used for the rehabilitation were also considered.

Calculation of the quantum of the financial provision required to manage and rehabilitate the environment has been worked out.

Applicant:	HRI VAN DER MERVE - NW 10999 MP				Location:	Lichtenburg
Evaluator(s)	Engedi Minerals and Energy (Pty) Ltd				Date:	Mar-22

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 (including overland conveyors and powerlines)	m3	0	19	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	271	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	400	1	1	0
3	Rehabilitation of access roads	m2	5,00	49	1	1	245
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	471	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	3	257	1	1	771
5	Demolition of housing and/or administration facilities	m2	0	542	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0,01	284292	1	1	2842,92
7	Sealing of shafts adits and inclines	m3	0	146	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0,01	189528	1	1	1895,28
8 (B)	Rehabilitation of processing waste deposits and evaporatic ponds (non-polluting potential)	ha	0,1	236054	1	1	23605,4
8 (C)	Rehabilitation of processing waste deposits and evaporatic ponds (polluting potential)	ha	0	685612	1	1	0
9	Rehabilitation of subsided areas	ha	0,1	158701	1	1	15870,1
10	General surface rehabilitation	ha	0,01	150138	1	1	1501,38
11	River diversions	ha	0	150138	1	1	0
12	Fencing	m	0	171	1	1	0
13	Water management	ha	0,1	57087	1	1	5708,7
14	2 to 3 years of maintenance and aftercare	ha	0	19980	1	1	0
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
					Sub Total 1		52439,78

1	Preliminary and General	6292,7736	weighting factor 2 1	6292,7736
2	Contingencies	5243,978		5243,978
			Subtotal 2	63976,53
			VAT (15%)	8956,71
			Grand Total	**R 72 933,25**

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

(Confirm that the amount is anticipated to be an operating cost and is provided for as such in the Financial and Technical Competence Report (Ftat) or Mining Work Programme as the case may be).

Financial provision has been made available through the company's cash reserves. The reserves provide for sufficient funds for premature and planned closure of the mining operation. The quantum for financial provision for rehabilitation will be re-assessed on an annual basis and arrangement to fund shortfalls will be made.

s) Specific information required by the Competent Authority

i. **Compliance with the provisions of sections 24(4)(a) and (b) read with section 24(3)(a) and (7) of the National Environmental Management Act (Act 107 of 1998). The EIA report must include the:**

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

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

Safety of people, even animals if the open excavations are not fenced off and guarded. If water accumulates after rain, there is a risk of drowning and death. The open excavations are also a risk to animals falling in and breaking limps. The high vehicle movement to and from the excavation to the stock piling site is a risk to accidents. Socio-economic impact will be due the job creation and revenue generation for the Ditsobotla municipality Local Economic Development.

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

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

No historical or cultural sites where identified by the previous miners. In case any human remains are excavated during operation, work should be stopped and a report made to the police and SAHRA for removal of the human remains.

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

(the EAP managing the application must provide the competent authority with detailed, written proof of an investigation required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation 22(2)(h), exist. The EAP must attach such motivation as **Appendix B**).

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1.6 Draft environmental management programme

a) Details of the EAP

(Confirm that the requirement for the provision of the details and expertise of the EAP are already included in PART A, section 1(a) herein as required).

Mulaudzi has been carrying out Environmental Impact Assessment Procedure since 2012, in 2012, he joined a large mining consulting company in Kimberly called Breeze Court Investments 47 (Pty) Ltd (Geologist and Mining Consulting firm). This is where Mr Mulaudzi acquired in-depth experience and know how in the mining consulting business by assisting the large to small scale mining companies to obtain prospecting right, mining rights, mining permits, technical co-operate permits, reconnaissance permits, exploration rights, production rights, integrated water use license, and environmental authorisation among other licenses.

Mulaudzi has five years working experience in environmental management, geology and public participation process.

b) Description of the Aspects of the Activity

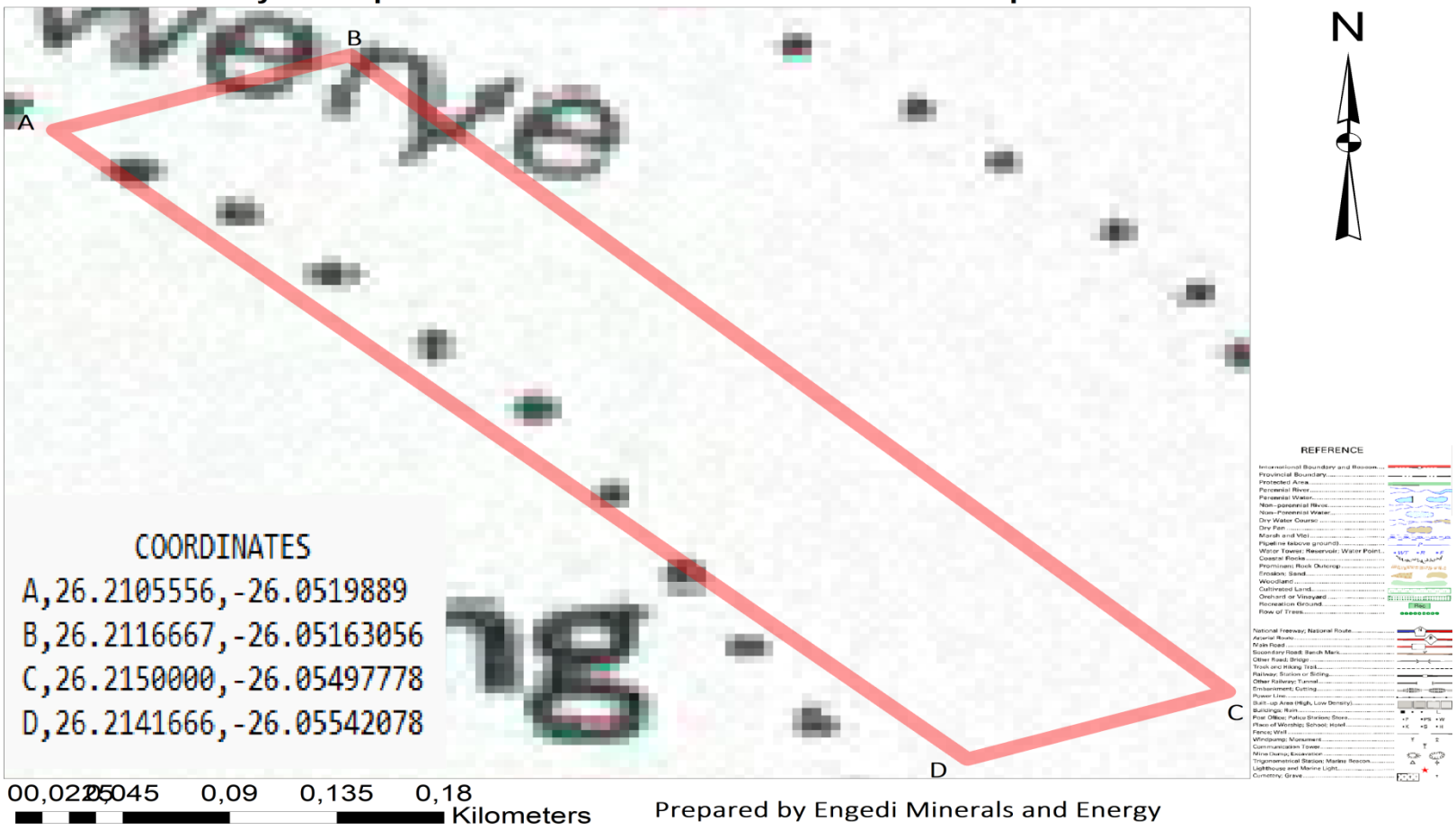
(Confirm that the requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section (1)(h) herein as required).

I, Tshimangadzo Mulaudzi, hereby confirm that the requirements to describe the aspects of the activity that are covered by the draft environmental management programme are already included in PART A, section 1(h) herein.

c) Composite Map LAYOUT MAP

(Provide a map **(Attached as an Appendix)** at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers)

Layout Map of a Portion of Porton 1 of the Farm Witklip 06



Prepared by Engedi Minerals and Energy

d) Description of Impact management objectives including management statements

i. **Determination of closure objectives.**

(ensure that the closure objectives are informed by the type of environment described)

The following closure objectives will be applicable for rehabilitation:

- Return the disturbed area to an acceptable post mining state
- Ensure that all areas are stable, and there is no risk of erosion
- Prevent alien plant invasion on the site until the site is in a stable state
- Ensure that all areas are free draining and non-polluting

If the commitments in this EMPr are adhered to and rehabilitation is undertaken as described above, it is not anticipated that there will be any long-term management or maintenance required for areas disturbed during mining.

ii. Volumes and rate of water use required for the application.

The mining operation requires no water.

iii. Has a water use license been applied for?

N/A

iv. Impacts to be mitigated in their respective phases measures to rehabilitate the environment affected by the undertaking of any listed activity

ACTIVITIES **E.g. For mining –** excavations, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and pitting and trenching, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, **etc…etc…etc)**	**PHASE** (Of operation in which activity will take place. State; Planning and design, Pre-Construction, Construction, Operational, Rehabilitation, Closure, Post closure)	**SIZE AND SCALE of disturbance** (volumes, tonnages and hectares or m^2)	**MITIGATION MEASURES** (describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	**COMPLIANCE WITH STANDARDS** (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	**TIME PERIOD FOR IMPLEMENTATION** Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard Rehabilitation, therefore state either – • Upon cessation of the individual activity Or • Upon cessation of mining as the case may be.
Site Establishment activities (fencing, signage, access formation, etc.)	Start-up	± 0.01ha	Dust Suppression Service equipment to reduce noise No loud music.	Issues of compliance with standards will be incorporated into the day to day business activities at the proposed mining. The work methods used the monitoring and measures done and the review processes will be aimed at ensuring that legal	During start up, operational phase

				thresholds as set out in the environmental standards are complied with. This will include compliance with standards as per COLTO 1998, the standards as per Mining and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations, National Water Act regulations. COLTO 1998 Refers to - Standard Specification for Road and Bridge Works for State Road Authorities by the South African Committee of Land Transport Officials.	
Excavation of material	Operational	± 1 ha	Dust control measures Worker to wear dust mask Service equipment to reduce noise No loud music.	Management of legal compliance will be incorporated into normal business activities. This means that particular responsibilities need to be clearly defined for the identification of relevant issues and delivery of compliance. This will help to ensure that adequate resources are available to support these activities. Environmental standards as set out in COLTO 1998, Mining and Petroleum Resources Development Act regulations, Mine Health and	Operational Phase

				Safety Act regulations	
Waste Disposal and Material storage	Operational	Undetermined	Dust control net or wetting of top to prevent the dust being blown away. Service of vehicles to control noise &exhaust fumes	The waste management hierarchy and the proximity principle will be used in ensuring that the environmental standards as set out in COLTO 1998 and the National Environmental Management Waste Act regulation and National Water Act regulation, are complied with.	Operational Phase
Material handling, hauling and transportation	Operational	Undetermined	Dust control net or wetting of top to prevent the dust being blown away. Service of vehicles to control noise &exhaust fumes Speed control	Issues of compliance with standards will be incorporated into the day to day business activities at the proposed mining to ensure that legal thresholds as set out in the environmental standards are complied with. This will include compliance with standards as per COLTO 1998, the standards as per Mining and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations, National Water Act regulations, Mine Health and Safety Act regulations.	Operational phase

Removal of infrastructure & equipment	Decommissioning and closure phases	Affected areas.	Dust control measures Worker to wear dust mask Service equipment to reduce noise No loud music	The recommendations will incorporate factors that include the elimination or the minimization of negative impacts in the work methodologies used during decommissioning so as to comply with the standards as per COLTO 1998, Mining and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations and the National Environmental Management Act.	At decommissioning
Re-shaping of proposed mining	Decommissioning and closure	± 0.04 ha	Dust control measures Worker to wear dust mask Service equipment to reduce noise No loud music	Considerations with the elimination or at least the minimization of any future impacts from the proposed mining and the long term stability of the facility and any concerns in relation to the long term liability for the proposed mining and its aesthetics will be incorporated in order to ensure compliance with standards as set out in COLTO 1998, Mine Health and Safety Act regulations, National Environmental Management Act and National Water Act regulations.	Closure period

Community and labour relations management	Operational	N/A	Mining will comply with the employees standards for mining	Will comply with standards as per COLTO 1998, Basic Conditions of Employment Act regulations, Employment equity Act, Labour Relations Act and Skills Development Act	During Operational Phase
Revegetation of disturbed areas	Closure	± 0.01 ha	Rehabilitation will be done concurrent to mining	The future impacts from the proposed mining and the long term stability of the area, any concerns in relation to the long term liability for the facility and its aesthetics will be taken into account to ensure compliance with the environmental standards as set out in COLTO 1998, the National Environmental Management Act, Conservation of Agricultural resources Act, National Environmental Management Biodiversity Act regulations.	During Operational Phase in sections where mining has been completed and during closure

e) Impact Management Outcomes

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

ACTIVITY (whether listed or not listed) **(E.g. Excavations, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and pitting and trenching, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc)**	**POTENTIAL IMPACT** **(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc…etc…etc…)**	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated **(e.g. Construction, commissioning, operational, decommissioning, closure, post-closure)**	**MITIGATION TYPE** **(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc…etc…etc…)**	**STANDARD TO BE ACHIEVED** **(Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives etc…etc…etc…)**
Site Establishment activities (fencing, signage, access formation, etc.)	Loss of vegetation	Visual character, land use	Start-up	Remedy through rehabilitation Limit footprint	Impact managed effectively, Rehabilitate to a self-sustaining environment
	Habitat Destruction	Visual character, land	Start up	Remedy through rehabilitation Limit footprint	Impact reduced

		use			
	Visual scarring	Visual character	Start up and operational	Remedy through rehabilitation	Impact managed effectively
	Soil erosion	Visual character, land use	Start up and operational	Remedy through rehabilitation, Storm water control. Limit footprint, Control through storm water control	Impact avoided
Excavation	Dust emissions	Air quality	Operational Phase	Control with dust control measures	Particulates reduced to acceptable levels
	Drainage disruption	Drainage	Operational Phase	Control with Storm water controls	Good surface water run-off established
	Slope instability	Topography	Operational Phase	Control with slope management controls	Stable surfaces established
	Noise	Noise	Operational Phase	Control with Noise control measures	Noise reduced to acceptable levels
	Visual Scarring	Visual Character	Operational Phase	Rehabilitation	Impact managed effectively, residual impact reduced
	Soil Land erosion	Land use	Operational Phase	Rehabilitation, use slope management control	Impact levels avoided

	Destruction of heritage	Heritage issues	Operational Phase	Avoidance	Impact Avoided
Waste Disposal and Material storage	Soil contamination	Land degradation	Operational Phase	Avoidance, Operational control measures	Impact Avoided
	Water pollution	Water	Operational Phase	Avoidance, Operational control measures	Impact Avoided
	Increased risk of fire	Safety	Operational Phase	Avoidance, Operational control measures	Impact avoided or managed to low levels
Material handling, hauling and transportation	Dust	Air quality	Operational Phase	Dust Control measures	Particulates reduced to acceptable levels
	Increased risk of accidents	Safety	Operational Phase	Site management protocols	Accidents avoided or reduced to low levels
	Noise	Noise	Operational Phase	Noise control measures	Noise reduced to acceptable levels
	Soil contamination from oil/fuel leaks	Land degradation	Operational Phase	Operational control measures	Impact managed to suitable soil fertility levels
Removal of infrastructure &	Noise	Noise	Decommissioning and closure	Control with noise control measures	Noise levels reduced to acceptable levels

equipment and re-shaping of proposed mining					
	Dust	Air quality	Decommissioning and closure	Control with dust control measures	Particulates reduced to acceptable levels
	Soil contamination from oil/fuel	Land degradation, water pollution	Decommissioning and closure	Control with operational control measures	Impact managed to suitable soil fertility levels, pollution of water avoided
	Disruption of surface drainage	Water movement	Decommissioning and closure	Control with storm water controls	Free drainage achieved
Community and labour relations management	Community conflicts and tensions	Community relations	Operational	Control using site management protocols	Reduction in complaints and incidences of conflict
	Increased risk of fire	Fire risk	Operational	Control using site management protocols	Fires avoided and risk reduced
	Reduced security on area	Safety Issues	Operational	Control using site management protocols	Improvement in security and elimination of theft incidences
	Improved employment	Community relations	Operational	Control using site management protocols	Increase in number of people employed
	Improved skills	Community relations	Operational	Control using site management protocols	Improvement in skills level

f) Impact Management Actions

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

ACTIVITY (whether listed or not listed) **(E.g. Excavations, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and pitting and trenching, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc)**	**POTENTIAL IMPACT** **(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc…etc…etc…)**	**MITIGATION TYPE** **(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc…etc…etc…)**	**TIME PERIOD FOR IMPLEMENTATION** Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard Rehabilitation, therefore state either – • Upon cessation of the individual activity Or Upon cessation of mining, as the case may be.	**COMPLIANCE WITH STANDARDS** (A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities).
Site Establishment activities (fencing, signage, access formation, etc.)	Loss of vegetation	Remedy through rehabilitation	Start-up	Issues of compliance with standards will be incorporated into the day to day business activities at the proposed mining. The work methods used the monitoring and measures done and the review processes will be aimed at

				ensuring that legal thresholds as set out in the environmental standards are complied with. This will include compliance with standards as per COLTO 1998, the standards as per Mining and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations, National Water Act
	Habitat Destruction	Limit footprint	Start-up	
	Visual scarring	Remedy through rehabilitation	Start up and operational	
	Soil erosion	Limit footprint	Start up and operational	
Excavation	Visual scarring	Remedy through rehabilitation	Operational Phase	The work methods used, the monitoring and measurements done and the review processes will be aimed at ensuring that legal thresholds as set out in the environmental standards are complied with. This will include compliance with standards as per COLTO 1998, the standards as per Mining and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations, and Conservation of Agricultural
	Destruction of flora and habitat	Remedy through rehabilitation	Operational Phase	
	Loss of agricultural potential	Soil conservation techniques, Limit footprint of the proposed mining	Operational Phase	
	Soil erosion	Remedy through	Operational Phase	

		rehabilitation, Storm water control		Resources Act.
	Dust emissions	Control with dust control measures	Operational Phase	
Waste Disposal and Material storage	Dust	Control with dust control measures Control with blast control measures	Operational Phase	This will be achieved by clearly outlining the environmental standards to be achieved and the thresholds which are not to be exceeded in the management system used at the site. This will include compliance with standards as per COLTO 1998, Explosive Act regulations, Mine Health and Safety Act Regulations and the Hazardous Substances Act
	Soil contamination	Avoidance, Operational control measures	Operational Phase	
Material handling, hauling and transportation	Water pollution	Avoidance, Operational control measures	Operational Phase	The waste management hierarchy and the proximity principle will be used in ensuring that the environmental standards as set out in COLTO 1998 and the National Environmental Management Waste Act regulation and National Water Act regulation, are complied with.
	Increased risk of fire	Avoidance, Operational control measures	Operational Phase	
	Dust	Control with dust Control measures	Operational Phase	
Removal of infrastructure &	Increased risk of accidents	Site management protocols	Operational Phase	Issues of compliance with standards will be incorporated into the day to day

equipment and re-shaping of proposed mining				business activities at the proposed mining to ensure that legal thresholds as set out in the environmental standards are complied with. This will include compliance with standards as per COLTO 1998, the standards as per Mining and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations, National Water Act regulations, Mine Health and Safety Act regulations
	Noise	Control with noise control measures	Operational Phase	
	Soil contamination from oil/fuel leaks	Control with operational control measures	Operational Phase	
	Noise	Control with noise control measures	Decommissioning and closure	
Community and labour relations management	Dust	Control with dust control measures	Decommissioning and closure	The recommendations will incorporate factors that include the elimination or the minimization of negative impacts in the work methodologies used during decommissioning so as to comply with the standards as per COLTO 1998, Mining and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations and the National Environmental Management Act.
	Soil contamination from oil/fuel	Control with operational control measures	Decommissioning and closure	
	Disruption of surface drainage	Control with storm water controls	Decommissioning and closure	
	Community conflicts and tensions	Control using site management protocols	Operational	

b. Financial Provision

1. Determination of the amount of Financial Provision.

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

The DPR acknowledges that a proposed mining is a temporary land use which results in areas of land being temporarily disturbed. Whilst steps are taken throughout the project life cycle to reduce negative environmental impacts as they occur, the specific closure objectives are as follows:

- To create a post mining environment that eliminates unacceptable health hazards and ensures public safety.
- To leave the site in a stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post mining operational use.
- To minimise or eliminate the downstream environmental impacts on the ecosystem due to interruption of drainage once the proposed mining operations cease.
- To establish a stable post-mining land surface which has been rehabilitated that also supports vegetation growth, is erosion resistant and has long term sustainability.
- To reduce the need for long-term monitoring and maintenance by establishing.

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

Yes it is confirmed.

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.

Rehabilitation plan

The exact location and extent of the mining activities, including the need for construction of new access tracks, will be determined once all available information has been evaluated. It is therefore not possible to include a rehabilitation plan showing the areas and aerial extent of the main mining activities, including the anticipated mining area at the time of closure. The extent of the proposed mining area is however shown in.

The following environmental controls will be implemented during mining to aid or reduce rehabilitation:

- The environment will be returned to its original state, as far as possible. No physical infrastructure will be left on the site.
- Vegetation cleared from each excavations development will be stored within / adjacent to the excavations site for final rehabilitation.
- Topsoil will be stripped within the excavations site, to a depth of 300mm, and placed separately within the excavations site. All topsoil removed will be appropriately protected from erosion for use during rehabilitation.
- Where vegetation has been removed, they shall be re-established systematically where they used to be.
- The area will be level and even, in a natural state containing no foreign debris or other materials and to ensure ecological, hydrological and topographical integrity.
- Mining activities will be restricted to the designated mining sites and agreed upon access tracks. No further disturbances will be permitted.
- Following rehabilitation the site will blend suitably with the surrounding environment.

Rehabilitation of excavations

- Progressive rehabilitation will be undertaken during mining (Concurrent rehabilitation). Each excavations and associated disturbed areas will be rehabilitated when excavations is completed at each excavations site.
- Once the excavations has been refilled with rocks and coarse natural materials and profiled with acceptable contours and erosion control measures, the topsoil will be replaced across the disturbed area and shaped to allow a free draining surface. No ponding on the disturbed area will be allowed.
- Cleared vegetation will be used as brush-cut packing on the disturbed areas after rehabilitation to prevent erosion while natural vegetation re-establishes. NO alien plant material will be used for this purpose.
- In cases where native vegetation has been removed or damaged and where re-vegetation is required, species endemic to the area will be re-established.
- An inspection will be held after rehabilitation to determine alien and invasive species growth and the necessary corrective action will be implemented.

Closure objectives and their extent of alignment to the pre-mining environment

The following closure objectives will be applicable for rehabilitation:

- Disturbed land will be rehabilitated to a stable and permanent form suitable for subsequent land use.
- There will be no adverse environmental effect outside the disturbed area and the affected area will be shaped to ensure effective drainage and prevent ponding on site.
- The disturbed area will not require any more maintenance than that in or on surrounding land after mining is completed.

If the commitments in this BAR are adhered to and rehabilitation is undertaken as described above, it is not anticipated that there will be any long-term management or maintenance required for areas disturbed during mining

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

The following closure objectives will be applicable for rehabilitation:

- Return the disturbed area to an acceptable post mining state.
- Ensure that all areas are stable and there is no risk of erosion,
- Prevent alien plant invasion on the site until the site is in a stable state, and
- Ensure that all areas are free draining and non-polluting.

The mining operations area is within the agricultural grazing land. The continuous rehabilitation program will attempt to restore the area to an acceptable standard as close to the baseline environmental state as possible to ensure safe use of the area for grazing purpose.

If the commitments in this EMPr are adhered to and rehabilitation is undertaken as described above, it is not anticipated that there will be any long-term management or maintenance required for areas disturbed during mining. Thus the rehabilitation plan is compatible with the closure objectives.

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

Applicant:	HRI VAN DER MERWE - NW 10999 MP	Location:	Lichtenburg
Evaluator(s)	Engedi Minerals and Energy (Pty) Ltd	Date:	Mar-22

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 (including overland conveyors and powerlines)	m3	0	19	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	271	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	400	1	1	0
3	Rehabilitation of access roads	m2	5,00	49	1	1	245
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	471	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	3	257	1	1	771
5	Demolition of housing and/or administration facilities	m2	0	542	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0,01	284292	1	1	2842,92
7	Sealing of shafts adits and inclines	m3	0	146	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0,01	189528	1	1	1895,28
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0,1	236054	1	1	23605,4
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	685612	1	1	0
9	Rehabilitation of subsided areas	ha	0,1	158701	1	1	15870,1
10	General surface rehabilitation	ha	0,01	150138	1	1	1501,38
11	River diversions	ha	0	150138	1	1	0
12	Fencing	m	0	171	1	1	0
13	Water management	ha	0,1	57087	1	1	5708,7
14	2 to 3 years of maintenance and aftercare	ha	0	19980	1	1	0
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
					Sub Total 1		52439,78

1	Preliminary and General	6292,7736	weighting factor 2 1	6292,7736
2	Contingencies	5243,978		5243,978
			Subtotal 2	63976,53
			VAT (15%)	8956,71
			Grand Total	**R 72 933,25**

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

Yes it is confirmed.

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

g) **Monitoring of Impact Management Actions**
h) **Monitoring and reporting frequency**
i) **Responsible persons**
j) **Time period for implementing impact management actions**
k) **Mechanism for monitoring compliance**

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Site Establishment activities (fencing, signage, access formation, etc.)	Loss of vegetation, Habitat destruction, Visual scarring, Soil erosion	Visual checks, monitoring incidences of non-compliance, recording of key parameters	Appointed Contractor	At start and as and when required. Record incidences of non-compliance monthly.
Excavation	Dust emissions, Drainage disruption, Slope instability, Visual Scarring, Soil erosion, Destruction of heritage resource	visual checks, monitoring incidences of non-compliance, recording of key parameters	Appointed Contractor	At start and as and when required. Record incidences of non-compliance monthly.

Waste Disposal and Material storage	Soil contamination, Water pollution, Increased risk of fire	Visual checks, monitoring incidences of non-compliance, recording of key parameters	Appointed Contractor	At start and as and when required. Record incidences of non-compliance monthly.
Material handling, hauling and transportation	Dust, Increased risk of accidents, Noise, Soil contamination	Visual checks, monitoring incidences of non-compliance, recording of key parameters	Appointed Contractor	At start and as and when required. Record incidences of non-compliance monthly.
Removal of infrastructure & equipment and re-shaping of proposed mining	Noise, Dust, Soil contamination, Disruption of surface drainage	Visual checks, monitoring incidences of non-compliance, recording of key parameters	Appointed Contractor	At start and as and when required. Record incidences of non-compliance monthly.
Community and labour relations management	Community conflicts and tensions, Increase risk of fire, Reduced security on area, Improved employment rates, Improved skills	Visual checks, monitoring incidences of non-compliance, recording of key parameters	Appointed Contractor	At start and as and when required. Record incidences of non-compliance monthly.

l) Indicate the frequency of the submission of the performance assessment/environmental audit report

The BAR and EMPr will be audited by an independent party on an annual basis to determine the level of compliance. The results of this audit will be used to improve environmental management procedures, where required. The audit report will also be submitted to the Department of Mineral Resources (DMR) upon completion.

m) Environmental Awareness Plan

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

Induction (including environmental awareness) training will be conducted on all people involved in the mining programme, including truck drivers, mine managers crew and relevant technical services, prior to the commencement of any work; according to the relevant legislation, **Engedi Minerals & Energy (Pty) Ltd** Standard Operational Procedures (SOPs) and this EMP. **Engedi Minerals & Energy (Pty) Ltd** will do in-house training, should it be necessary to its personnel on site. The mining contractor will be responsible for training its mining crew and supervisor.

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

1.7 Description of solutions to risks

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

It is essential that people involved in the mining programme know how to respond in the event of an environmental emergency situation in order to avoid significant environmental degradation or injury to human health. Ideally such incidents should not occur. If people involved in the mining programme implement all management measures outlined in this EMPr, the likelihood of such incidents occurring is greatly reduced. However, despite the best intentions and the best environmental management practices, it is impossible to ensure that no incidents will ever occur

during mining activities. Therefore, it is vital to ensure that all personnel are aware of the management measures to be undertaken in the event of an accident.

Two emergency incidents have been identified:

- Hydrocarbon spills.
- The outbreak of fire.

Emergency incident procedures are outlined below. An Environmental Officer will be appointed to the project to manage all environmental related aspects of the mining programme.

Emergency planning

- The site and all people involved in the mining programme are to be managed in strict accordance with the Occupational Health and Safety Act (Act No. 85 of 1993).
- Potentially hazardous areas are to be cordoned off and clearly marked at all times.
- No unauthorized firearms are permitted on site.
- Adequate emergency facilities (e.g. first aid kit) must be provided for the treatment of an emergency on site.
- Emergency contact numbers are to be displayed conspicuously.
- Necessary Personal Protective Equipment (PPE) and safety gear appropriate to the task being undertaken is to be provided to all personnel working on site (e.g. hard hats, safety boots, ear plugs, masks, etc.).
- All vehicles and equipment used on site must be operated by appropriately trained and/or licensed individuals in compliance with all safety measures.

Management of fire risks

- Each mining site will be cleared of vegetation.
- "No Smoking" signs must be prominently displayed.
- Fires will only be allowed within a facility especially constructed for the purpose of keeping warm and for cooking.

- No burning of refuse or vegetation is permitted.
- Fire equipment must be easily accessible.
- Fire equipment must be serviced, full and in good working order.

Management of spills

- Ensure that a proper spill-kit is available on site. The kit must include absorptive material that can handle all forms of hydrocarbon.
- Ensure that any hydrocarbon spills are cleaned up as soon as possible.
- At least one person on site must receive formal training in the use of the spill control kit.
- Equipment is to be required immediately upon developing leaks.
- A drip tray, a thin concrete slab or a PVC lining shall be used to prevent soil and water contamination.
- All spills on site must be reported to the Control Environmental Officer (CEO).
- Spread absorbent sand on areas where oil spills have occurred. Oil-contaminated soils are to be removed to a contained storage area and disposed of appropriately.
- Non-degradable waste must be collected and disposed of at a registered waste site.

Incident reporting

- The supervisor on site must take corrective action to mitigate an incident appropriate to the nature and scale of the incident, immediately after the occurrence of the incident.
- Residual environmental damage that remains after having taken corrective action must be rehabilitated.
- Change operating procedures where necessary to prevent recurrence of similar incident.
- All incidents must be recorded in an Environmental Incident Report, within 24 hours of the incident occurring. Additional documents, including photos must be appended to the incident report to provide a comprehensive record of the incident and the corrective and preventative action taken.

- All incidents will be investigated in collaboration with the Environmental Officer. The focus of these investigations shall not be to apportion blame to specific employees, but to ascertain the root cause of the incident and to prevent a recurrence of similar incidents.

1.8 Environmental awareness training

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

A number of key elements must be addressed during an environmental awareness training session, since it is recognised that the majority of employees are generally not informed about the environment. The following key elements must be addressed:

- An explanation of the basic key concepts;
- The importance of the environment, including the management thereof;
- Examples of environmental degradation;
- The role that the employees have in protecting the environment;
- Examples of pollution;
- Simple, easy-to-follow rules to protect the environment; and
- South African laws which protect the environment.

All people involved in the mining programme must receive environmental awareness training, to ensure that they are aware of their responsibilities and are competent to carry out their work in an environmentally acceptable manner. The training must also contain all relevant sections of the EMPr and must be presented in a clear, understandable manner. Relevant sections of the EMPr include:

- Access, including use of roads, tracks, gates, etc.;
- Control measures required to manage excluded and exempted areas;
- The handling, storage and disposal of waste;
- Emergency response procedures;
- Control of alien and invasive plant species;
- Fire prevention;

- Sediment and erosion control;
- Control measures to be implemented with regards to the management of water, noise and dust; and
- Rehabilitation of excavations sites and access tracks.

This training may take the form of a PowerPoint presentation, information posters or pamphlets, and other easily accessible methods of information communication.

n) Specific information required by the Competent Authority

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

The BAR and EMPr will be audited by an independent party on an annual basis to determine the level of compliance. The results of this audit will be used to improve environmental management procedures, where required. The audit report will also be submitted to the Department of Mineral Resources (DMR) upon completion.

HRI VAN DER MERWE will undertake rehabilitation to minimise negative impacts on the environment.

APPENDIX A

THE CV AND DECLARATION OF OATH OF THE EAP

CURRICULUM VITAE

OF

Tshimangadzo Mulaudzi

P.O Box 29567

Danhof

93120

Contacts: 0793626046 / 072 901 0990

E-mail: mulaudzit@engedime.com

Date of Birth: 26 March 1988

Nationality : South African

Languages : Speak and write (English and Tshivenda).

ID : 8803265731082
Gender: Male

Driver's license: Code 10 (C1)

Health status : Excellent

EDUCACTIONAL QUALIFICATION

Institution	:	Litshovhu High School
Qualification	:	Grade 12 (Senior Certificate)
Major subject passed	:	Mathematics, Physical Science, Biology, Agric, English and Tshivenda all in Higher Grade.
Year	:	2006

Institution	:	University of Venda
Qualification	:	BSc (Honours). Mining and Environmental Geology
Subject passed	:	See attached Academic Record
Year	:	2011

SUMMARY

I am a Candidate in a possession of a BSc (Hons) in Mining and Geology with vast variety of experience in Geological, Geochemical, Geophysical Exploration, and Managing of a Manufacturing team. Currently I am working as a Consultant Geologist at Breeze Court Investments 47 (Pty) Ltd and i have gained experience in Map Production (Using ArcGis), Identification of Minerals, and Applications for (Prospecting Right, Mining Right, and Mining Permit on DMR Samradonline portal), Petroleum applications (Compilation of EMP, EIA, Progress report, Environmental Performance Assessment, Closure application, and Mineral Laws Administration (knowledge of MPRDA, 2002, NWA, 1998, NEMA, 1998, NHRA, 1999, MHSA, 1996, Mining Charter, 2010 and Freedom Charter, 1955.).

I have also worked with the small scale miners in the region of Northern Cape, North west and North West helping them with the application for Mining permit, prospecting right and also attend the site inspection with the officials from Department Mineral Resources to help the small scale miners to comply with the legislation of the department.

I served at the Makhado Municipality for two (2) years under Local Economic Development as an Intern (**In Mining, Environmental and Geology Sectors)** and was attending seminars on Local Economic Development issues, interacting with the stake holders and helping the Small Micro Medium Enterprises (SMME's) to get funds from the sponsors.

EMPLOYMEMT HISTORY

Job title	:	Trainee Mine Geologist
Name of organization	:	Agnes gold mine
Period	:	June 2010 – June 2011 (1 year)
Experiences and skills	:	Face mapping, stope observing, continuous sampling, Geological data capturing, Report writing and Geological mapping.

Job title	:	Chief production, quality, and safety officer
Name of Organization	:	Tshedza concrete art
Period	:	January 2012 – January 2013 (1 year, 1 month)

Experiences and skills	:	Managing high quality production and enforcing safe working Environment for workers
Job title	:	LED Intern (in Mining, Environmental and Geology)
Name of Organization	:	Makhado Local Municipality (Limpopo)
Period	:	February 2013 – December 2014 (11 Months)
Experiences and skills	:	To formulate and implement measures and procedures to Facilitate for the development of SMME's. Implement Measures, processes, and procedures to attract the Investors, Facilitate and implement job creation projects and initiatives. Formulate, review and update LED plans in alignment with the Province and District Municipality. Facilitate and create Partnership with regard to service provider, trade exhibitions, Corporate and SMME's.
Job title	:	Consultant Environmental Geologist and GIS specialist
Name of organization	:	Breeze court investment (Pty) Ltd Geol & Min Consultants
Period	:	January 2014 – January 2015
Experiences and skills	:	Map Production (Using ArcGis), Identification of Minerals, and Applications for (Prospecting Right, Mining Right, and Mining Permit on DMR Samradonline portal), Technical Cooperation Permit, Reconnaissance Permit, Exploration Right, Production right (Petroleum applications) Compilation of EMP, EIA, Environmental Authorisation, Progress report, Environmental Performance Assessment, Closure application, and Mineral Laws Administration (Broad knowledge of MPRDA, 2002), Assisting small scale miners in the region of Northern Cape, North West, and North west with application for Mining permit and Prospecting right, help them with compliance in terms of the MPRDA, 2002. Also do the site inspection with the officials from Department of Mineral Resources, and help the miners and management to comply with the statutory while operating and always work in a safe working conditions and enforce also that the act of one employee must be safer towards another employee to achieve zero harm.

Job title	:	Consultant Environmental Geologist and GIS specialist
Name of organization	:	Engedi Minerals and Energy (Pty) Ltd
Period	:	February 2015 – Present
Experiences and skills	:	Map Production (Using ArcGis), Identification of Minerals, and Applications for (Prospecting Right, Mining Right, and Mining Permit on DMR Samradonline portal), Technical Cooperation Permit, Reconnaissance Permit, Exploration Right, Production right (Petroleum applications) Compilation of EMP, EIA, Environmental Authorisation, Progress report, Environmental Performance Assessment, Closure application, and Mineral Laws Administration (Broad knowledge of MPRDA, 2002), Assisting small scale miners in the region of Northern Cape, North West, and North west with application for Mining permit and Prospecting right, help them with compliance in terms of the MPRDA, 2002. Also do the site inspection with the officials from Department of Mineral Resources, and help the miners and management to comply with the statutory while operating and always work in a safe working conditions and enforce also that the act of one employee must be safer towards another employee to achieve zero harm.

Knowledge of Legislations and Acts

Constitution of the Republic of South Africa No.108 of 1996

Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002)

Mineral and Petroleum Resources Development Act Amendments bill 15 of 2013

Mineral and Petroleum Resources Development Act Regulations

National Water Act, 1998 (Act 36 of 1998)

Mine Health and Safety Act, 1996 (Act 29 of 1996)

National Heritage Resources Act, 1999 (Act 25 of 1999)

National and Environmental Management Act, 1998 (Act 107 of 1998)

Public Finance Management Act, 1999 (Act 1 of 1999) and Act 29 of 1999 as Amended

2014 Environmental Impact Assessment Regulations

Mining Charter, 2010

Freedom Charter, 1955

Municipal System Act, 2000 (Act 32 of 2000)

Municipal Structure Act, 1998 (Act 117 of 1998) and as amended in Act 20 of 2002.

COMPETENCIES

Ability to relate with people,

Ability to work independently and as a team,
Determination to succeed,

Strong leadership skills,

Proactive, resourceful, well organized and able to meet deadlines, and

Ability to communicate effectively

EXTRAMURAL ACTIVITIES AND INTERESTS

I love reading newspapers, business literatures, watching discovery channels, News, writing and Public speaking, these help me share my ideas and opinion and to get my message across, and I love learning new things every day and I am eager to learn

REFERENCES

Name	:	Mr P. Makoela
Name of organization	:	Agnes gold mine (Pty) Ltd
Position	:	Head of department of geology section
Contacts	:	087 351 8304 (W), 076 311 7791 (C)
Name	:	Mr R.P. Mamphaga
Name of organization	:	Tshedza concrete art (Pty) Ltd
Position	:	Managing director
Contacts	:	011 024 1167 (W), 082 857 3204 (C)
Name	:	Mr P. Netshivhuyu
Name of organization	:	Makhado Local Municipality

Position	:	Supervisor
Contacts	:	072 718 3220(C)
Name	:	Mr A.J. Davids
Name of organization	:	Breeze Court Investments (Pty) Ltd
Position	:	Consultant Environmental Geologist
Contacts	:	082 707 3239 (C)

15 Barnes Street, Westdene,
Langebaan Building
Bloemfontein, South Africa
9301

P.O.Box 29567
Danhof
9310

pride, determination, and resilience
Reg. No. 2015/153624/07

Cell: 079 362 6046 (+27)
076 763 8486 (+27)
Fax: 086 556 2568 (+27)

email: info@engedime.com
mulaudzit@engedime.com
www.engedime.com

8th of February 2021

UNDERTAKING AND DECLARATION UNDER OATH AS ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

As refer to the subject of the matter above;

I am hereby confirming that all the information contained in this report is true and correct And hereby declared that I, **Mr Tshimangadzo Mulaudzi,** of Identity number: **8803265731082**, I am an Environmental Geologist Consultants at Engedi Minerals and Energy (Pty) Ltd (Reg. No, 2015/153624/07), I am an Environmental Assessment Practitioner (EAP) and I am capable to compile Environmental reports in support of permits and rights application with Department of Mineral Resource (DMR) and Environmental authorisation with the Department of Environmental Affairs (DEA) and any relevant department including Department of Water and Sanitation amongst others.

This was done and signed at Bloemfontein on the 8th of Februa

SUID-AFRIKAANSE POLISIEDIENS
COMMUNITY SERVICE CENTRE
2021 -02- 0 8
BAYSWATER
SOUTH AFRICAN POLICE SERVICE

Yours sincerely

T. Mulaudzi
Engedi Minerals and Energy (Pty) Ltd (Consultant)

Ek sertifiseer dat bostaande verklaring deur my afgeneem is en dat die verklaarder erken dat hy/sy vertroud is met die inhoud van hierdie verklaring en dit begryp. Hierdie verklaring is voor my beëdig/bevestig verklaarder se handtekening/duimafdruk is in my teenwoordigheid daarop aangebring.
I certify that the above statement was taken by me and that the deponent has acknowledged that he/she knows and understands the contents of this statement. This statement was sworn to/affirmed me and deponent's signature/mark/thumbprint was placed thereon in my presence.
te BAYSWATER op 2021-02-08 om 14:00
at on at
(HANDTEKENING) KOMMISSARIS VAN EDE
(SIGNATURE) COMMISSIONER OF OATHS
VOLLE VOORNAME EN VAN IN DRUKSKRIF
FULL FIRST NAMES AND SURNAME IN BLOCK LETTERS
T.K.MALEPANE
99 WILCOKS STR
BESIGHEIDSADRES (STRAATADRES)
BUSINESS ADDRESS (STREET ADDRESS)
BLOEMFONTEIN
RANGE
SA POLISIEDIENS
SA POLICE SERVICE

UNDERTAKING

The EAP herewith confirms

The correctness of the information provided in the reports	**X**
The inclusion of comments and inputs from stakeholders and I&APs;	**X**
The inclusion of inputs and recommendations from specialist reports where relevant; and	
That the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein.	**X**

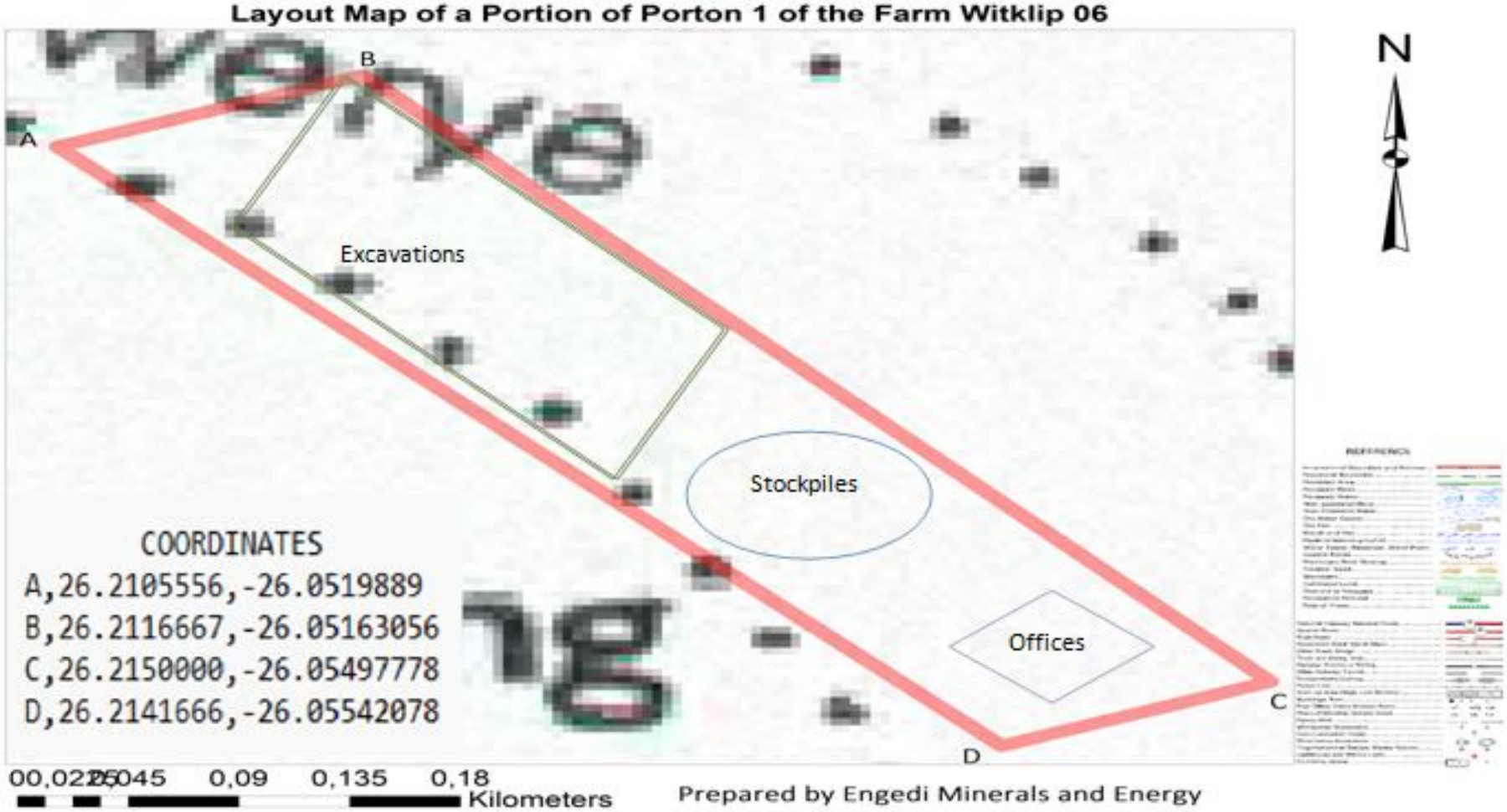
Signature of the environmental assessment practitioner:

Engedi Minerals and Energy (Pty) Ltd
Name of company:

04 MARCH 2022
Date:

APPENDIX C

LAYOUT MAP



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