BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT FOR THE APPLICATION OF A PROSPECTING RIGHT SITUATED ON THE PORTION 2 OF THE FARM WATERVLAKTE 60, IN THE MAGISTERIAL DISTRICT OF HAY

FOR

KENO C DIAMONDS (PTY) LTD

DMR REF. NO. NC 12828 PR

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: KENO C DIAMONDS (Pty) Ltd
REFERENCE NUMBER: NC 12828 PR
PROJECT NAME: PORTION 2 OF THE FARM WATERVLAKTE 60

DATE: 25 March 2021
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TABLE OF CONTENTS

1.1 IMPORTANT NOTICE v

1.2 OBJECTIVE OF THE BASIC ASSESSMENT PROCESS vi

PROJECT DETAILS vi

PART A 1

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT 1

1.3 Contact details of 1

a) Details of 1

b) Location of the overall Activity 2

c) Locality map 2

d) Description of the scope of the proposed overall activity 1

e) Listed and specified activities 2

f) Policy and Legislative Context ..... **Error! Bookmark not defined.**

g) Need and desirability of the proposed activities 6

h) Motivation for the overall preferred site, activities and technology alternative 7

i) Full description of the process followed to reach the proposed preferred alternatives within the site 7

1.4 THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES 11

a) Type of environment affected by the proposed activity 11

1.4.1 Baseline Environment 11

2.4.1 Biological Environment 13

3.4.1 Surface water 15

4.4.1 Socio-economic setting 16

b) Description of the current land uses 18

c) Description of specific environmental features and infrastructure on the site ... 18

d) Environmental and current land use map 18

e) The possible mitigation measures that could be applied and the level of risk .. 25

f) Motivation where no alternative sites were considered 30

g) Statement motivating the alternative development location within the overall site 30

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 30

i) Assessment of each identified potentially significant impact and risk 32

j) Summary of specialist reports ..... **Error! Bookmark not defined.**

k) Environmental impact statement 38

l) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr; 40

m) Aspects for inclusion as conditions of Authorization 41

n) Description of any assumptions, uncertainties and gaps in knowledge 41

o) Reasoned opinion as to whether the proposed activity should or should not be authorized 41

p) Period for which the Environmental Authorisation is required 42

q) Undertaking 42

r) Financial provision 43

s) Specific information required by the Competent Authority 43

t) Other matters required in terms of sections 24(4) (a) and (b) of the Act 44

PART B 45

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT 45

1.5 Draft environmental management programme 45

a) Details of the EAP 45

b) Description of the Aspects of the Activity 45

c) Composite Map 46

d) Description of Impact management objectives including management statements 47

e) Impact Management Outcomes 53

f) Impact Management Actions 58

g) Monitoring of Impact Management Actions 67

h) Monitoring and reporting frequency 67

i) Responsible persons 67

j) Time period for implementing impact management actions 67

k) Mechanism for monitoring compliance 67

l) Indicate the frequency of the submission of the performance assessment/environmental audit report 69

m) Environmental Awareness Plan 69

3.1 Description of solutions to risks 69

3.2 Environmental awareness training 71

n) Specific information required by the Competent Authority 73

THE CV AND DECLARATION OF OATH OF THE EAP 74

UNDERTAKING 80

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
NC	:	Northern Cape
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

1.1 IMPORTANT NOTICE

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

1.2 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 2 of the farm Watervlakte 60
Prospecting right:	NC 12828 PR
Name of Applicant:	Keno C Diamonds (Pty) Ltd
Responsible person:	Barry Lethohonolo Oliphant
Physical Address:	No. 4 Chapel Street Kimberley, 8301
Postal Address:	No. 4 Chapel Street Kimberley, 8301
Telephone:	072 946 4873

Environmental Consultant (EAP):	Mr. T Mulaudzi
Responsible Person:	Mr. T Mulaudzi
Physical Address:	15 Barnes Street, Westdene, Bloemfontein, 9301
Postal Address:	P.O. Box 29567, Danhof, Danhof, Free State
Telephone:	051 4301748
Fax:	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

1.3 Contact details of

a) Details of EAP

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** (with evidence)

Tshimangadzo Mulaudzi holds an Honours Degree in Prospecting 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 prospecting consulting company in Kimberly called Breeze Court Investments 47 (Pty) Ltd (Geologist and Prospecting Consulting firm). This is where Mr Mulaudzi acquired in-depth experience and know how in the prospecting consulting business by assisting the large to small scale prospecting companies to obtain prospecting right, prospecting rights, prospecting 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.

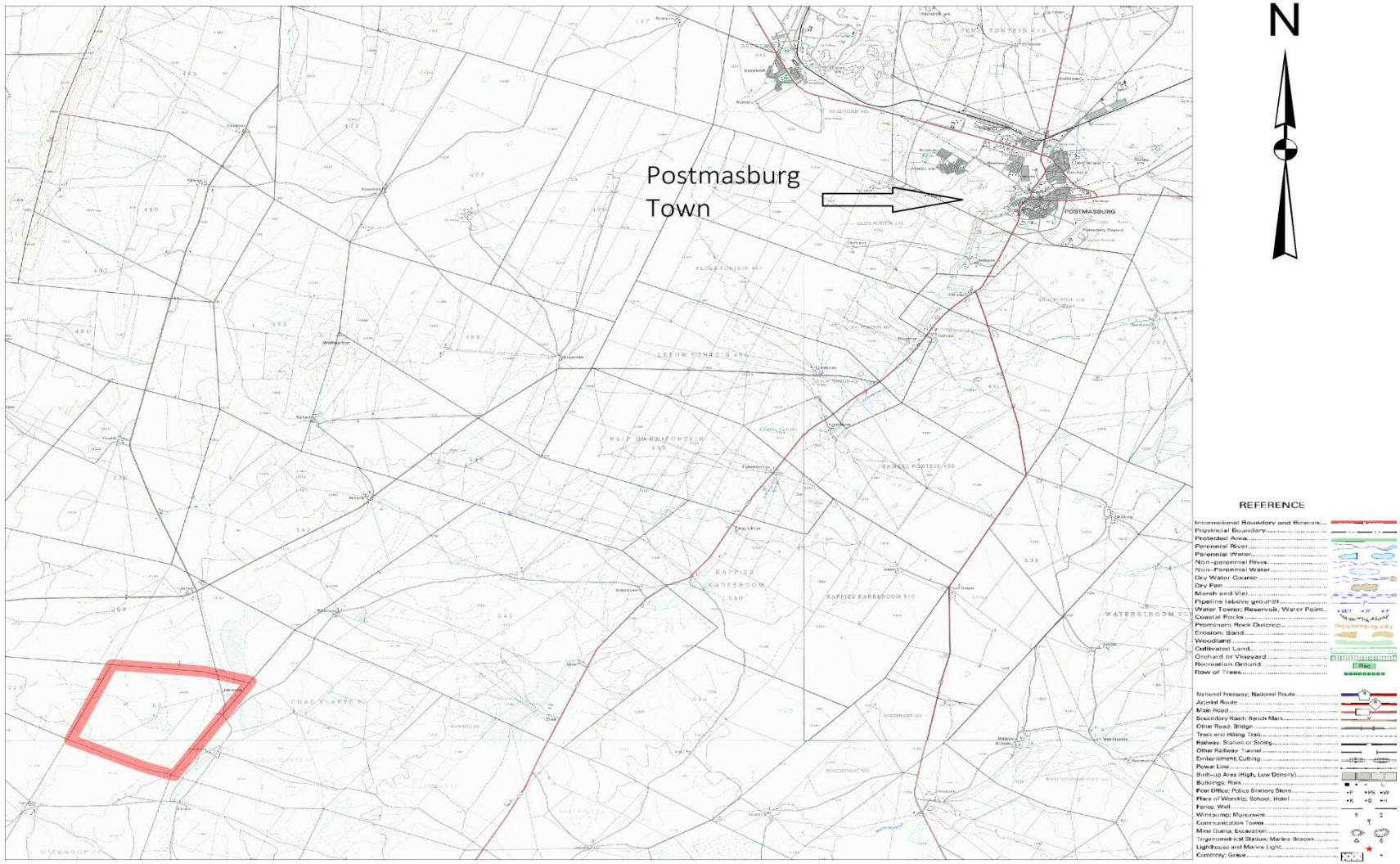
b) Location of the overall Activity

Farm name:	Portion 2 of the farm Watervlakte 60
Application area (Ha):	1155 Ha
Magisterial district:	Hay
Distance and direction from nearest town:	Approximately 30 km from Postmasburg Town
21 digit Surveyor General Code for each farm portion:	C03100000000006000002

c) Locality map

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

Locality Map of Portion 2 of the Farm Watervlakte 60



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 application is for a prospecting right for manganese, iron ore, copper and lead. It is planned to determine the mineral resourcee and distribution for this project by means of non-invasive as well as invasive prospecting methods.

- Site Access / Roads

Access roads to the site will be required during the construction phase of the project. Access road requirements can only be determiend after the field reconnaissance on the property and detailed studying of geological information available on the area has been completed. Existing roads will be used as far as possible. A number of existing roads and tracks already traverse the proposed prospecting area.

Once the prospecting sites have been identified, access roads may be established for access to the drill site if the identified drill site cannot be accessed via existing roads and tracks. New roads will be limited to the minimum and constructed with consultation of the landowner.

- Site Camp

Temporary camp site positions are planned within a radius of 500m of each drilling site. Once a new camp site is developed the old camp site will be rehabilitated. There will be no site office constructed.

- Drill Sites

During the construction phase drill sites will be cleared of only the necessary vegetation and topsoil is stockpiled for re-use after drilling where appropriate. Soil compaction will be prevented throughout the phases of the project.

- Trench Sites

During the construction phase drill sites will be cleared of only the necessary vegetation and topsoil is stockpiled for re-use after drilling where appropriate. The planned prospecting would be performed by a Backhoe excavator. Dimensions will typically range between 15m length x 2m wide x 3m depth to 20m length x 2m width x 3m depth. Different trench positions would initially typically be planned at a spacing of 500m apart on the target areas during the exploration process. Once a body is exposed with a trench, a channel sample will be taken from the sidewall of the 3m trench wall for quality and analysis purposes as well as mapping of the strata. It is expected that there will be a total of 33 trenches that will be excavated, sampled and then rehabilitated. At any time during the prospecting programme, no more than 1 trench will be left un-rehabilitated.

- Excavation of Sumps

For the excavation of sumps, the topsoil will be stockpiled for re-use where appropriate. The sump will also be closed and rehabilitated by means of filling the hole with the original excavated material.

- Exploration Drilling

Diamond drilling will be applied in the exploration programme. For this purpose drilling will make use of a triple-tube core barrel. It is envisaged that only one hole be drilled for each trench excavation position of depths of approximately 50m. depending on the results from reconnaissance and geological mapping the drill holes will be laid out in a grid fashion to cover prospective ground. The amount of boreholes required at this stage is an estimate based on a preliminary assessment of the surface topography as well as a 44% discount for potentional mineral surface area loss. It is expected that a total of 33 logs will be drilled, sampled and

rehabilitated. At any time during the prospecting programme, no more than 1 borehole will be left un-rehabilitated.

- Water Management

Groundwater abstraction as part of the drilling activities during the operational phase will be limited to between 1000 and 10 000 l per day. The water use must not exceed the general authorisation volume for the area and spillage or waste will be limited.

- Re-Fuelling and Maintenance

During all phases of the prospecting project limited quantities of diesel fuel, oil and lubricants will be stored on site for re-fuelling and maintenance. The only dangerous goods that will be stored in a significant quantity is diesel fuel. A 1 000 l diesel bowser will be used for the storage of diesel fuel on site.

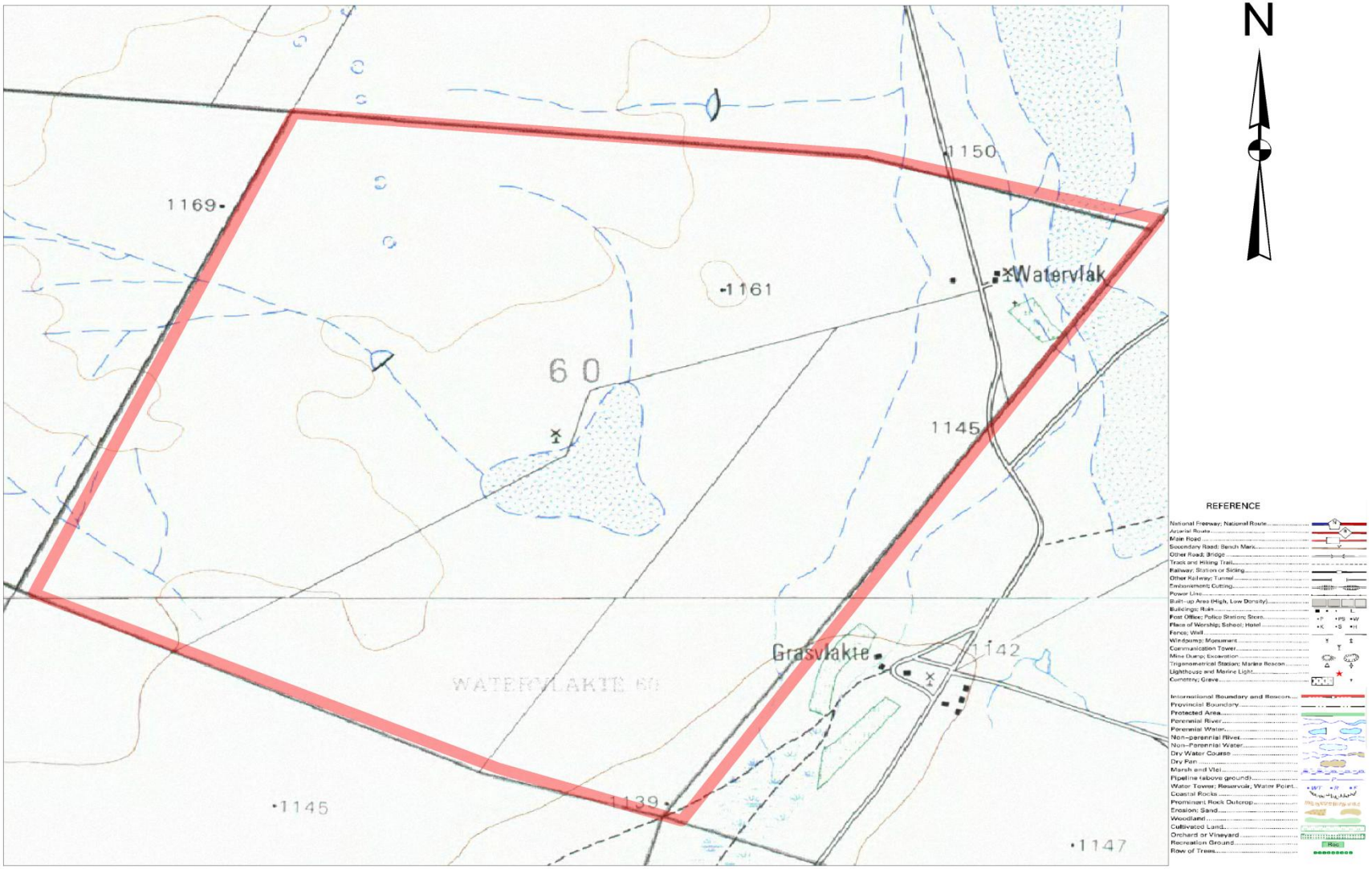
- Ablution Facilities

Ablution facilities will be required during all phases of the project and portable chemical toilets will be installed at the drill site for the use of 6 people on site.

- Waste Management

Waste management on site will be applied throughout all phases of the project. Disposal certificates will be obtained.

Layout Map of Portion 2 of the Farm Watervlakte 60



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e) Listed and specified activities

NAME OF ACTIVITY **E.g. for prospecting** – 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)***
Prospecting activities	1154 Ha	X	Listing Notice 1, Activity No. 20
Establishment of prospecting site camps comprising of the drill site with sumps and parking, equipment storage, geologist logging area, water storage, waste bins and portable toilets.	1 Ha	X	Listing Notice 1, Activity No. 20

i. Description of the activities to be undertaken

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

The application is for a prospecting right for manganese, iron ore, copper and lead. It is planned to determine the mineral resourcee and distribution for this project by means of non-invasive as well as invasive prospecting methods.

- Site Access / Roads

Access roads to the site will be required during the construction phase of the project. Access road requirements can only be determiend after the field reconnaissance on the property and detailed studying of geological information available on the area has been completed. Existing roads will be used as far as possible. A number of existing roads and tracks already traverse the proposed prospecting area.

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Diamond drilling will be applied in the exploration programme. For this purpose drilling will make use of a triple-tube core barrel. It is envisaged that only one hole be drilled for each trench excavation position of depths of approximately 50m. depending on the results from reconnaissance and geological mapping the drill holes will be laid out in a grid fashion to cover prospective ground. The amount of boreholes required at this stage is an estimate based on a preliminary assessment of the surface topography as well as a 44% discount for potentional mineral surface area loss. It is expected that a total of 33 logs will be drilled, sampled and rehabilitated. At any time during the prospecting programme, no more than 1 borehole will be left un-rehabilitated.

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- Ablution Facilities

Ablution facilities will be required during all phases of the project and portable chemical toilets will be installed at the drill site for the use of 6 people on site.

- Waste Management

Waste management on site will be applied throughout all phases of the project. Disposal certificates will be obtained.

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 prospecting right 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 16	In terms of the MPRDA, any person who wishes to apply for a Prospecting right 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 prospecting right must simultaneously apply for an environmental authorisation and must lodge the application to requirements contemplated by competent authority.

f) 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 Tsantsabane local community in terms of poverty alleviation through job creation, black economic empowerment in terms of the prospecting charter which will contribute to the nation's visions of job creation.

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

The proposed prospecting site is preferred because:

1. It contains the right quality of Manganese, Iron Ore, Copper and Lead bearing material required for the recovering of Manganese, Iron Ore, Copper and Lead;
2. The prospecting site still has good high grade Manganese, Iron Ore, Copper and Lead;
3. The site is close to the processing plant, thus minimizing transportation costs; and
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.

h) 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 Manganese, Iron Ore, Copper and Lead is contained in the proposed area. Locating the development to another area will result in the Manganese, Iron Ore, Copper and Lead possibly not being found and the economy and society not benefitting from proposed prospecting 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 prospecting or prospecting, 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 prospecting or prospecting operation
- The Hay 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
- Northern Cape Department of Rural, Environment and Agricultural Development;
- Chief Director: Department of Rural Development and Land Reform (Northern Cape);
- ZF Mgcawu District Municipality – Municipal Office;
- Tsantsabane 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 prospecting activity. The final location of the planned excavations will be decided in consultation with the landowners during prospecting. 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.

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 prospecting 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 **Keno C Diamonds (Pty) Ltd** 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 Prospecting Right 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 will be sent to all other I&APs introducing the project. Specifically, the Northern Cape Department of Mineral Resources responded that **Engedi Minerals and Energy (Pty) Ltd** does not need to send them any information as the BAR and EMPr will be provided to them from the DMR once the BAR and EMPr is submitted.

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.

1.4 THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES

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

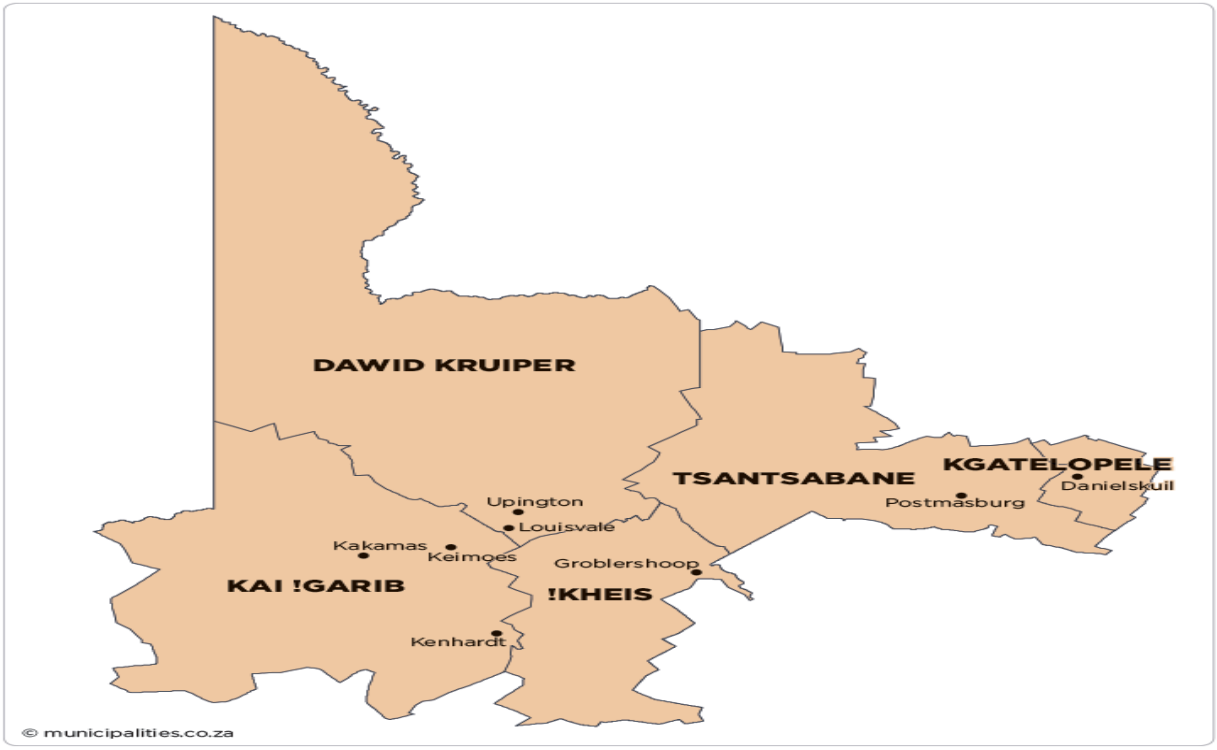
a) Type of environment affected by the proposed activity

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

1.4.1 Baseline Environment

Location

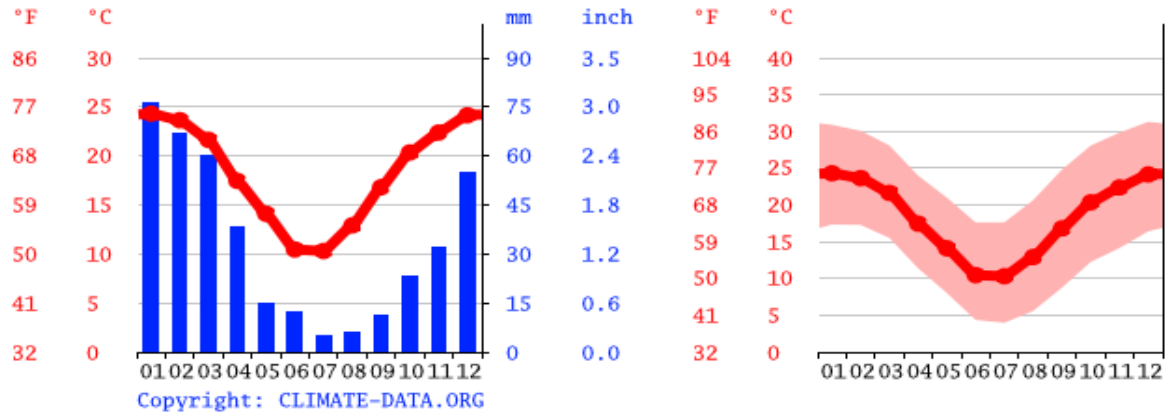
The Tsantsabane Local Municipality is a Category B municipality located within the north-eastern part of the Northern Cape Province in the ZF Mgcawu District. It is one of the five municipalities in the district. The nearest business centre is Kimberley, which is about 200km away



Climate

The climate in Postmasburg is referred to as a local steppe climate. During the year there is little rainfall. The Köppen-Geiger climate classification is BSh. The temperature here averages 18.2 °C. The rainfall here is around 400 mm per year.

The least amount of rainfall occurs in July. The average in this month is 5 mm. Most of the precipitation here falls in January, averaging 76 mm. The temperatures are highest on average in January, at around 24.3 °C. July is the coldest month, with temperatures averaging 10.3 °C.



Topography and Elevation

Postmasburg is 1306m above sea level.

Geology and Soils

The ZF Mgcawu (Siyanda) District lies on the great African plateau which was uplifted during the great Mesozoic and Tertiary earth movements. This plateau forms the largest part of the ancient continent of Gondwanaland which formally included eastern Brazil, southern India, Western Australia and Antarctica. In each of these fragments the general foundation is the same with an ancient surface of old rocks which together form the “fundamental complex” of the ancient land-mass. Over time this surface was covered by sedimentary beds1 in a freshwater inland lake and by means of windblown sand (Draft Siyanda EMF, 2008). Four physical geographical regions are identified within this district namely:

- The Kalahari;
- Bushmanland;
- The Griqua fold belt; and
- The Ghaap Plateau.

Postmasburg falls within the Griqua fold belt, which is a Highveld sub-region that lies in a roughly triangular shape to the west of the Ghaap Plateau, to the south of the Kalahari Basin and to the east of Bushmanland. It includes the scenic Langberg/Korana Mountains. The low

Gamagara ridge between Postmasburg and Sishen is economically important because of the rich iron and manganese deposits it contains (Draft Siyanda EMF, 2008). According to Mucina et al (2006), Rutherford et al (2006) and the SANBI Biodiversity Geographical Information System, the geology and soils for this area Soils are described as soils with minimal development, usually shallow, on hard or weathering rock, with or without intermittent diverse soils. Lime generally present in part or most of the landscape. In some areas it may have restricted soil depth, excessive drainage, high erodibility, low natural fertility

2.4.1 Biological Environment

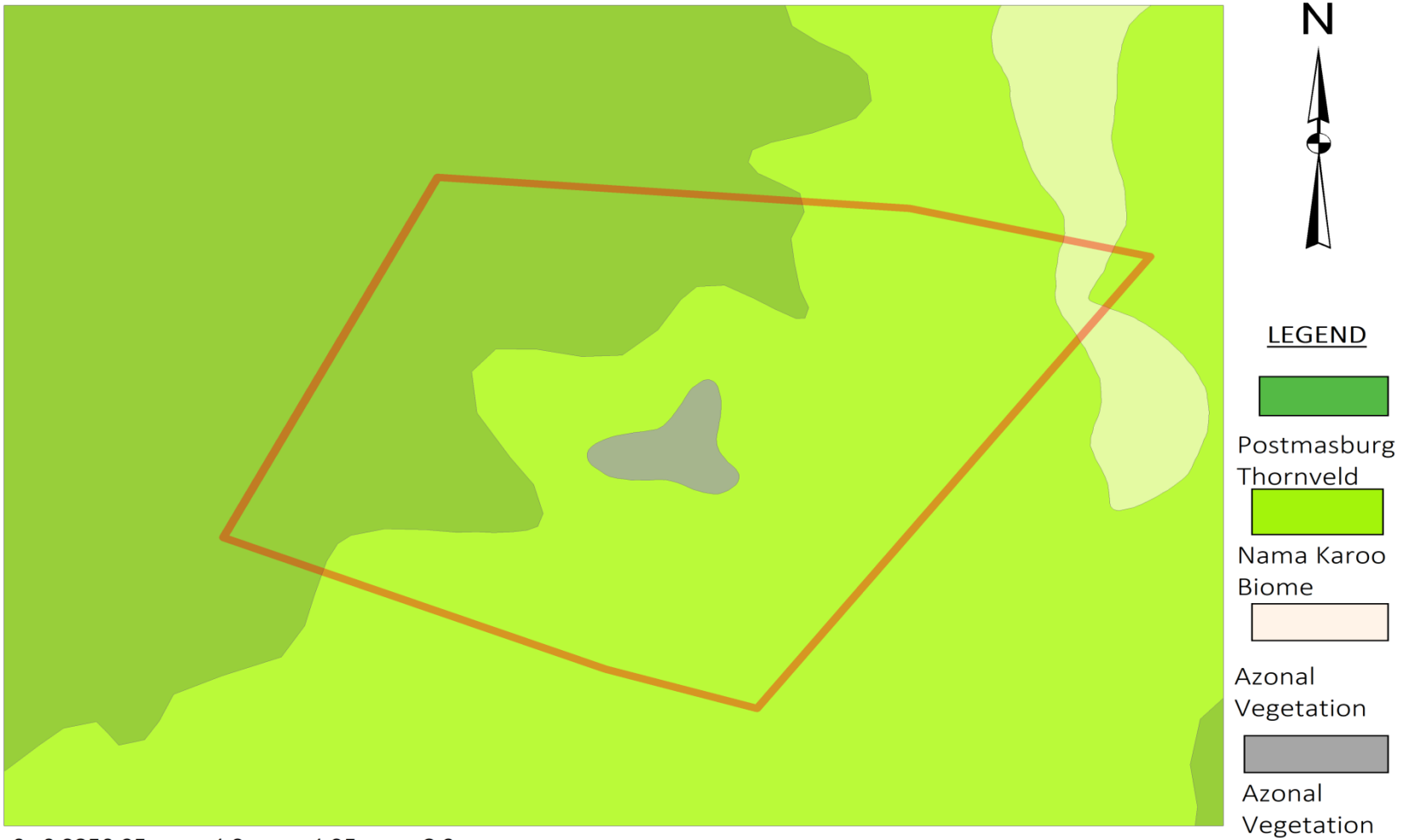
Vegetation

The Nama-Karoo Biome occurs on the central plateau of the western half of South Africa, at altitudes between 500 and 2000m, with most of the biome failing between 1000 and 1400m. It is the second-largest biome in the region.

The dominant vegetation is a grassy, dwarf shrubland. Grasses tend to be more common in depressions and on sandy soils, and less abundant on clayey soils. Grazing rapidly increases the relative abundance of shrubs. Most of the grasses are of the C4 type and, like the shrubs, are deciduous in response to rainfall events.

Postmasburg Thornveld is described as an open, shrubby thornveld characterized by a dense shrub layer, often lacking a tree layer, with a sparse grass layer. Shrubs are normally low with a karroid affinity. It has a limited distribution and is only found on flats surrounded by mountains in the Northern Cape around Postmasburg, along the short valley of the Groenwater Spruit to the northeast and southwest, west to Bermolli and around Heuningkrans at altitudes varying between 1180 – 1440 m (Mucina & Rutherford, 2006). Acocks (1953) described this vegetation as Kalahari Thornveld invaded by Karoo, while Low & Rebelo (1996) described this vegetation as Kalahari Mountain Bushveld. This vegetation type includes the following important taxon: Trees: Acacia erioloba, Acacia karroo, Acacia tortilis, Searsia lancea, Ziziphus mucronata. Tall Shrubs: Diospyros lycioides, Ehretia rigida, Grewia flava, Tarchonanthus camphoratus. Low Shrubs: Acacia hebeclada, Felicia muricata, Gomphocarpus fruticosus, Lantana rugosa, Melolobium microphyllum, Sutera halimifolia. Succulent Shrubs: Kalanchoe rotundifolia, Lycium cinereum. Graminoids: Digitaria sp., Enneapogon sp., Eragrostis sp., Aristida sp., Heteropogon sp., Stipagrostis sp., Dicoma species, Geigeria sp. etc.

Vegetation Map of Portion 2 of the Farm Watervlakte 60



Conservation areas

There are currently no formally protected areas within close proximity of the proposed prospecting site.

3.4.1 Surface water

Catchments

Vaal River

Water Management Area

Lower Vaal Water Management Area.

The Lower Vaal WMA lies in the north-western part of South Africa and borders on Botswana in the north. Climate in the region is semi-arid to arid, with rainfall ranging from 500 mm to as low as 100 mm per year and evaporation reaching 2 800 mm per year towards the west. Streamflow characteristics are distinctly different for the three subareas. Flow in the Vaal River is perennial, fed by high rainfall and regulation upstream, the Harts River is characterised by highly intermittent runoff, and the Molopo and Kuruman Rivers are endorheicg and typically cease to flow after some distance due to infiltration into the river bed and evaporation. Iron ore, diamonds and manganese are mined in the Lower Vaal WMA. Farming activity ranges from extensive livestock production and rain fed cultivation to intensive irrigation enterprises at Vaalharts. Kimberley, which straddles the divide between the Lower Vaal and Upper Orange WMAs, is the largest urban centre in the area. Utilisable surface water resources in the Lower Vaal WMA are limited to those supplied by the Vaal and Harts Rivers, both of which are fully regulated.

Rivers and dams

Vaal River

4.4.1 Socio-economic setting

Population (2016)

Total	39 345

Age Structure

Population Age	Percentage
Population under 15	25.9%
Population 15 to 64	69.9%
Population over 65	4.2%

Dependency ratio

Population	Percentage
Per 100 (15-64)	43.0%

Sex Ratio

Population	Percentage
Males per 100 females	115.5%

Education

Population Group	Percentage
No schooling	7.3%
Matric	34.9%
Higher education	4.4%

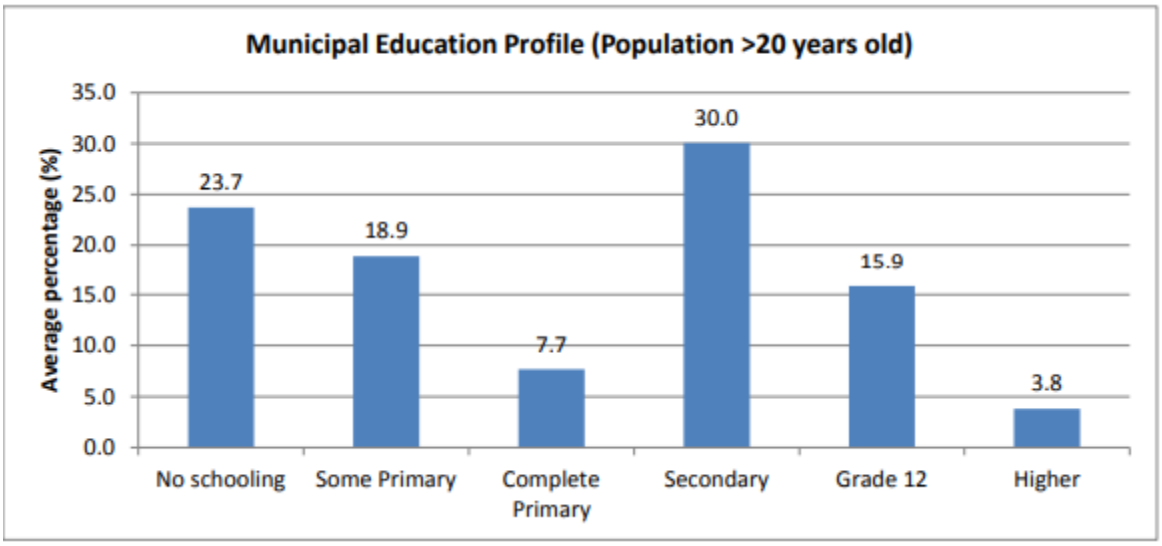
Household Dynamics

	Percentage
Households	11 821

Average household size	3.3%
Female headed households	330.%
Formal dwellings	77.9%
Housing owned	67.5%

Education

The literacy of the Tsantsabane Local Municipality is characterised by a large population, with their education ranging from some primary to secondary schooling to higher education level. A further 23.7% have no schooling.



Employment

	2017/18	2016/17	2015/16	2014/15	2013/14
Employment					
Employment Costs (R'000)	1 951	96 751	62 387	53 668	46 654
Remuneration of councilors (R'00)	-	4 475	3 172	2 944	3 831
Total Employee Positions	301	349	252	265	261
Total Vacant Employee Positions	50	102	0	19	0
Total Vacancy Percentage	16.61%	29.23%	0.00%	7.17%	0.00%

b) Description of the current land uses

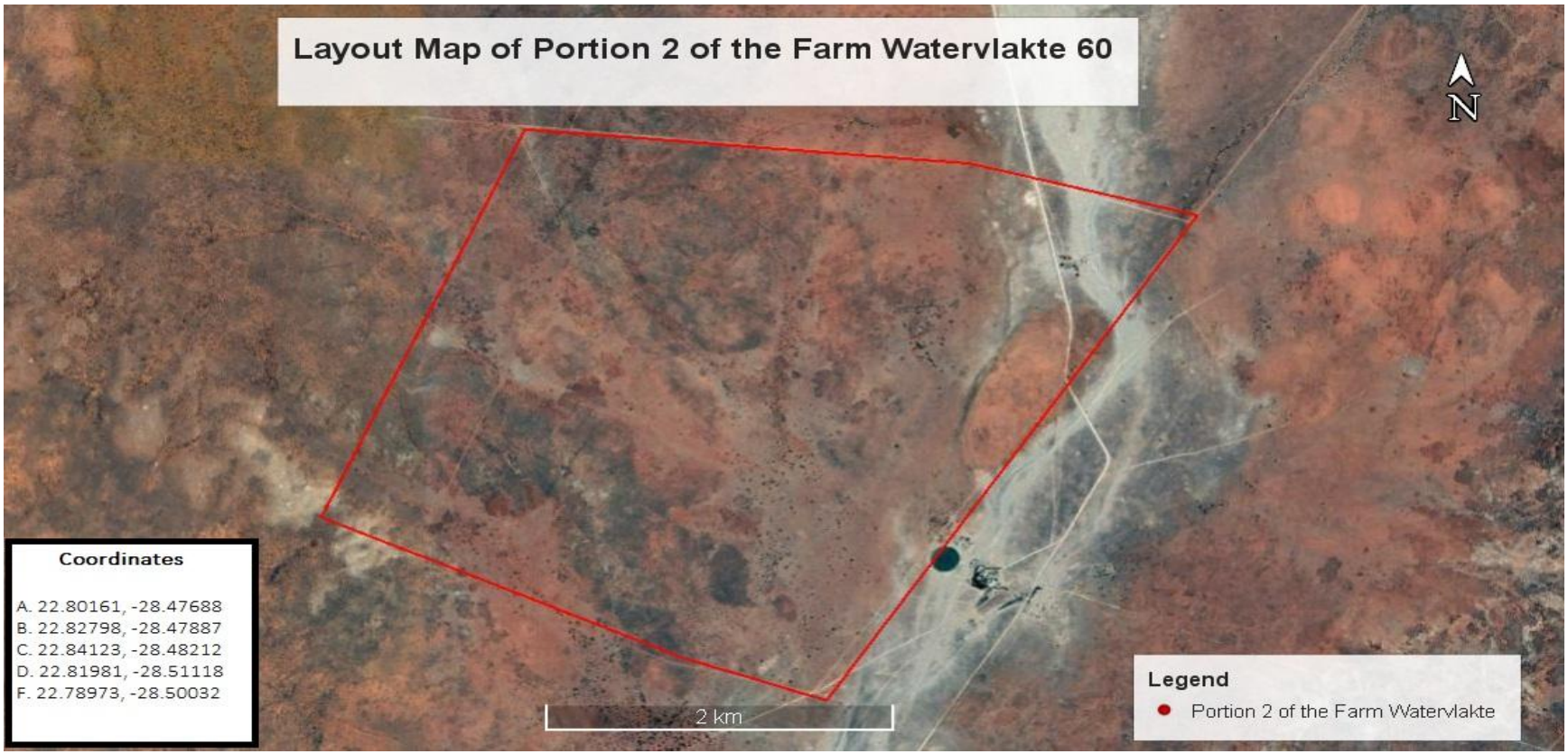
Mining and Agriculture.

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)



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	4	4	10	80	high

		interruption					
		Slope instability	4	3	3	42	low
		Noise	2.5	5	10	75	high
		Visual Scarring	3	4	8	56	mediu m
		Soil erosion	3	4	6	42	low
4	Stockpiles	Dust	2	5	8	56	mediu m
		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	mediu m
		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 they are other prospecting company around, the cumulative impact will be noise and dust.

- **Potential impact on heritage resources**

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

- **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 prospecting. All Interested and Affected Parties (I&APs) need to be informed throughout the Prospecting.

- **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 deterprospecting 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/ don't know (V)	10	Will have a severe impact on the health and welfare of humans 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 prospecting 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 prospecting 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 prospecting 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 prospecting 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 prospecting 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 prospecting area and appropriate barriers should be put as necessary.
- The proposed prospecting 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 prospecting operator shall ensure that material is not placed, stacked or used at the proposed prospecting 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 prospecting may need to be done to ensure that this objective is reached. The profiling should be done to match the surrounding landscape
- The proposed prospecting 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 prospecting operation.
- The maintenance of vehicles and some equipment used for any purpose during the proposed prospecting 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 prospecting 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 prospecting 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 Manganese, iron ore, copper and lead is contained in the proposed prospecting area. Locating the development to another area will result in the Manganese, iron ore, copper and lead not being found and the economy and society not benefitting from future proposed possible prospecting activities. The proposed site for the proposed prospecting is located within an area which is already severely disturbed as a result of agricultural activities and previous prospecting 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 prospecting of the site is motivated by the need to improve life of the community of Tsantsabane Local Municipality, which is currently faced with poverty due to high unemployment rate and through this project poverty will be alleviated. The proposed prospecting site is preferred as it is situated on the rightful spot for Manganese, iron ore, copper and lead prospecting reflecting to the previous prospecting 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 by movement of vehicles from prospecting site to construction site causing air pollution.
- Noise generated by machinery during Manganese, iron ore, copper and lead prospecting and vehicles while transporting Manganese, iron ore, copper and lead from prospecting site to construction site.
- Vegetation destruction due to clearing of the site for prospecting purposes.
- Ecosystem disturbance due to vegetation clearing.
- Erosion caused by removal of vegetation and stripping of top soil to extract the Manganese, iron ore, copper and lead.
- Visual impact due to prospecting 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 prospecting –** 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.)**	**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.)	**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.)	**SIGNIFICANCE If mitigated**
Site Establishment activities (fencing, signage, access formation, etc)	Loss of vegetation	Visual character, Land use	Pre-prospecting	Medium	Remedy through rehabilitation, Limit footprint	Low

	Habitat Destruction	Visual character	Pre-prospecting	Medium	Remedy through rehabilitation, Limit footprint	Low
	Visual scarring	Visual character	Pre-prospecting	Medium	Remedy through rehabilitation	Low
	Soil erosion	Visual character, Land use	Pre-prospecting	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 prospecting	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 from oil/fuel	Land degradation	Decommissioning and closure	Low	Stop through operational Control measures, e.g. drip trays and use of well serviced machinery	Low
	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	Low

					protocols	
	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) Environmental impact statement

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

In general, it is recognized that the proposed prospecting 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**

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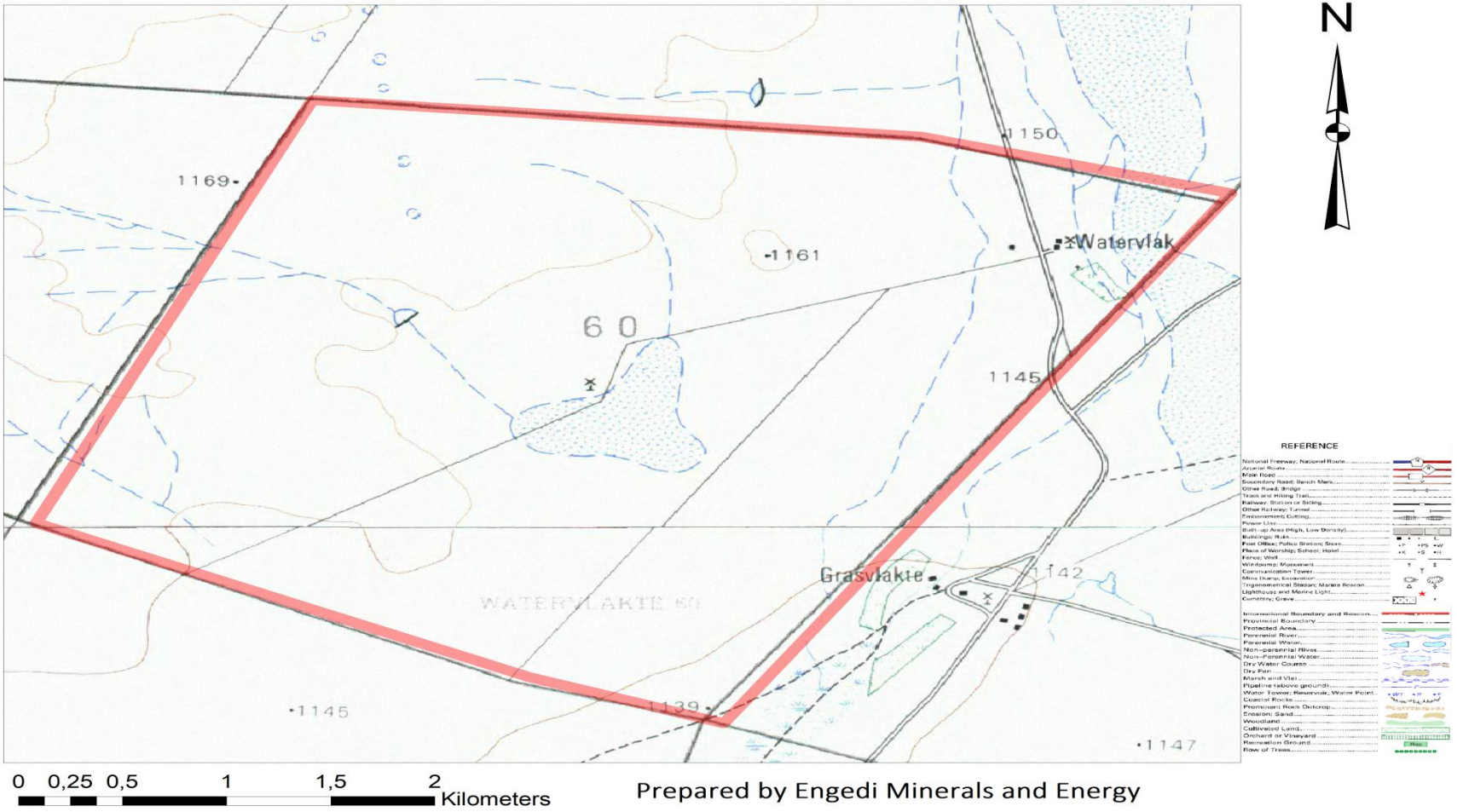
Layout Map of Portion 2 of the Farm Watervlakte 60



Prepared by Engedi Minerals and Energy

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

k) 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 prospecting activities to ensure adherence to the recommendations of the EMPr.

l) 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 prospecting activity, closure report must be submitted to the competent authority ensuring that all the disturbed environmental features are rehabilitated to the pre prospecting state.

m) 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.

n) 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 Tsantsabane 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 prospecting activity, closure report must be submitted to the competent authority.

o) Period for which the Environmental Authorisation is required

The Environmental Authorisation is required for the duration for which a prospecting right is being applied for a period of 5 years.

p) 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**

q) Financial provision

State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation. The amount will be R 80 000.51

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.

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 Prospecting 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 prospecting operation. The quantum for financial provision for rehabilitation will be re-assessed on an annual basis and arrangement to fund shortfalls will be made.

r) 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 prospecting, bulk sampling or alluvial Iron ore (Fe) and Rare Earths (REE) prospecting 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.**

The safety of the people including animals if the prospecting operations 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 Tsantsabane local 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 prospecting, bulk sampling or Manganese, Iron Ore, Copper and Lead prospecting 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.

s) 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

1.5 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.

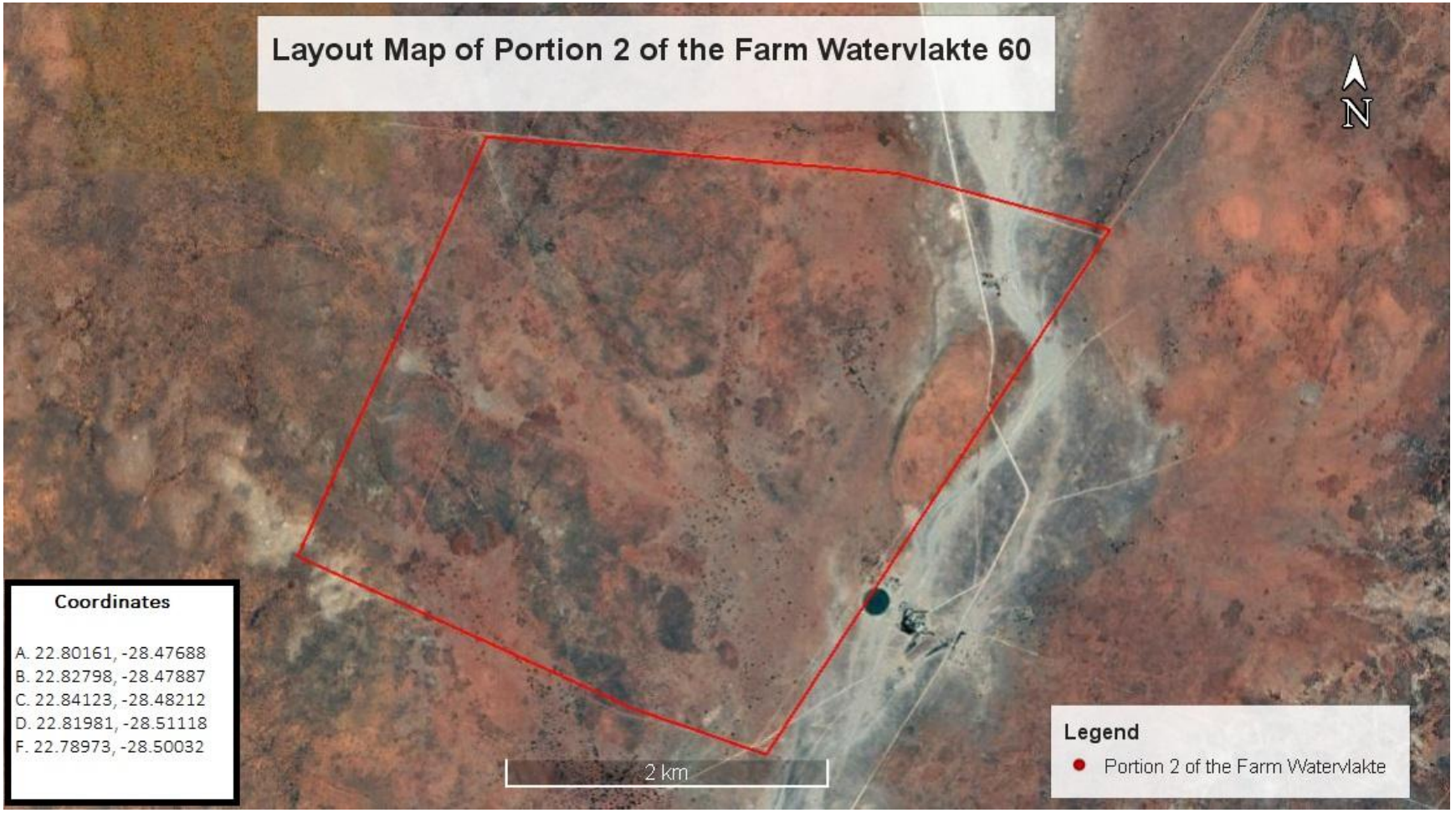
b) Description of the Aspects of the Activity

(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

(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)



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 prospecting 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 prospecting.

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

About 20 cubic meter of water per annum will be used.

iii. Has a water use license been applied for?

The application will be lodged with the department of water affairs.

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 prospecting –** 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 prospecting as the case may be.
Site Establishment activities (fencing, signage, access formation, etc.)	Start-up	± 0.01ha	Dust Suppression Service equipment to reduce noise	Issues of compliance with standards will be incorporated into the day to day business activities at the proposed prospecting. The work	During start up, operational phase

			No loud music.	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 Prospecting 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	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	Operational Phase

			No loud music.	ensure that adequate resources are available to support these activities. Environmental standards as set out in COLTO 1998, Prospecting and Petroleum Resources Development Act regulations, Mine Health and 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	Issues of compliance with standards will be incorporated into the day to day business activities at the proposed prospecting to ensure that legal thresholds as set out in the environmental standards are complied with. This will include compliance with	Operational phase

			fumes Speed control	standards as per COLTO 1998, the standards as per Prospecting and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations, National Water Act regulations, Mine Health and Safety Act regulations.	
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, Prospecting and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations and the National Environmental Management Act.	At decommissioning

Re-shaping of proposed prospecting	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 prospecting and the long term stability of the facility and any concerns in relation to the long term liability for the proposed prospecting 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	Prospecting will comply with the employees standards for prospecting	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 prospecting	The future impacts from the proposed prospecting 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 prospecting 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**	**POTENTIAL IMPACT** **(E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater**	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated **(e.g. Construction, commissioning, operational, decommissioning, 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,**	**STANDARD TO BE ACHIEVED** **(Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives etc.)**

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.)	**contamination, air pollution etc.)**		**post-closure)**	**relocation, alternative activity 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 use	Start up	Remedy through rehabilitation Limit footprint	Impact reduced
	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	Impact avoided

				storm water control	
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 & equipment and re-shaping of proposed prospecting	Noise	Noise	Decommissioning and closure	Control with noise control measures	Noise levels reduced to acceptable levels
	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.)**	**POTENTIAL IMPACT** **(E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution 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.)**	**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 prospecting, 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,	Loss of vegetation	Remedy through rehabilitation	Start-up	Issues of compliance with standards will be incorporated into

signage, access formation, etc.)				the day to day business activities at the proposed prospecting. 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 Prospecting 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
	Destruction of flora and habitat	Remedy through rehabilitation	Operational Phase	

	Loss of agricultural potential	Soil conservation techniques, Limit footprint of the proposed prospecting	Operational Phase	complied with. This will include compliance with standards as per COLTO 1998, the standards as per Prospecting and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations, and Conservation of Agricultural Resources Act.
	Soil erosion	Remedy through rehabilitation, Storm water control	Operational Phase	
	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
	Increased risk of fire	Avoidance, Operational control	Operational Phase	

		measures		Act regulation and National Water Act regulation, are complied with.
	Dust	Control with dust Control measures	Operational Phase	
Removal of infrastructure & equipment and re-shaping of proposed prospecting	Increased risk of accidents	Site management protocols	Operational Phase	Issues of compliance with standards will be incorporated into the day to day business activities at the proposed prospecting 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 Prospecting 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
	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	1998, Prospecting and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations and the National Environmental Management Act.
	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 prospecting 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 prospecting 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 prospecting operational use.
- To minimise or eliminate the downstream environmental impacts on the ecosystem due to interruption of drainage once the proposed prospecting operations cease.
- To establish a stable post-prospecting 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 prospecting activities, including the anticipated prospecting area at the time of closure.

Rehabilitation plan

The exact location and extent of the prospecting 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 prospecting activities, including the anticipated prospecting area at the time of closure. The extent of the proposed prospecting area is however shown in.

The following environmental controls will be implemented during prospecting 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.
- Prospecting activities will be restricted to the designated prospecting 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 prospecting (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-prospecting 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 prospecting 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 prospecting

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 prospecting 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 prospecting 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 prospecting. 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:	Keno C Diamonds - NC 12828 PR				Location:	Hag
Evaluator(s)	Engedi Minerals and Energy (Pty) Ltd				Date:	Mar-21

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	18	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	256	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	377	1	1	0
3	Rehabilitation of access roads	m2	5,00	46	1	1	230
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	444	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	2	242	1	1	484
5	Demolition of housing and/or administration facilities	m2	0	512	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0,001	268200	1	1	268,2
7	Sealing of shafts adits and inclines	m3	0	137	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0,1	178800	1	1	17880
8 (B)	Rehabilitation of processing waste deposits and evaporatic ponds (non-polluting potential)	ha	0,1	222692	1	1	22269,2
8 (C)	Rehabilitation of processing waste deposits and evaporatic ponds (polluting potential)	ha	0	646804	1	1	0
9	Rehabilitation of subsided areas	ha	0,1	149718	1	1	14971,8
10	General surface rehabilitation	ha	0,01	141640	1	1	1416,4
11	River diversions	ha	0	141640	1	1	0
12	Fencing	m	0,01	162	1	1	1,62
13	Water management	ha	0	53855	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0	18849	1	1	0
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
					Sub Total 1		57521,22
1	Preliminary and General		6902,5464		weighting factor 2 1		6902,5464
2	Contingencies		5752,122				5752,122
					Subtotal 2		70175,89
					VAT (15%)		9824,62
					Grand Total		**R 80 000,51**

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 prospecting	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 prospecting 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 and Energy (Pty) Ltd** Standard Operational Procedures (SOPs) and this EMP. **Engedi Minerals and Energy (Pty) Ltd** will do in-house training, should it be necessary to its personnel on site. The prospecting contractor will be responsible for training its prospecting crew and supervisor.

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

3.1 Description of solutions to risks

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

It is essential that people involved in the prospecting 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 prospecting 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 prospecting 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 prospecting programme.

Emergency planning

- The site and all people involved in the prospecting 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 prospecting 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 manganese, iron ore, copper and lead (Alluvial) 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.

3.2 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 prospecting 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.

Keno C Diamonds will undertake rehabilitation to minimise negative impacts on the environment.

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, Free State 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)

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 Free State 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 Free State 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)

SACNASP

South African Council for Natural Scientific Professions

herewith certifies that

Tshimangadzo Mulaudzi

Registration Number: 114576

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following fields(s) of practice (Schedule 1 of the Act)

Geological Science (Professional Natural Scientist)

Effective **20 March 2018** Expires **31 March 2021**

Chairperson

Chief Executive Officer

To verify this certificate scan this code

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 en 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 by the deponent's signature/mark/thumbprint was placed thereon in my presence.

Te/At BAYSWATER op/On 2021-02-08 om/at 14:00

(HANDTEKENING) KOMMISSARIS VAN EDE
(SIGNATURE) COMMISSIONER OF OATHS

VOLLE VOORNAME EN VAN IN DRUKSKRIF
FULL FIRST NAMES AND SURNAME IN BLOCK LETTERS

T.K. MALEFANE

99 WILCOKS STR

BESIGHEIDSADRES (STRAATADRES)
BUSINESS ADDRESS (STREET ADDRESS)

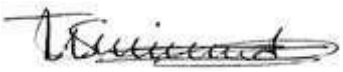
BLOEMFONTEIN

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:

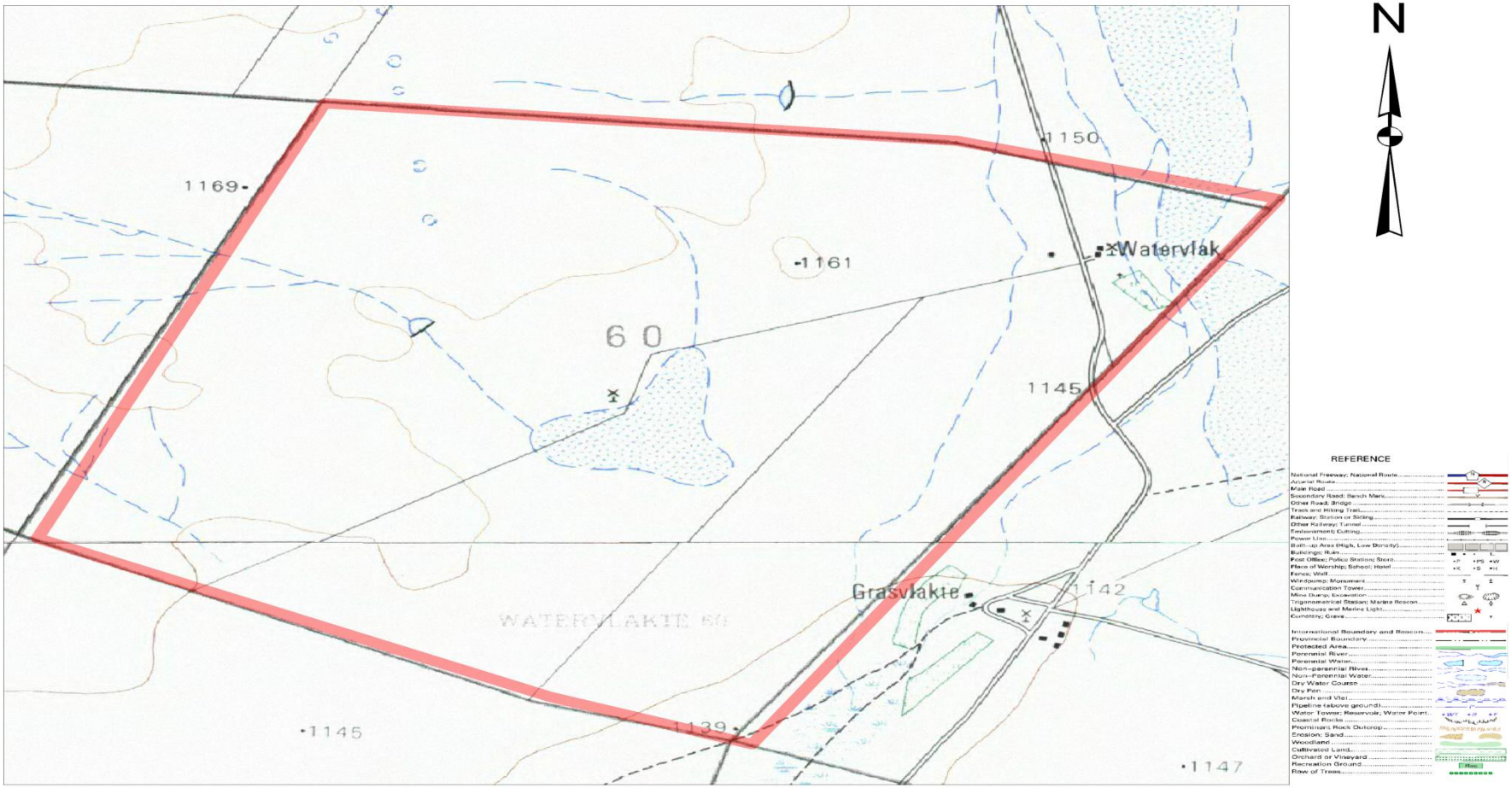
Engedi Minerals and Energy (Pty) Ltd
Name of company:

25 March 2021
Date:

APPENDIX B

LAYOUT MAP

Layout Map of Portion 2 of the Farm Watervlakte 60



Prepared by Engedi Minerals and Energy

-END-