



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

And

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 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).

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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 mining right if among others the mining “will not result in unacceptable pollution, ecological degradation or damage to the environment”.

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

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

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

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

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 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—
 - (aa) can be reversed;
 - (bb) may cause irreplaceable loss of resources; and
 - (cc) 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.

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PART A

PART A

1 SCOPE OF ASSESSMENT AND REPORT

1.1 Contact Person and correspondence address

a) Details of the EAP

i) Details of the EAP

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ii) Expertise of the EAP.

Summary of the EAP's past experience

Phathutshedzo an experienced environmental practitioner, experienced in projects management, site assessments, environmental reports compilation and consultations. His five (5) years working experience is backed-up by a Bachelor Degree in Environmental Sciences and currently pursuing Honours Degree in Geography. Phathutshedzo has been actively involved in managerial role for various projects in different industries such as mining, waste management and construction. He is a registered professional member with the Society of South African Geographers (SSAG).

He is a qualified GIS technician trained by ESRI South Africa and is capable of using various GIS software programs. Phathutshedzo has gained extensive experience in tree species identification and his willingness to learn has greatly improved his understanding of various legislature regulating environmental management sector. The EAP's CVs are attached as **Appendix 02**.

b) Location of the overall activity

Farm Name:	Goodehoop 245 KP, Welbezorgd 262 KP, Roodeblom 263 KP, Langverwacht 264 KP, Vogelstruidraai 268 KP and Lisbon 951 KP
Application area (Ha)	Approximately 15924.6 ha
Magisterial district:	Mankwe Magisterial District
Distance and direction from nearest town	The Proposed Prospecting Right Area is Located 65 Kilometers North East of Rustenburg town, North West Province.
21 digit Surveyor General Code for each farm portion	<i>Title deeds attached</i>

c) Locality map

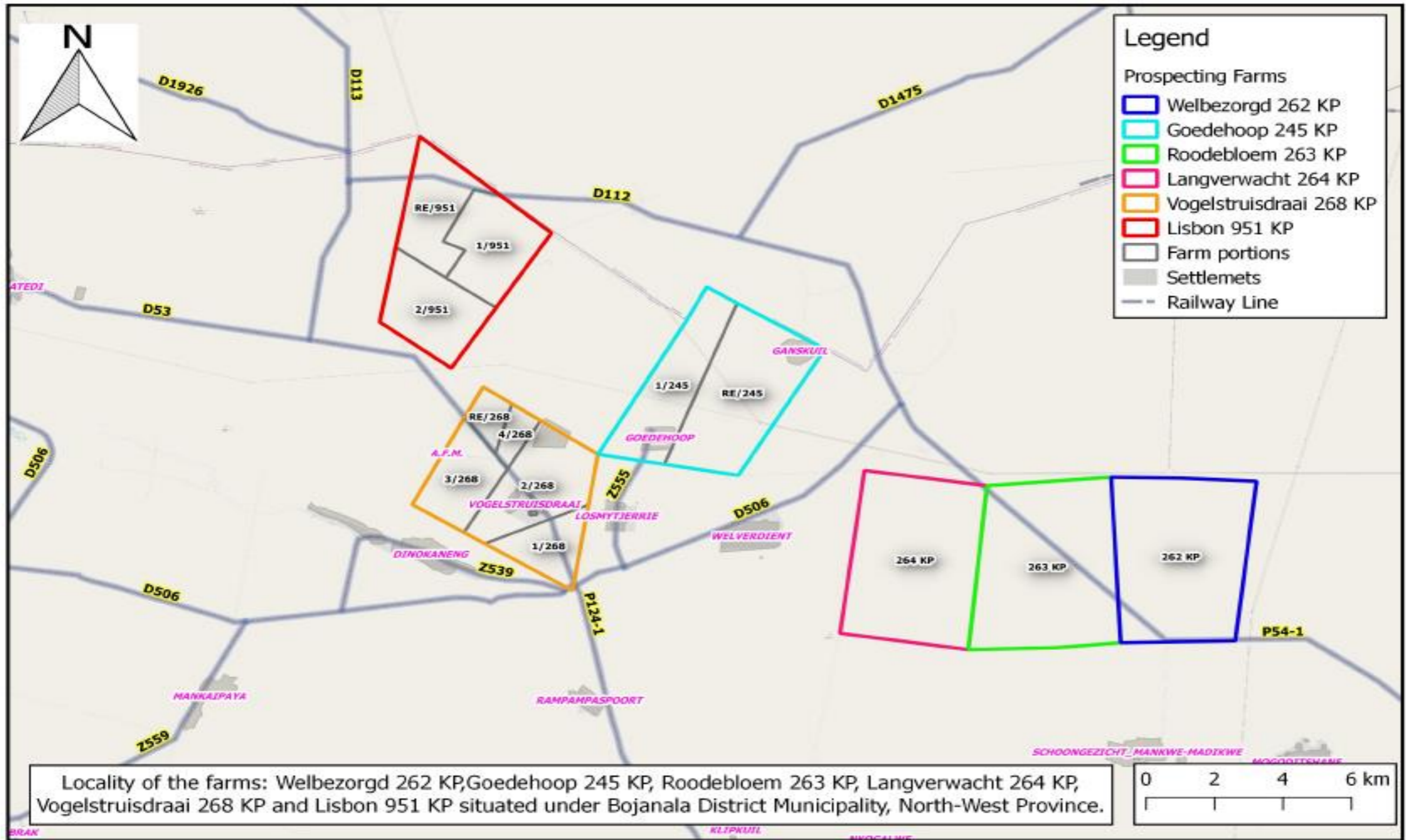


Figure 1-1: Locality map

d) DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY

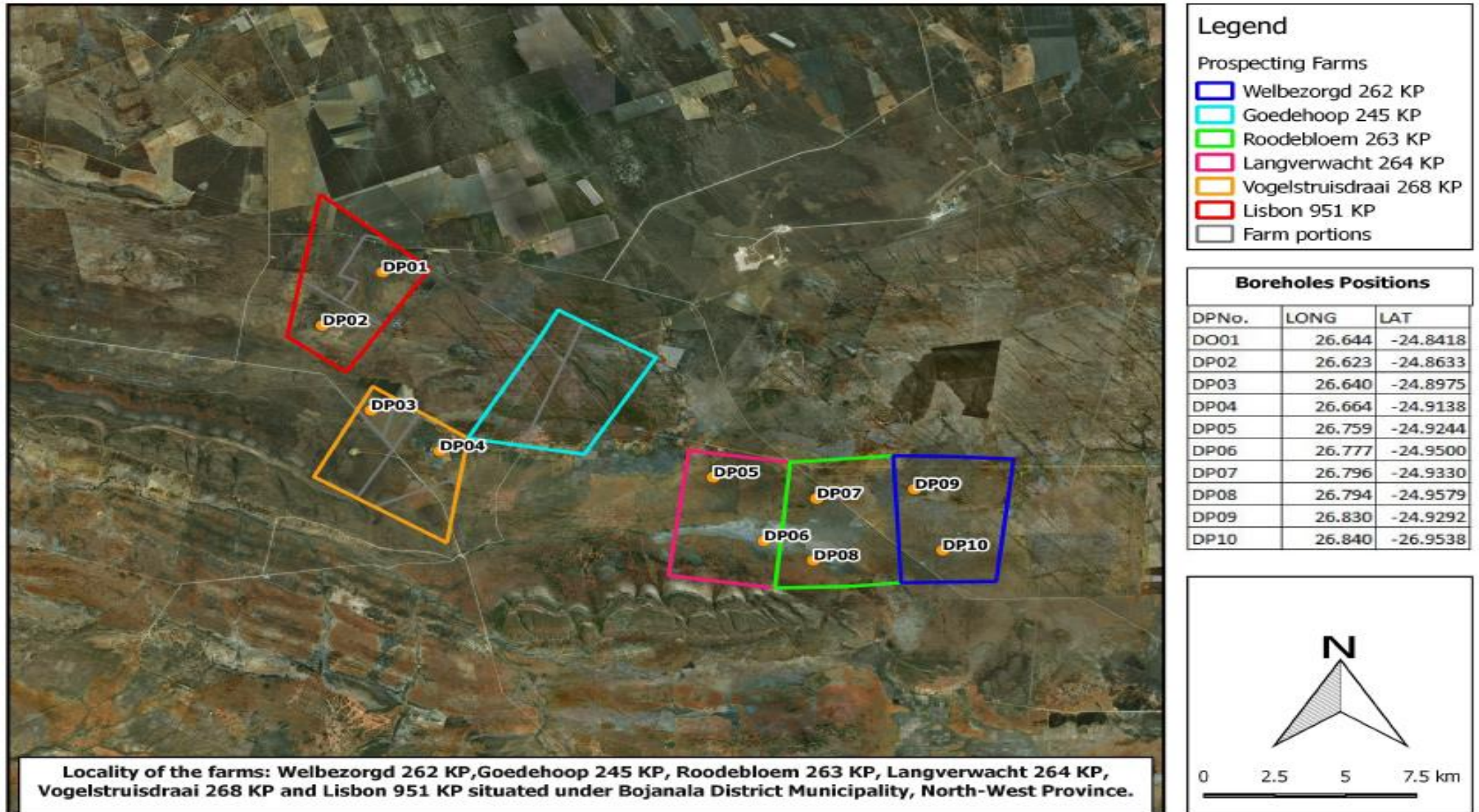


Figure 1-2: Site Plan with Drilling Points

(i) Listed and specified activities

Table 1-1: Listed Activities

Name of Activity	Aerial Extent of the Activity Ha Or m ²	Listed Activity (Mark With An X)	Applicable Listing Notice	Waste Management Authorisation (Mark With An X)
Any activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).	Extent of application area: 15924.6 Ha	X	GNR 983 – Listing 1: Activity 20	N/A
The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation. The clearance will be to make way for: <u>Drill pad areas; Access roads.</u>	≤ 1.5 ha	X	GNR 983 – Listing 1: Activity 27	N/A
Drill sites (All 12 Drill Sites)	1.44 ha			
Ablution facility (mobile hired toilets closer to each drill site)	100 m ²			
Access route (Pre-existing access routes will be used)	1 ha			

(ii) Description of the activities to be undertaken

Red Dust Trading Pty Ltd proposes to undertake prospecting activities for Manganese Ore, Limestone, Aggregate, Nickel Ore, Copper Ore, Silver Ore, Gold Ore and Cobalt on the farms Goodehoop 245 KP, Welbezorgd 262 KP, Roodeblom 263 KP, Langverwacht 264 KP, Vogelstruidraai 268 KP and Lisbon 951 KP; within the jurisdiction of Moses Kotane Local Municipality of the Bojanala Platinum District Municipality, North West Province. The prospecting activities will entail the following as detailed below:

Prospecting activities will be undertaken in five different phases of which each is dependent on the preceding phase. Each phase will provide information that will determine whether the prospecting activities should be continued or abolished.

(a) Phase 1: Literature review, Geophysical Surveying and Field Mapping

❖ Literature Review

Phase 1 will include the collection and interpretation of all available data and the compilation of a Geographic Information Systems (GIS) database. The information to be collected will include aerial photos, Orthophoto, aeromagnetic data, Topo-cadastral maps, and geological maps, results of historic exploration programmes and any other published literature and maps. The desktop study will aid in compiling a preliminary geological model of the area to be utilized in the planning geological mapping and sighting of drill holes. It also includes accruing results from the companies that has already worked on the area. This provides information such as geological setting, biodiversity as well as water management.

(b) Phase 2: Discovery drilling and sampling

❖ Discovery Drilling

The aim of this phase is to confirm the presence of ore deposits as established by the preceding phases. During this phase only five of the 12 planned boreholes will be drilled. The objective of the initial drilling will be to confirm the occurrence of ore deposits within the proposed prospecting area. As a result of the known structural complexity of the area in which the proposed prospecting areas is located, initial boreholes will be widely spaced in order to increase the understanding of the overall geology. The expected depth of the Critical Zone will be guide by initial geological interpretation of pre-existing data.

❖ **Sample analysis**

The drill core will be sampled where ore body section is intersected. The core will be split into two halves, with one half of the core taken for assay purposes and the other half being retained. Each sample will be measured and weighed and the sample lengths will be recorded before dispatch for assays at a South African National Accreditation System (SANAS) accredited laboratory. Samples will be analyzed.

(c) Phase 3: Preliminary economic assessment

A preliminary economic assessment is a study conducted to determine whether a project has the potential to be viable. At this stage, the mineralization, regardless of its quantity and quality, is always considered to be a mineral resource. This study is generally based on industry standards rather than derived from detailed site-specific data.

(d) Phase 4: Resource drilling and sampling

Subsequent to Phase 2 drilling, the results will be used to design a systematic drilling programme aimed at delineating a Mineral Resource within the Proposed Prospecting Area. The number of boreholes will depend greatly of the results of Phase 2 drilling; a maximum of 12 is planned thus far. This programme will be more focussed on parts on which the ore deposits were intersected.

(e) Phase 5: Pre-feasibility study

The pre-feasibility and feasibility studies are more detailed. By the time a decision is made to proceed with a pre-feasibility study, a preliminary mineral resource report has been finalized and an orebody model demonstrating its shape, tonnes, and grade is available. A resource cannot be converted to a reserve unless it backed up by at least a pre-feasibility study. Their results will show with more certainty whether the project is viable. At this point, the mineral resource, or a portion thereof, becomes a mineral reserve. The activities associated with the Prospecting Work Programme will be scheduled over a period of five years.

Table 1-2: Project Phases and Timeframe

Phase	Activity	Skill(s) required	Timeframe	Outcome
1	Literature review	Geologist	0 – 6 Months	Desktop study Report
2	Discovery drilling and sampling	Geologist Drillers	07 – 20 Months	Geology Maps
3	Preliminary economic assessment	Geologist	21 – 30 Months	Anomaly Maps
4	Resource drilling and sampling	Drillers Geologist	31 – 50 Months	Preliminary resources model
5	Pre-feasibility study	Geologist	51 – 60 Months	Resources model

(f) Equipment and/or Technology to be used

- ✓ 1 drill rig mounted on a 10-tonne truck or trailer;
- ✓ 1 X 2 200 Litres water tanker; and
- ✓ 2X (4X2) Bakkie.



Figure 1-3: Typical LY44 Geological core drill unit

e) POLICY AND LEGISLATIVE CONTEXT

Table 1-3: Policy and Legislative Context

Applicable Legislation and Guidelines Used to Compile the Report	Reference Where Applied	How Does this Development Comply with and Respond to the Legislation and Policy Context.
Constitution of South Africa, specifically section 24(a), (b)(i) – (iii).	Impact assessment and management; and Public Participation Process;	The prospecting activities will only proceed after effective consultation.
Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) section 16(1)(a)-(c)	This EIA is undertaken as a requirement for the granting of the Right.	The application for prospecting right was lodged and all required documents submitted.
National Environmental Management Act (107; 1998) section 23(1) & (2), 24(1); & 24(4)(b)(i) – (vii).	Impact Assessment, Financial Provision, Mitigation Measures and Public Participation.	<ul style="list-style-type: none"> ✓ The receiving environment was thoroughly assessed; ✓ Probable impacts were identified and their mitigation measures and monitoring mechanisms developed; ✓ Financial Provision for rehabilitation was determined and the applicant will pay the amount before the right is issued; ✓ Affected and Interested Parties were engaged and given opportunities to get involved in the proposed project.
NEMA Environmental Impact Assessment (EIA) Regulations, 2014; R 982 & R 983.	Entire document	<ul style="list-style-type: none"> ✓ All triggered listed activities have been identified and applied for; and ✓ The public participation was done as per the said Regulations.
National Environmental Management: Waste Act	Used as guidance for mitigation measures as no listed activities were triggered.	The project activities do not trigger a waste management license but proper waste management measures will be addressed in the EMPr.

Applicable Legislation and Guidelines Used to Compile the Report	Reference Where Applied	How Does this Development Comply with and Respond to the Legislation and Policy Context.
Section 38 of the National Heritage Resources Act (Act No. 25 of 1999)	Part A Section t)i)2)	No artefacts of heritage significance
The National Environmental Management Biodiversity Act (NEM:BA), 2004 (Act No.10 of 2004), provides for:	Impact Assessment	Impacts on the biodiversity have been identified and mitigation has been provided.
National Water Act The NWA (Act No. 36 of 1998)	Impact Assessment	<ul style="list-style-type: none"> ✓ No water use license is required for this application; ✓ Any water required for drilling activities will be obtained from a legal source within the area and brought to site by a tanker.
Regulation 704 (GN704) (Government Gazette 20118, 4 June 1999) was drawn up to address these issues in relation to mining activities. Compliance to the requirements of GN704 is a legal requirement for all mining operations.	Management measures	<ul style="list-style-type: none"> ✓ No drilling activities will take place within 100m of a recognized watercourse or wetland; ✓ No new access tracks will be created which cross a watercourse. (Only existing roads / tracks will be used).
National Environmental Management: Air Quality Act, 2004 (Act no.39 of 2004);	Impact assessment & Management	As part of the EMPr dust suppression methods will be used.
Mine Health and Safety Act, 1996 (Act No. 29 of 1996);	Impact assessment and management	Risk Impact Assessment to be conducted

Applicable Legislation and Guidelines Used to Compile the Report	Reference Where Applied	How Does this Development Comply with and Respond to the Legislation and Policy Context.
<p>North West Terrestrial Conservation Plan:</p> <p>The conservation plan classifies the environment in terms of their ecological sensitivity and importance. The categories are Critical Biodiversity Areas, Protected Areas, Ecological Support Areas and No natural remaining.</p>	<p>Description of baseline environment;</p> <p>Impact Assessment</p>	<p>CBA's were identified and protected and management options developed.</p>
<p>National Freshwater Ecosystem Priority Areas (NFEPA, 2011)</p>	<p>Description of baseline environment;</p> <p>Impact Assessment</p>	<p>NFEPA were identified and protected from invasive activities.</p>
<p>Moses Kotane Local Municipality IDP</p>	<p>Description of baseline environment;</p>	<p>Entire report</p>
<p>Bojanala Platinum District Municipality IDP</p>	<p>Description of baseline environment;</p>	<p>Entire report</p>

f) Need and desirability of the proposed activities

The need and desirability of the proposed prospecting activities were investigated and assessed based on the DEA (2017), Guideline on Need and Desirability. According to this guideline the concept of "need and desirability" can be explained in terms of the general meaning of its two components in which need primarily refers to time and desirability to place (i.e. is this the right time and is it the right place for locating the type of land-use/activity being proposed?), "need and desirability" are interrelated and the two components collectively can be considered in an integrated and holistic manner. the "need" relates to the interests and needs of the broader public.

Prospecting is the research, planning and development phase of one or more mining projects. It is the pre-cursor to the primary industrial development of mining in a country which forms the foundation for the growth of the secondary manufacturing (including beneficiation), tertiary sector, service, IT and high finance sectors essential to the developing economy such as that of South Africa. By the very nature of a mineral resource, the position of a mine is determined by the occurrence of the natural resource and is often positioned in poorer sectors of the country, which allows for economic development within these communities. The evaluation of a project aims to determine whether ore deposits occurs and if so, does it occur in economically extractable quantities. Initially these are measured in tonnage and grade. While geological studies are integral to prospecting, prospecting also includes, amongst others, infrastructural, environmental, socio-economic, financial evaluation and metallurgical studies thereby encouraging the national research and educational sectors.

Analysis of the need of the project

The Project is in line with the relevant IDP, SDF, EMF and PDP. There is no reason why this development should not be considered at this particular point in time considering the growing demand of Manganese Ore, Limestone, Aggregate, Nickel Ore, Copper Ore, Silver Ore, Gold Ore and Cobalt in South Africa.

Prospecting including invasive activities (Establishment of Access Roads, Drill Pad Area and the actual drilling), however, unlike mining, prospecting has manageable environmental impacts. The disturbances will be limited to active areas and impacts can be completely reversed on completion of prospecting project. Sensitive areas are therefore demarcated as part of this report and marked as

“no-go” areas. The sensitive areas include wetlands, river systems, graves and dwellings. Although the precise locations of drilling area are not fixed as they are dictated to by the underlying lithologies, they will not be established within the buffers of sensitive areas. The Access roads in cases where they should be created will also be outside sensitive features buffers.

The area under application also has no active economic activities and thus there is no potential for land use conflicts. The prospecting activities will determine the presence of ore bodies, and if present the grade and also the mine life span from which socio-economic benefits can then be realised. Should the mining be found to be viable then mining rights application can be initiated of which the environmental studies will then be undertaken as required by all relevant Legislations to ensure that the natural environment is also protected.

Analysis of the ‘desirability’ of the project

Prospecting activities are informed by the existing knowledge regarding buried ore bodies and as such there is always a high possibility that after prospecting a mine will be established. There are lesser returns from prospecting activities as it is not labour intensive and also a short term project. However, positive outcomes from the prospecting activities would result in mine establishment. Mining is an integral contributor to South African GDP and Labour Force.

Prospecting itself is a capital-intensive venture and requires the financial commitment of investors, which is high risk. The evaluation of a project aims to determine whether mineralization occurs and if so, does it occur in economically extractable quantities. Initially these are measured in tonnage and grade. Auxiliary benefits of prospecting include contributions to local economies, and communities, tax benefits and occasionally royalties. While geological studies are integral to prospecting, prospecting also includes, amongst others, infrastructural, environmental, socio-economic, financial evaluation and metallurgical studies thereby encouraging the national research and educational sectors.

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

(i) Preferred Site

The choice for the preferred site was based on the following aspects about the site:

Site geology: the site is located with the Rustenburg Layered Formation with high potential for economic minerals.

Site Sensitivity: the site does not contain any protected areas, however the site is wholly located within Critical Biodiversity Area 1 and Ecological Support Areas 1 and 2. The prospecting activities are of short duration with impacts that are reversible. The integrity of the CBA and ESAs are maintainable during and after prospecting activities. Species identification prior vegetation clearing will be very essential and additionally should there be any red listed, threatened and protected tree species removal permit must be obtained guided by the site environmental officer.

Human settlements: There are no human settlements areas within the proposed properties. The proposed activities will not require resettlement of the local communities.

Site Access: The existing access tracks on site will be used to access drilling points. No new roads will be developed without prior communication with the landowner.

Alternative land use: There are no active economic activities taking place on site except cultivation.

(ii) Preferred Activities

There are various methods of ore prospecting which can be either intrusive or non-intrusive in nature. For this project both the non-invasive and invasive method will be used. Invasive methods, that is drilling and core sampling provides highly reliable data which would be a true reflection of what is to expect on site. Non-invasive methods (desktop study, site walk & geological mapping) rely only outcrops to model site geology whereas in drilling the cores of the substrata are obtained and analysed. The analysis provide data on the grade of the ore and its economic viability. Using the drilling technique, the prospecting will successfully determine how viable the mining is and how long, and at what rate the ore reserve can be mined.

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

Alternatives were chosen based on the consideration of environmental and geological attributes as well as the current land uses within the proposed site. Geological attributes were determined with the use of geological maps. The local geology determines the type of technology to be used depending on the rock strength and burial depth. A comparison of cost-benefit of alternatives chosen was done to choose the most cost-effective methods that are environmentally sound. Existing infrastructure was also considered. Areas that need protection would be excluded from the targeted sites in the demarcation process. Existing infrastructure that could be of use was also considered such as farm roads to ensure minimal impact on the environment.

i) Details of the development footprint alternatives considered.

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

The proposed site was preferred based on the historical geological data which from the desktop standpoint acknowledges the potential presence of ore deposits underneath the proposed properties.

There are no human settlements and active economic activities within the proposed site which could create land use conflicts. The existing access tracks on site will be used to access drilling points; therefore, site access will be much easier.

NO OTHER SITES WERE ASSESSED.

(b) The type of activity to be undertaken;

The prospecting activities to be undertaken were assessed and chosen based on site geological setting. The type of the drilling positions will be assessed for their access against the type of geological formations, the burial depth of the geological strata of interest.

The type of prospecting activities was also influenced by environmental sensitivity of the site, thus avoiding the features such as streams. In sensitive areas non-invasive activities will be preferred over invasive (drilling) activities.

(c) The design or layout of the activity;

The design of the activity in this project refers to the locations of drilling areas. The drilling areas are located away from sensitive features, and also determined by the distribution and extent of the ore deposits. The drilling points will be located such that site wetlands and streams as well as the settlement areas are protected and marked as "No-Go" Areas. For the application the drilling areas will be based on geology, topography and environmental sensitivity.

(d) The technology to be used in the activity;

Technology was assessed to determine that which would bring reliable and desirable results. The following factors were evaluated when considering technology:

❖ Local geological strata

The geological settings (rock types) and depth of burial determines the type of geophysical methods that are most likely to be successful therefore the technology that goes with such methods.

❖ Ore burial depth

Technology choice is also based on the depth burial of the targeted stratum i.e. the preferred drilling equipment must be successful at site specific burial depth.

❖ Rock Strength

The drilling equipment must be able to cut through site geological strata to reach buried ore deposits, therefore for instance a diamond drilling will be preferred where rock strength is very high.

(e) The operational aspects of the activity

The prospecting activities are carried out in phases with each subsequent phase dependant on the success predecessor. Therefore, a strict operational scheduling must be adhered to.

❖ Other operational aspects:

Water requirement: The prospecting activities (excluding human usage) will require six (6) litres of water per 40 metres drilled, thus 15 litres per proposed 100 metres. The water requirement can be met through sourcing water from the local municipality connection or

from the local registered boreholes. No new boreholes will be drilled on site for water sourcing. A consent will be obtained from the municipality for water usage. The water usage onsite is not expected to trigger the NWA Listed activities which would require water use application.

Waste Management: The principle of Reduce, Re-use and Recycle must be implemented at all times. The waste must be separated at source and disposed at an appropriate waste management facility.

Access Roads: The existing access tracks on site will be used to access drilling points. No new roads will be developed without prior communication with the landowner.

(f) The option of not implementing the activity

The option of not implementing the activity also referred to as a “No-Go” option ensures that the current status quo remains i.e. the site activities continue as they are. There will be no disturbances as a result of prospecting activities.

However, it should be noted that prospecting activities are of short term duration with a maximum of five years. The impacts created by ore prospecting can be managed and mitigated, and current site activities can be undertaken simultaneously with the prospecting programme. The prospecting activities will disturb less than 05 ha of 15924.6 Hectares applied for.

The aim of ore prospecting is to establish the presence, extent and grade of ore deposits on site and should the activity be not implemented this information will remain unknown. There is high potential for ore deposits in the proposed site and should the project not be authorised the potential socioeconomic benefits associated with mining will not be realised.

The prospecting outcome will also contribute to the South African pool of database on geology enabling complete mapping of south Africa and its geological reserves.

i) DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED

This section of the report provides an overview of the tasks undertaken for the PPP to date. All PPP undertaken is in accordance with the requirements of the EIA Regulations (2014). It further provides an outline of the next steps in the PPP and makes recommendations for tasks to be undertaken during the environmental assessment phase of the environmental authorisation process. A full Public Participation Process (PPP) report will be attached as **Appendix 04**.

Land owners were identified through a search conducted via online search engines accessing the Title Deed office database. In addition to land owner's other relevant organisations were identified and notified of the application. This includes municipal and State departments with jurisdiction in the area and Non-Governmental Organisations (NGOs) with an interest.

The PPP tasks conducted for the proposed project to date include:

- 1) Identification of key Interested and Affected Parties (affected and adjacent landowners) and other stakeholders (organs of state and other parties);
- 2) Formal notification of the application to key Interested and Affected Parties (all adjacent landowners) and other stakeholders;
- 3) Consultation and correspondence with I&AP's and Stakeholders and the addressing of their comments; and
- 4) Newspaper adverts.

I&AP and Stakeholder identification, registration and the creation of an electronic database

Public Participation is the involvement of all parties who are either potentially interested and or affected by the proposed development. The principle objective of public participation is to inform and enrich decision-making. This is also its key role in this process.

Interested and Affected parties (I&AP's) representing the following sectors of society has been identified:

- ✓ National, provincial and local government;
- ✓ Agriculture, including local landowners;
- ✓ Community Based Organisations;
- ✓ Non-Governmental Organisations;
- ✓ Water bodies;

- ✓ Tourism;
- ✓ Industry and mining;
- ✓ Commerce; and
- ✓ Other stakeholders.

Formal notification of the application to key Interested and Affected Parties (adjacent landowners) and other stakeholders

The project was announced as follows:

1. Newspaper advertisement

Newspaper Advert was published in Platinum Weekly on the 08 of January 2021.

2. Site notice placement

In order to inform surrounding communities and adjacent landowners of the proposed development, site notices were erected on site and at visible locations close to the site. The site notices were placed on site.

3. Written notification

I&AP's and other key stakeholders were notified of the project. A background information document and landowner notification letter were also sent out to the identified I&AP's.

4. Letters

A letter indicating the announcement of the Basic Assessment Process, a Background Information Document (BID) and a comment and registration form was sent to all identified I&AP's. This communication was sent electronically via email as well as via hand to public places. Copies of the documents mentioned above can be seen as Appendix. The I&AP database is attached as Appendix 04.

5. Telephonic conversations

Where necessary telephonic conversations were held prior to sending out information. This also included WhatsApp and Text Messages.

Consultation and correspondence with I&AP's and Stakeholders and the addressing of their comments (continuous).

This first draft report was released the public for review and comment. All stakeholders and I&AP's will be notified of the report's availability for comment for 30 days. Additional electronic and or hard copies will be made available to interested and affected parties and stakeholders who request for them. Hardcopies of the report will also be submitted to affected organs of state and relevant authorities.

ii) Summary of issues raised by Interested and Affected Parties

(Complete the table summarising comments and issues raised, and reaction to those responses)

<p><u>Interested and Affected Parties</u></p> <p>List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.</p>	<p>Date Comments Received</p>	<p>Issues raised</p>	<p>EAPs response to issues as mandated by the applicant</p>	<p>Section and paragraph reference in this report where the issues and or response were incorporated.</p>
<p><u>AFFECTED PARTIES</u></p>	<p>Consultation report is attached as appendix to this report.</p>			

iii) The Environmental attributes associated with the alternatives.

1) BASELINE ENVIRONMENT

(a) Type of environment affected by the proposed activity

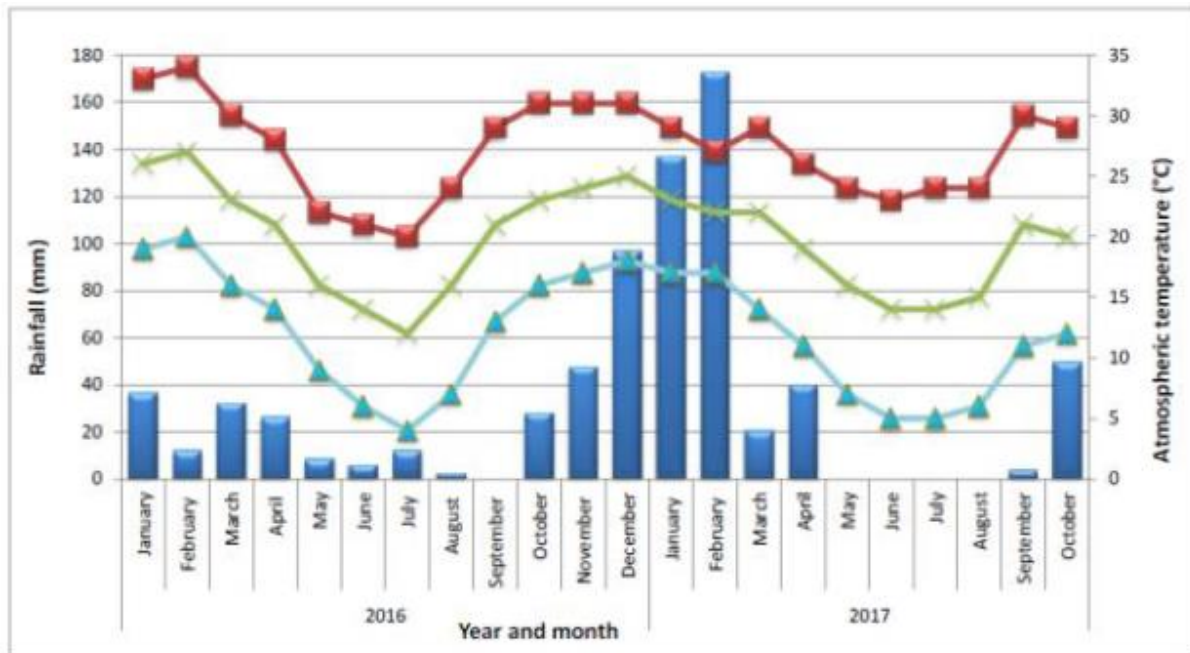
Key aspects of the baseline environment that are likely to impact on the scope of the impact assessment and management measures that are implemented as well as project decisions regarding alternatives are listed below.

❖ Topography

The topography of the study area and immediate vicinity is primary flat with an average elevation of approximately 1072 metres above mean sea-level (mamsl). The site is generally sloping towards the south west with the highest point located on the north east of the proposed site.

❖ Climate

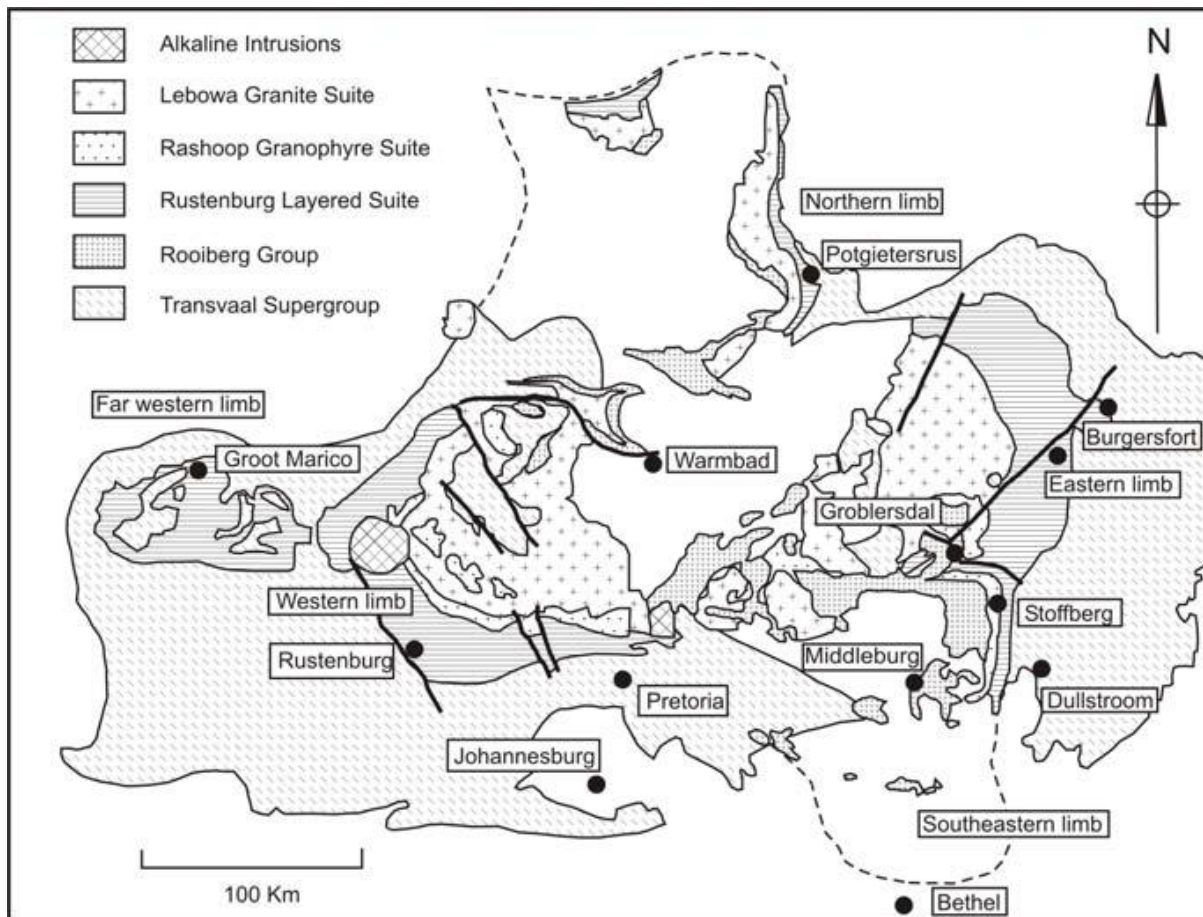
The regional climate features summer rainfall with very dry winters. Mean annual precipitation is about 550– 650mm. Frost is fairly frequent in winter in lower-lying areas, but less so on the hills. Mean monthly maximum and minimum temperatures for Lindleyspoort-Irr weather station are 35.2°C and –0.4°C for January and June, respectively. Corresponding values for the Marico-Irr weather station are 36.7°C and -0.4°C (Mucina & Rutherford 2006).



❖ **Geology**

The Witwatersrand gold-producing area in South Africa is underlain by an underground geological formation also known as the Witwatersrand Basin. It lies on the Kaapvaal Craton, and is one of the world’s largest gold placer deposits. This elliptical basin stretches over an arc of roughly 400km traversing across the Free State, North West and Gauteng provinces in South Africa. Gold occurs only along the northern and western margins of this basin, but not in a continuous band.

The mineral occurrences overlain on 1:250 000 geological map of Goodehoop 245 KP, Welbezorgd 262 KP, Roodeblom 263 KP, Langverwacht 264 KP, Vogelstruidraai 268 KP and Lisbon 951 KP farms. In terms of geology the area is underlain by a basal black shale facies, associated basin – wide in the subsurface with lavas and pyroclastic rocks. The Pretoria Group is approximately 6 – 7 km thick and comprises predominant mudrocks alternating with quartzitic sandstones, significant interbedded basaltic andesitic lavas, and subordinate conglomerates, diamictites, and carbonates rocks, all of which have been subjected to low grade metamorphism. The Black Reef Formation, consisting predominantly of relatively mature quartz arenites with lesser conglomerates and subordinate mudrocks, forms a thin veneer of arenaceous rocks unconformably overlying older successions.



The proposed site is specifically within the Rustenburg Layered Suite of the Eastern Bushveld Complex Limb. The Rustenburg Layered Suite is discussed below:

The Rustenburg Layered Suite (RLS)

The Rustenburg Layered Suite (RLS) was emplaced at shallow crustal levels beneath the volcanic pile of Rooiberg felsites and Rashoop granophyres as sills in the Transvaal Supergroup. North of Burgersfort, emplacement occurred at the level of the Magelliesberg quartzite, but to the south it transgressed upwards through more than 2 km of sediments so that near Stoffberg basaltic rocks of the Dullstroom Formation (at the base of Rooiberg Group) are preserved in the floor. The crescentic outcrop pattern of the RLS is comprised of four exposed sectors, the eastern limb, the western limb, the far western limb and the northern limb, with a fifth limb, the south-eastern Bethal limb, obscured by younger sediments.

The main western and eastern lobes are disrupted by domes and diapirs of floor rocks, the largest of which are the Crocodile River, the Moos River and the Marble Hall fragments. Exposure is poor in the northern and western limbs, but the 200 km long eastern limb extending from Chuniespoort to Stoffberg underlies rugged

terrain where surface exposures are far better. Spectacular views of the stratigraphy and layering of the Rustenburg Layered Suite can be seen from the Chuniespoort – Burgersfort Road near Atok.

The RLS has been subdivided into a number of zones, the Marginal, Lower Zone (LZ), Critical (CZ) Main (MZ) and Upper Zones (UZ), although their exact boundaries have been the subject of much debate (e.g. Kruger 1990). Lateral facies variations within the sequence are common.

The Marginal Zone

The Marginal Zone is not always present. Where it occurs it ranges in thickness from zero to hundreds of metres along the basal contact of the Complex. The rocks are most commonly norites with variable proportions of accessory clinopyroxene, quartz, biotite and hornblende, which reflect varying degrees of contamination from the underlying sediments. Generally, it is related to the immediately adjacent cumulate rocks but in places it has been disrupted and has been partly digested by later magma injections (see Eales, 2003 for an overview). However, where Marginal Zone occurs beneath the Lower Zone, it may represent an early magma which in the east occurs as the Shelter norite (SACS, 1980), a succession up to 400m thick around Burgersfort. For a discussion on magma lineages see Kruger, (2004).

The Lower Zone

The Lower Zone has the most limited lateral extent, and is best developed in the northern parts of both eastern and western limbs and in the southernmost part of the northern limb. The thickness of the Lower Zone has been influenced by floor topography and structure and is 1300 m at maximum (Cawthorn et al 2002). In the Oliphants River Trough, in the eastern limb (Figure 12) Cameron, 1978, subdivided the Lower Zone into 3 zones, a central harzburgite between an upper and lower pyroxenite:-

The lower pyroxenite is extremely uniform in composition, containing on average 98% and never less than 95% orthopyroxene with minor interstitial plagioclase and clinopyroxene. Chromitite is absent. The harzburgite unit consists of cyclic units of dunite, harzburgite and pyroxenite varying in thickness from a few to tens of metres. Dunite layers are distinctive, they weather more easily than pyroxenite to a dull greasy brown, they usually contain magnesite veins, and are covered in

magnesite float. Little serpentinisation is apparent. Up sequence the orthopyroxene occurs as small oikocrysts, increasing in size up to 1-2 cm. As the modal proportion of orthopyroxene increases the texture changes, with harzburgites containing sub-equant grains of both minerals. In the olivine pyroxenites the olivine appears anhedral against pyroxene. However, in view of the extreme textural recrystallisation in these rocks the inference that the olivine is post-cumulus should be viewed with caution. Scattered chromite grains are present, green clinopyroxene and plagioclase are rare. The orthopyroxene changes in habit from granular to elongate with a range of grain sizes. Igneous lamination may be apparent with 1-3 cm elongate crystals lie in the pla

The upper pyroxenite of Cameron's Lower Zone is similar to the lower one except that variations in grain size produce recognisable layering. The orthopyroxene varies little in composition (En_{84-87}) throughout the entire Lower Zone with more magnesian compositions occurring in the harzburgite together with olivine (Fo_{85-87}).

The Critical Zone

The Critical Zone, which is characterised by spectacular layering, hosts world-class chromite and platinum deposits in several different layers (termed reefs). The Critical Zone, which is up to 1500 m thick, is divided into a lower sub-zone (C_LZ) which is entirely ultramafic and is characterised by a thick succession of orthopyroxenitic cumulates and an upper sub zone (C_UZ) that comprises packages of chromitite, harzburgite, pyroxenite, through norite to anorthosite. Subdivision into magmatic cycles is somewhat subjective but nine cycles have been recognised in the C_LZ and eight cycles in the C_UZ consisting of partial or complete sequences from a base of ultramafic cumulates through norite to anorthosite.

The base of the upper Critical Zone is defined as the first appearance of cumulus plagioclase and is drawn at the base of the lowermost anorthositic layer of the RLS between two chromitite layers. Two distinctive cyclic units, the Merensky and Bastard units were included within the CZ of the original classification, however a significant break in the initial Sr isotope ratio, and a major unconformity at the base of the Merensky Unit, led Kruger (1992), to draw the boundary between the CZ and MZ at the base of the Merensky Unit, where the major magma influx

occurs, rather than at the top of the Giant Mottled Anorthosite, a distinctive layer characterised by large oikocrysts of pyroxene at the top of the Bastard Unit.

The Main Zone

The Main Zone, which is >3000 m in thickness, forms almost half the thickness of the entire RLS. It comprises a succession of gabbro-norites with infrequent anorthosite and pyroxenite bands while olivine and chromite are absent. In addition to the Merensky Reef at its base it is economically important for numerous dimension stone quarries which exploit the Pyramid Gabbro-norite; a dark-coloured inverted-pigeonite-bearing gabbro-norite.

Although not as spectacularly layered as the Critical Zone discrete packages of modally layered rocks can be identified (Molyneux, 1974; Mitchell, 1990; Nex et al., 1998, 2002), possibly associated with the influx of new magma. In the eastern Bushveld a modally layered succession of gabbro-norites 10-20 m thick occurs some 60-70 m below the Pyroxenite Marker (Quadling and Cawthorn, 1994). This layered package is continuous for 80 km along strike. It has also been identified in the western Bushveld with a 20 km strike extent (Nex et al., 1998). All the layers have sharp bases and planar tops and are composed of orthopyroxene (inverted pigeonite) + clinopyroxene + plagioclase but the proportions vary so that the lighter layers are typically 70% plagioclase, whereas the darker layers are 30-40% plagioclase. Darker layers vary from 2-10 cm in thickness. The layering is considered to be due to mechanical re-distribution of crystals since none of the layers has typical cotectic proportions. In the eastern Bushveld geochemical studies suggest that compositional reversals in orthopyroxene and plagioclase occur slightly above this layered package reflecting the influx of new magma to form the Upper Zone (Nex et al., 2002).

Upper Zone

The Upper Zone is characterized by sequences which are intensely banded with gabbros as the dominant rock type, there is no chill at the top contact with the metamorphosed felsite or granophyre, and the most differentiated rocks occur towards the top. The most striking feature of the Upper Zone is the presence of some 25 magnetite layers in the eastern limb (Molyneux, 1974) that cluster into four groups, each with up to seven layers. Magnetite layers typically have sharp bases, but gradational tops. The thickest is 6 m, while the Main Magnetite

layer, near the base of the Upper Zone is 2 m thick and is mined for its vanadium content. The titaniferous magnetite layers comprise a vast source of vanadium ore and hosts almost half of the world's vanadium reserves.

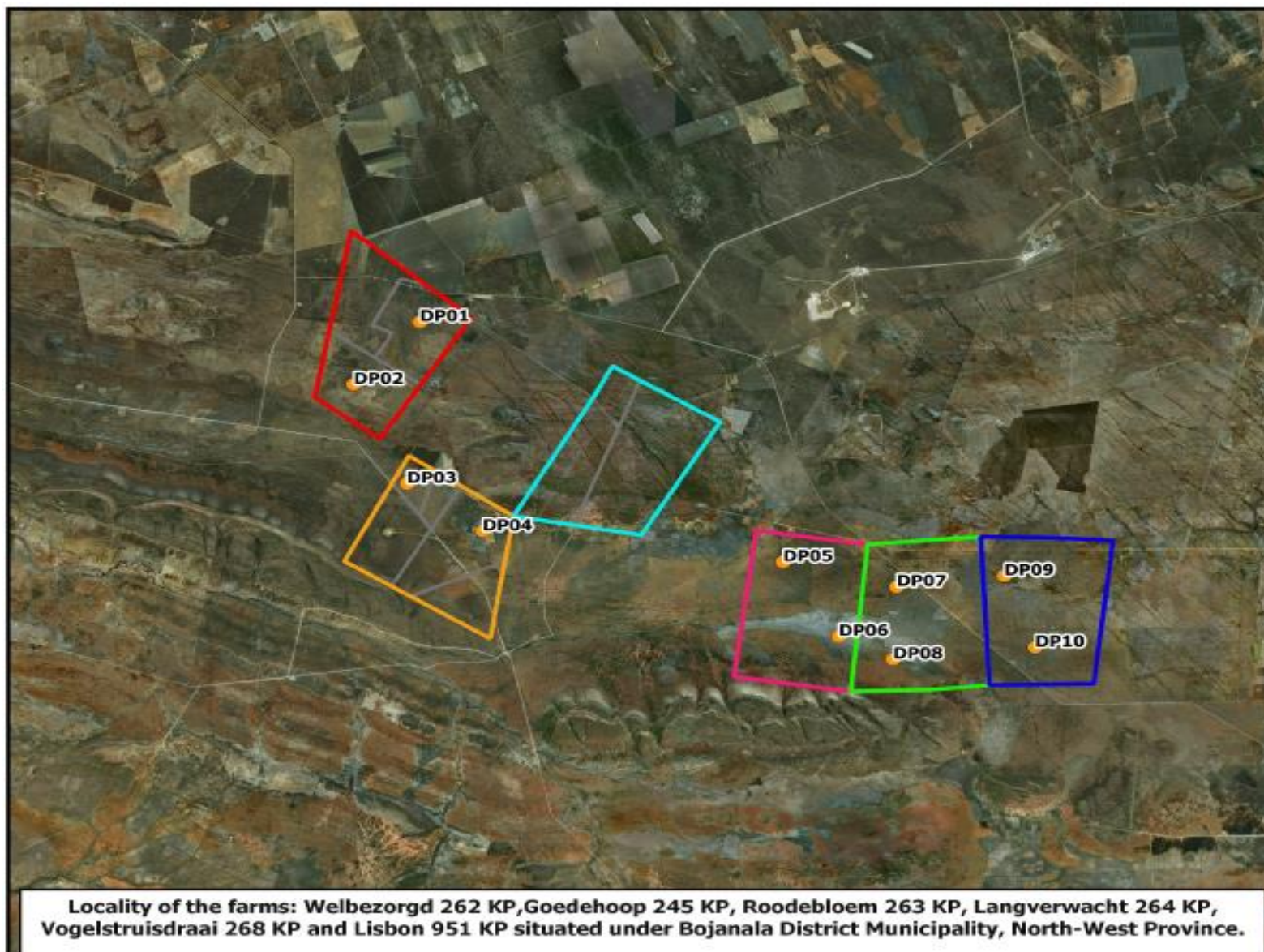
❖ **Soils**

Soils are predominantly shallow, rocky and clayey. Glenrosa and Mispah soil forms are common, with lime present in low-lying areas. Rocky areas without soil are common on steep slopes. The Dwars River Valley is characterised by prisma-cutanic horizons with melanic structured diagnostic horizons. Around Steelpoort red apedal, freely drained soils occur and these deeper soils include Hutton, Bonheim and Steendal soil forms.

❖ **Underground and Surface Water**

A network of seasonal streams exists on site and there is one perennial stream flowing through the site on the north direction. The Crocodile West water management area borders on Botswana and the Main Rivers are the Crocodile and Marico Rivers which give rise to the Limpopo River at their confluence (DWAF, 2004). The economic activity is dominated by platinum mining. This water management area is the second most populous water management area and has the largest proportionate contribution to the national economy (DWAF, 2004).

Development and utilisation of natural surface water has reached its full potential and a substantial portion of water used is thus transferred from the Vaal River and further afield. Small transfers of water to Gaborone in Botswana and to Modimolle in the Limpopo water management area also occur (DWAF, 2004).



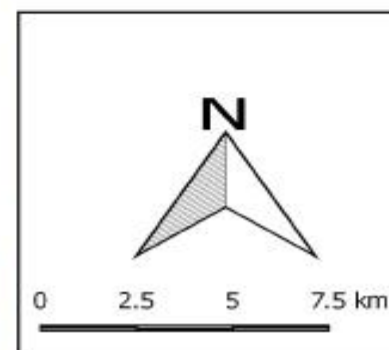
Legend

Prospecting Farms

- Welbezorgd 262 KP
- Goedehoop 245 KP
- Roodebloem 263 KP
- Langverwacht 264 KP
- Vogelstruisdraai 268 KP
- Lisbon 951 KP
- Farm portions

Boreholes Positions

DPNo.	LONG	LAT
DP01	26.644	-24.8418
DP02	26.623	-24.8633
DP03	26.640	-24.8975
DP04	26.664	-24.9138
DP05	26.759	-24.9244
DP06	26.777	-24.9500
DP07	26.796	-24.9330
DP08	26.794	-24.9579
DP09	26.830	-24.9292
DP10	26.840	-26.9538



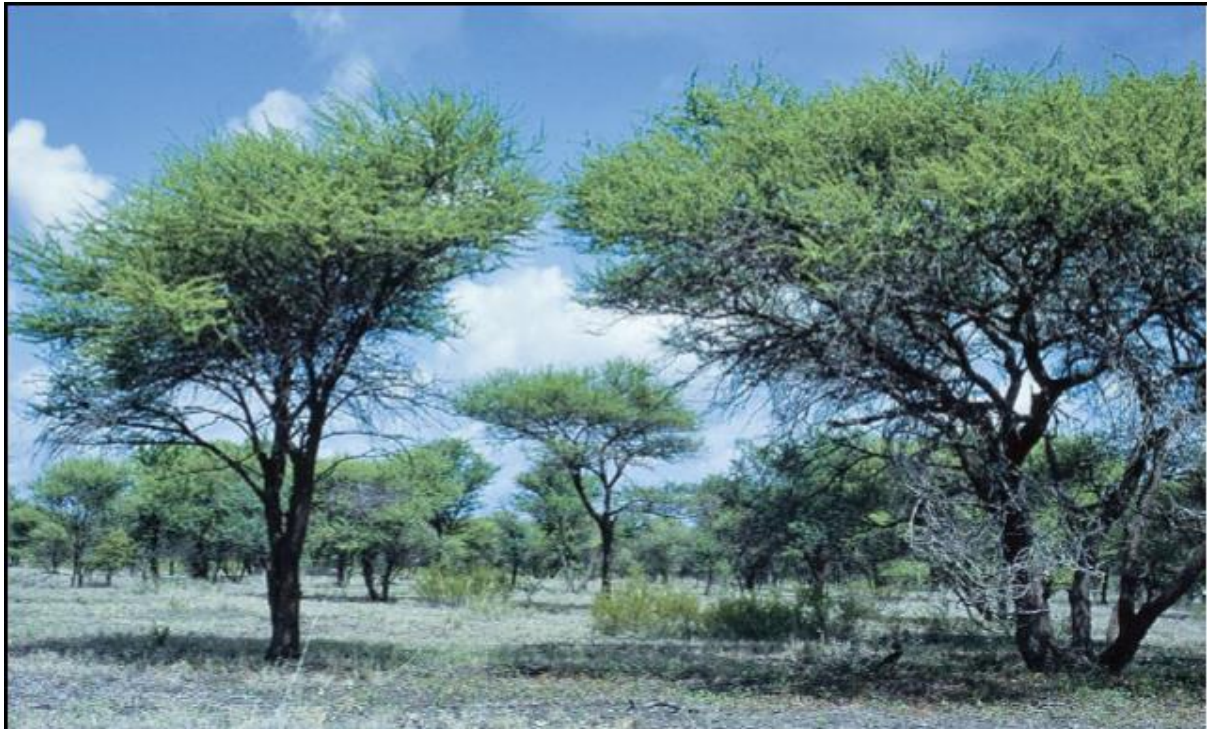
Drilling locations superimposed on buffered site streams

❖ **Biodiversity**

The proposed prospecting site is within the Savanna biome. The savanna vegetation of South Africa and Swaziland constitutes the southernmost extension of the most widespread biome in Africa. It represents 32.8% of South Africa (399 600 km²) and 74.2% of Swaziland (12 900 km²). It extends beyond the tropics to meet the Nama-Karoo Biome on the central plateau, the Grassland Biome at higher altitudes towards the east and extends down the eastern seaboard interior and valleys where it grades into Albany Thicket in the Eastern Cape. More specifically, savanna occupies most of the far-northern part of the Northern Cape, the western and north-eastern parts of North-West Province, extreme western parts of the Free State Province, northern Gauteng with more isolated occurrences in the south of this province, almost the entire Limpopo Province, north western and north-eastern Mpumalanga, most of central and eastern Swaziland, low-altitude parts of the eastern seaboard, inland of the Indian Ocean Coastal Belt in KwaZulu-Natal and the Eastern Cape Provinces, and with the southernmost extension abutting Albany Thicket of the Komga to Albany Districts.

More specifically the site is located within two vegetation types the Central Bushveld Bioregion Bushveld namely the SVcb 1 Dwaalboom Thornveld and SVcb 2 Madikwe Dolomite Bushveld. The two vegetation types are described below.

Important Taxa: Tall Tree: *Acacia erioloba*. Small Trees: *Acacia erubescens* (d), *A. nilotica* (d), *A. tortilis* subsp. *heteracantha* (d), *A. fleckii*, *A. mellifera* subsp. *detinens*, *Combretum imberbe*, *Rhus lancea*, *Ziziphus mucronata*. Tall Shrubs: *Acacia hebeclada* subsp. *hebeclada*, *Combretum hereroense*, *Diospyros lycioides* subsp. *lycioides*, *Euclea undulata*, *Grewia flava*, *Tarchonanthus camphoratus*. Low Shrubs: *Acacia tenuispina* (d), *Abutilon austro-africanum*, *Aptosimum elongatum*, *Hirpicium bechuanense*, *Pavonia burchellii*, *Solanum delagoense*. Succulent Shrubs: *Kalanchoe rotundifolia*, *Talinum caffrum*. Herbaceous Climber: *Rhynchosia minima*. Graminoids: *Aristida bipartita* (d), *Bothriochloa insculpta* (d), *Digitaria eriantha* subsp. *Eriantha* (d), *Ischaemum afrum* (d), *Panicum maximum* (d), *Cymbopogon pospischilii*, *Eragrostis curvula*, *Sehima galpinii*, *Setaria incrassata*. Herbs: *Heliotropium ciliatum*, *Kohautia caespitose* subsp. *brachyloba*, *Nidorella hottentotica*.



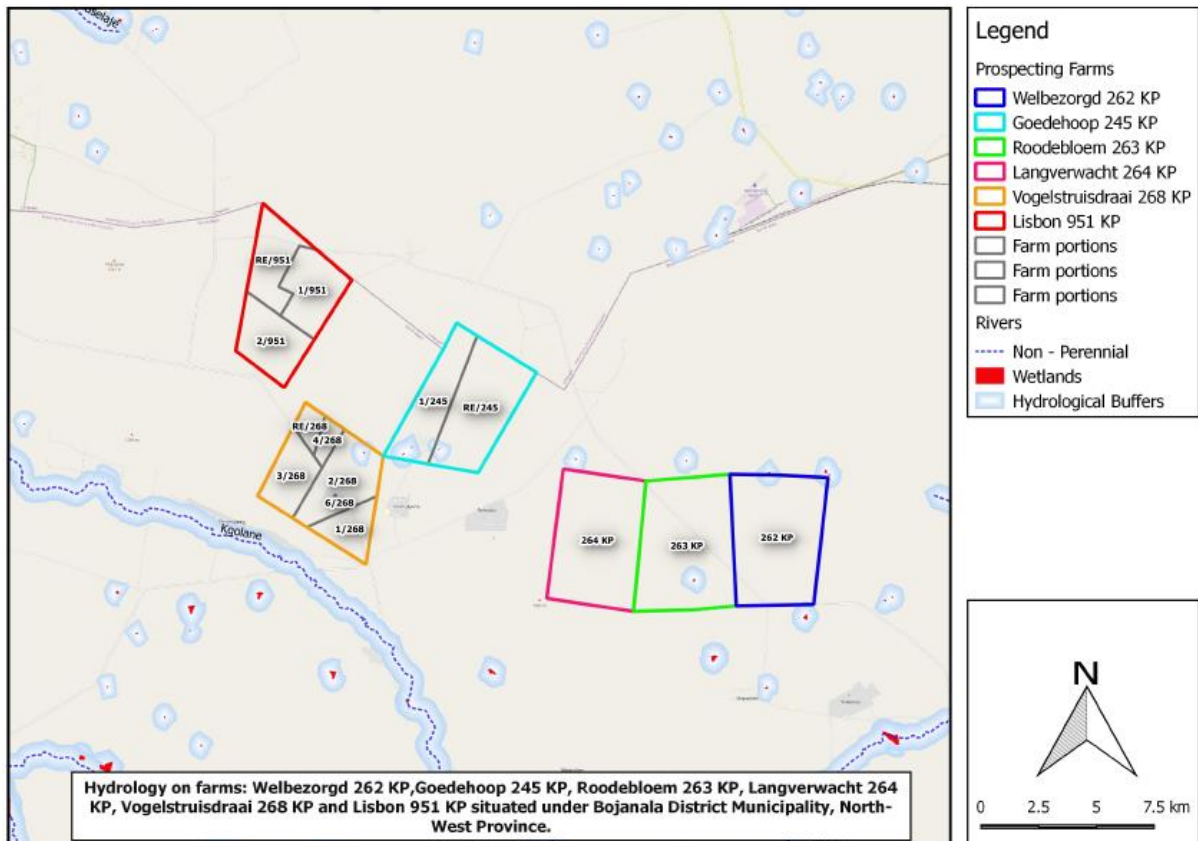
Dwaalboom Thornveld



SVcb 2 Madikwe Dolomite Bushveld

❖ Site Ecological Sensitivity

The site sensitivity was determined from the North West Terrestrial Conservation Plan. According to this conservation plan three layers are present on site, the Critical Biodiversity Area 1 and the Ecological Support Area 1 and 2. Transformed.



Site Sensitivity Map

❖ Heritage Resources

A Heritage Impact Assessment was not undertaken as part of the development of the impact assessment. Based on desktop review and available Geographic Information System data, graves and any historical and cultural feature are not present within the prospecting area.

(b) Description of the current land uses.

- ❖ The determination of the existing site-specific and surrounding land use provides input into the process of impact identification and the establishment of closure objectives. Site-specific land use has been confirmed as settlement and agricultural activities and prospecting activities may present a disturbance to the crops within the fenced property.

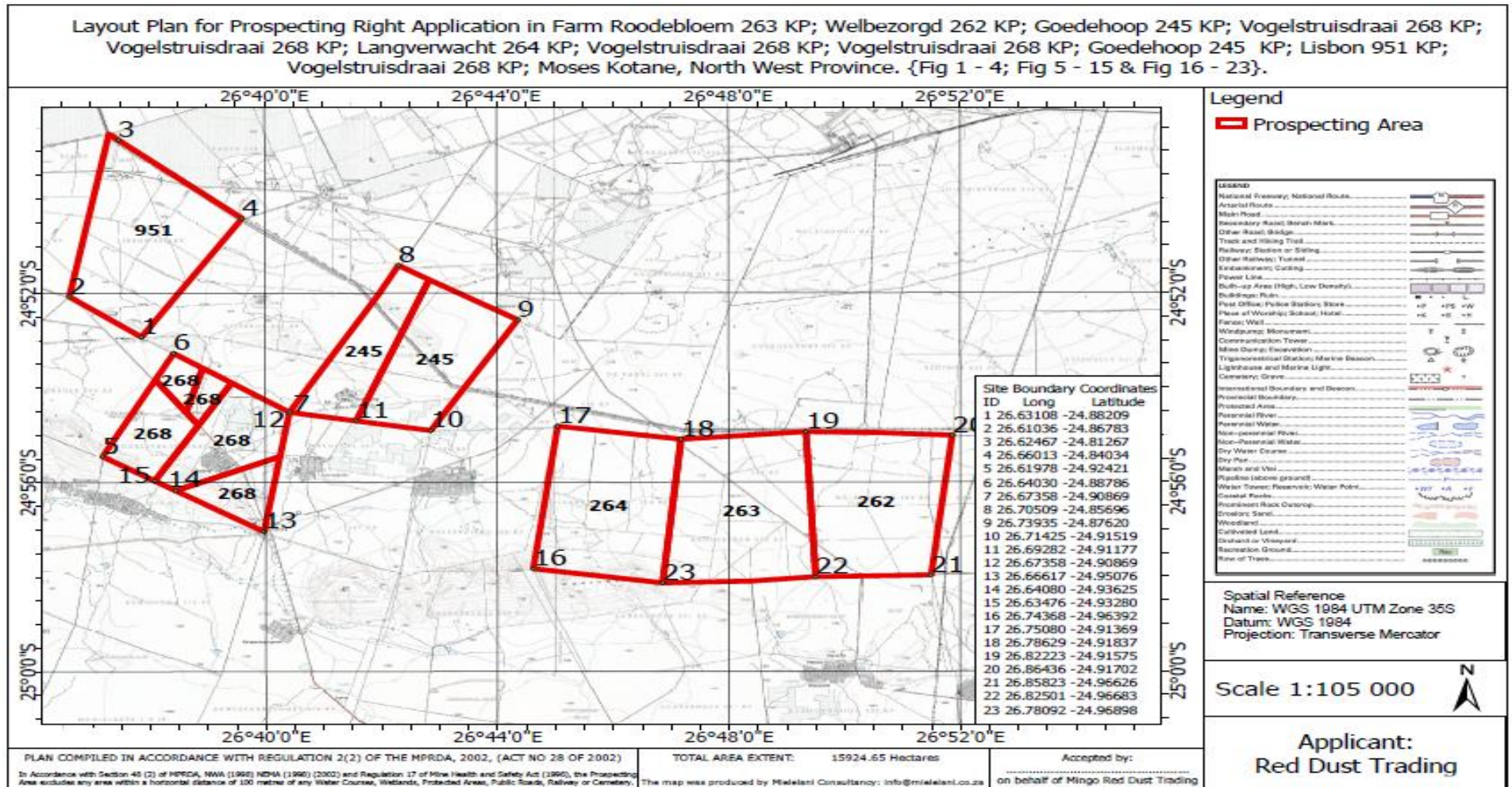
Rehabilitation objectives to restore the site to pre-prospecting state must consider safety matters and an effective re-vegetation effort to reverse the impacts as far as is practicable.

- ❖ Due to the level terrain, water-related soil erosion is not a major factor.

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

- ❖ The current land and surrounding of the proposed site are characterised by subsistence and commercial farming.

(d) Environmental and current land use map



Land use

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

Here a list of possible impacts will be provided, a full impact analysis which includes the significance of the impacts, their nature, extent, duration and probability of the impacts, the degree impacts reversibility and irreplaceable loss of resources has been provided in section 1)j) of Part A on page 46 as per the assessment criteria provided in section 1)a)v) of Part A on page 36.

Potential Impacts	Nature	Reversible
Land use conflicts	Negative	Yes
Legal Contraventions – Operating outside authorised scope,	Negative	Yes
Soil compaction, erosion and pollution	Negative	Yes
Water pollution	Negative	Yes
Degradation of wetlands and streams	Negative	Yes
Loss of Flora and Fauna	Negative	Yes
Dust generation	Negative	Yes
Generation of Noise	Negative	Yes
Visual impacts	Negative	Yes
Job creation	Positive	–

v) Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks

The potential environmental impacts associated with the project will be evaluated according to its nature, extent, duration, intensity, probability and significance of the impacts, whereby:

Nature: A brief written statement of the environmental aspect being impacted upon by a particular action or activity.

Extent: The area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact. For example, high at a local scale, but low at a regional scale;

Duration (D): Indicates what the lifetime of the impact will be;

Intensity (I): Describes whether an impact is destructive or benign;

Probability (P): Describes the likelihood of an impact actually occurring;

Impact Reversal (R): The probability and the degree of reversing the activity impact;

Irreplaceable Loss (L): Loss of resources that cannot be replaced; and

Cumulative: In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

The significance of each risk/impact will be identified as follows:

$$\text{Significance} = P \times (E + D + I + R + L)$$

Table 1-4: Criteria Used for Rating of Impacts

CRITERIA	DESCRIPTION			
Extent	National (4) The whole of South Africa	Regional (3) Provincial and parts of neighbouring provinces	Local (2) Within a radius of 2 km of the construction site	Site (1) Within the construction site
Duration	Permanent (4) Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient	Long-term (3) The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory	Medium-term (2) The impact will last for the period of the construction phase, where after it will be entirely negated	Short-term (1) The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase
Intensity	Very High (4) Natural, cultural and social functions and processes are altered to extent that they permanently cease	High (3) Natural, cultural and social functions and processes are altered to extent that they temporarily cease	Moderate (2) Affected environment is altered, but natural, cultural and social functions and processes continue albeit	Low (1) Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected

CRITERIA	DESCRIPTION			
			in a modified way	
Probability Of Occurrence	Definite (4) Impact will certainly occur	Highly Probable (3) Most likely that the impact will occur	Possible (2) The impact may occur	Improbable (1) Likelihood of the impact materialising is very low
Impact Reversal	Highly Impossible (4) Impact reversal will certainly be impossible	Moderate (3) Impact can be reversed to some extent with loss of natural resources	Possible (2) High possibility of impact reversal	Definite (1) Impact can be totally reversed
Loss of irreplaceable resources	Definite (4) Resources definitely be lost	Highly Probable (3) Most likely that resources will be lost	Possible (2) Resources may be lost	Improbable (1) Loss of resources is highly unlikely

Significance is determined through a synthesis of impact characteristics. Significance is also an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

Table 1-5: Criteria for Rating of Classified Impacts

Negligible (5 -10 points)	A negligible impact that can be easily managed and avoided.
Low impact/ Minor (11 -20 points)	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.
Medium impact/ Moderate (21 - 30 points)	Mitigation is possible with additional design and construction inputs.
High impact (31 – 50 Points)	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.
Very high impact/ Major (51 - 80 points)	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a “very high impact” is likely to be a fatal flaw.
Status	Denotes the perceived effect of the impact on the affected area.
Positive (+)	Beneficial impact.
Negative (-)	Deleterious or adverse impact.

The suitability and feasibility of all proposed mitigation measures is included in the assessment of significant impacts. This was achieved through the comparison of the significance of the impact before and after the proposed mitigation measure is implemented.

vi) The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected

POSITIVE IMPACTS

Employment Opportunities: The prospecting activities are not labour intensive, however limited job opportunities will be created for the duration of prospecting period.

SMME and Street Vendor Support: The prospecting team will require basic services from the local community which would mainly be provided by the Small businesses and street vendors.

Ore Reserve quantification: The presence of ore body on site will be verified and thereafter the economic value of the ore body will be determined which could ultimately lead to the establishment of a mine. The mine itself have significant socioeconomic value. In the event that a viable reserve is confirmed, there would be high degree of positive impacts such as employment of large number of local residents, socio-economic balance of the local community and on the National and Provincial scale mining contribute highly to the Gross Domestic Product (GDP).

Contribution to South African Geology Knowledge: The proposed project will establish new geological information which will contribute significantly to mapping of south African geology based on field investigation supported by laboratory analysis.

Eradication of possible illegal mining: Where local knowledge exist about ore reserves the locals are tempted to embark on illicit mining activities to curb social challenges. Although no illegal mining has been noted on site. The illegal mining has detrimental effects on both the environment through the use of environmentally degrading mining techniques and lack of or absence of enforced site rehabilitation; the sale of minerals in the black market also contribute to economic losses. Therefore, a legalised prospecting activities will establish the ore reserve distribution and thereafter authorised mining activities can commence.

NEGATIVE IMPACTS

Generation of waste: The prospecting activities will generate both the general and hazardous wastes. The waste will be managed using the “triple R” principle, Reduce, Reuse and Recycle;

Land use alternative conflicts: The site is not zoned for mining/industrial activities. This will create a parallel demand for land as successful prospecting activities will result in the establishment of a mine. A thorough consultation must be undertaken with all affected parties;

Introduction of Alien Invasive Plants on site: Invasive plants flourish where there is disturbance and ecological imbalances. The clearing of vegetation to establish drill pads area has the potential to attract invasive alien plants;

Criminal activities: Crime in South Africa is a social challenge faced by almost everyone, the presence of prospecting machinery and equipment on site will attract criminals who would seek to steal and sell such equipment;

Noise Generation: The site is largely natural and there are also residential units within the proposed properties, the operation of drilling machinery will create noise that will easily reach the local residents;

Loss of biodiversity: The site is within a vulnerable grassland with threatened species, poor biodiversity management during prospecting activities will increase the threat on already vulnerable species;

Influx of labour to site: The locals who are under severe economic conditions will flux to site seeking employment, this may also create security threat as locals may revolt; and

Degradation of Wetlands, streams and other water sources: There are numerous streams within the proposed site, there is high potential for impacting on the wetlands when crossing to access drilling points, should management measures be ignored.

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

The mitigation measures have been thoroughly discussed in Part A subsection 1)j) and Part B 1)a)iv). Below a summative impact/risk management is provided.

Noise: Directly affected, adjacent landowners in proximity to the site must be informed of the planned activities. The Drilling activities and movement of vehicles into the site should be carried out during the day between 7:00 a.m. to 17:00;

Influx of labour to site: Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment;

Clearing of vegetation: Vegetation clearing must be limited to working areas only and a vegetation clearing method statement signed off by a qualified environmental professional must always be onsite and its specifications adhered to;

Visual Impact: The portable ablution facilities, water tanks and any other infrastructure should be acquired with consideration for colour, natural earth, green and mat black options which will blend in with the surrounding area must be favoured;

Dust generation: Wet dust suppression will be undertaken to manage dust emissions from vehicle movement and other activities as and when needed;

Waste management: system will be implemented and sufficient waste bins will be provided for on-site;

Water: water requirement for the operation must be met through extraction from existing Municipality connections ensuring that all bylaws are adhered to; The operations will be located at least 100 metres from wetlands and streams at all times; Stream crossings to access drill points must be through existing tracks even if they are a long-winding routes in order to protect water resources.

Wild life: The working areas (excavations) must be barricaded to prevent access by wild life, and no hunting will be allowed on site and animals found onsite must be rescued and relocated outside the working areas;

Health and Safety: All the surface opening must be barricaded and marked with reflective tape. The opening must be capped once operation ceases;

Soil Impact Management: When establishing the drill pad, topsoil including the remaining vegetation, will be stripped and stockpiled up-slope of the pad. The stockpile will be shaped to divert storm-water around the drill pad to minimise soil erosion of the pad. Stockpiled topsoil will be used during rehabilitation activities; and

Wetlands Management: The prospecting activities can be undertaken without disturbing site wetlands; the drill sites are located at least 100 metres away from wetlands areas. The wetlands areas must be marked as “no-go” areas and no activity must be allowed within wetlands and their buffers including driving through wetlands.

viii) Motivation where no alternative sites were considered

- ❖ The proposed prospecting area is targeted as the desktop studies suggest that there is high possibility of ore deposits of the Eastern Bushveld Complex;
- ❖ There is sufficient open area with no human settlements that could possibly create conflicts with the land owners;
- ❖ Although there is a network of streams, these can be avoided and prospecting be undertaken on dry areas with 100 metres buffer zones.
- ❖ The proposed site is not densely populated, eliminating human resettlement; and
- ❖ There are no known historical sites that may be affected by prospecting activities.

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

The site layout is mainly influenced by the distribution of the targeted geological stratum, however the drilling site is also influenced by the accessibility and environmental sensitivity. Thus, the drilling sites are located away from all water drainages.

i) Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site

In order to identify the potential impacts associated with the proposed prospecting activities the following steps were undertaken:

(a) Stakeholder consultation

The stakeholder consultation process is currently undertaken in a manner to be interactive, providing landowners and identified stakeholders with the opportunity to provide input into the project. This is a key focus, as the local residence has capabilities of providing site specific information, which may not be available in desktop research material. Stakeholders are requested to provide their views on the project and any potential concerns which they may have. All comments and concerns are captured and formulated into the impact assessment.

(b) Desktop study

A detailed desktop investigation was undertaken to determine the environmental setting in which the project is located. Based on the desktop investigations various resources were used to determine the significance and sensitivity of the various environmental considerations. The desktop investigation involved the use of:

- ❖ South African National Biodiversity Institute (SANBI) Biodiversity Geographic Database LUDS system;
- ❖ Geographic Information System base maps;
- ❖ Department of Water Affairs and Sanitation's information documents such as the ground water vulnerability report;
- ❖ Municipal Integrated Development Plan; and
- ❖ Municipal Strategic Development Framework

(c) Site Visit

A site visit was conducted. The site visit was to ensure that the information gathered as part of the Desktop investigation reflects the current status of the land.

(d) Impacts assessment, rating and management

The ratings of the identified impacts were undertaken in a quantitative manner as provided in Impact Assessment Section. The ratings were undertaken in a manner

to calculate the significance of each of the impacts. The EAP also assesses the outcomes of the calculation to determine whether the outcome reflects the perceived and the actual views; The identification of management measures is done based on the significance of the impacts and measures that have been considered appropriate and successful, specifically as Best Practical and Economical Options.

j) Assessment of each identified potentially significant impact and risk

Table 1-6: Impact Assessment

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence								Where (E + D + I + R + L) X P = Significance			
Potential Impact	Phase	Impact Description	Rating Before Mitigation					Significance Before Mitigation	Mitigation Measures	Significance After Mitigation	
			E	D	I	R	L				P
Legal requirements											
Delayed and/or disrupted prospecting operations	Site Establishment & Construction	<ul style="list-style-type: none"> ✓ Disregarding Environmental Authorisation conditions; ✓ Disregarding access agreement conditions; ✓ Disregarding mining legislative requirements; Partial compliance to EMPr. 	2	3	4	4	4	4	-68	<ul style="list-style-type: none"> ✓ A copy of each operational license/permit must be kept on site; ✓ All site personnel must be inducted on all legislative requirements pertaining to site activities; ✓ In cases where amendments are required the existing conditions are binding until legally amended. 	-10
Legal liabilities	Site Establishment & Operational	<ul style="list-style-type: none"> ✓ Property owners suing for damages and /or unapproved access into their properties; ✓ Legal penalties for failing to comply with site operational licenses/authorisations/permit. 	1	3	2	3	3	3	-36	<ul style="list-style-type: none"> ✓ All permits/authorisations/licenses must be fully reviewed before work can be undertaken to ensure that required resources are made available; ✓ A complaint register must be established to record all complaints from land owners and other affected parties also reflected measures taken to address the complaints and dates. 	-18
Soil											
Leakages and spillage of hazardous chemicals from storage areas.	Site Establishment & construction	<ul style="list-style-type: none"> ✓ Leakages of hydrocarbons from site vehicles and operating equipment; ✓ Leakages and spillage of hazardous chemicals from storage areas. 	1	3	1	1	1	2	-14	<ul style="list-style-type: none"> ✓ All site vehicles and equipment must be properly maintained regularly and daily inspection sheet be kept with each truck; ✓ A drip tray must be placed under stationery machineries; ✓ Leakages and Spillages must be attended to as soon as they are noticed and the contaminated soil must be placed in designated plastic bags/bins to be cleaned or disposed of at registered appropriate waste site. 	-6
Soil Compaction	Site Establishment & Construction	Compaction of soil by site moving vehicles reducing vegetation growing capabilities;	1	2	1	1	1	4	-24	<ul style="list-style-type: none"> ✓ Vehicle and machinery movements must be restricted to approved corridors; ✓ No new access roads must be developed without the approval of site ECO; ✓ The property owners must be notified of newly established access roads. ✓ Created access roads no longer in use must be ripped for vegetation regrowth. 	-10

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence									Where (E + D + I + R + L) X P = Significance		
Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
			E	D	I	R	L	P			
Loss and degradation of topsoil	Site Establishment & Construction	<ul style="list-style-type: none"> ✓ Removal of topsoil to establish drill pads area; ✓ Loss of topsoil through erosion and contamination resulting in reduced vegetation rehabilitation potential 	1	2	1	2	2	4	-32	<ul style="list-style-type: none"> ✓ Topsoil must be stockpiled separately from any other site materials; ✓ The topsoil must be stockpiled away from the drainage lines and outside the 1:100 year floodline but within the approved prospecting area; ✓ Contaminated topsoil must be treated as soon as possible and where treatment is not possible, the soil must be separated and stored in contaminated materials bin; ✓ Storm water diversion channels must be developed around topsoil stockpiles; ✓ Topsoil must not be used for any other activity besides rehabilitation unless there is excess. 	-10
Soil Erosion	Site Establishment, Construction and Post Closure	Erosion of loose soils and stockpiled soils	1	4	1	1	1	3	-24	<ul style="list-style-type: none"> ✓ storm water diversion channels must be developed around stockpiling area; ✓ Soil disturbance must be limited to working area. 	-12
Biodiversity											
Loss of vegetation	Site Establishment & construction	<ul style="list-style-type: none"> ✓ Clearing of vegetation for establishment of drill area; ✓ Clearing of vegetation to create access roads; ✓ Clearing of Vegetation to establish stockpiling area; and ✓ Possible fire breaks from operations. 	1	3	1	2	2	4	-36	<ul style="list-style-type: none"> ✓ Although no protected or endangered plant species were identified during the EIA Site Assessment process, the absence of such must be confirmed before clearing takes place; ✓ Vegetation clearing must be limited to working area; ✓ The identified drill areas must not be cleared all at once but progressively with prospecting activity; ✓ Seedbank for indigenous vegetation may be established to aid during site rehabilitation; No fires must be allowed on site. 	-8

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence									Where (E + D + I + R + L) X P = Significance		
Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
			E	D	I	R	L	P			
Loss of fauna	Site Establishment, Construction and Post Closure	<ul style="list-style-type: none"> ✓ Loss of habitat when vegetation is cleared and wild environment invaded by prospecting activities; ✓ Restricted fauna movement and increased health and safety risks to wildlife due to deep excavations and barricades; ✓ Driving over micro and small wild animals; ✓ Wild life hunting by the prospecting crews. 	2	2	1	2	2	4	-36	<ul style="list-style-type: none"> ✓ No hunting must be allowed on site; ✓ The site must be kept neat at all times to avoid attraction of scavengers; ✓ Where animals are spotted within working areas they must be rescued and moved to adjacent undisturbed areas; Excavations must be barricaded to prevent animal fall-in; ✓ All excavations must be re-filled once the mining at that specific area ceases; ✓ No pets must be brought to site; ✓ Site activities must be restricted to day time. 	-12
Invasion by invasive alien plants	Site Establishment, Operational & Post Closure	Introduction of invasive alien plants	2	3	2	2	2	4	-44	<ul style="list-style-type: none"> ✓ A poster of all common invasive plants for the area must be developed and employees be inducted on the subject; ✓ All invasive plants must be removed as soon as they are noticed; ✓ An invasive plants monitoring programme must be developed for both operational and post operational phases. 	-16
Surface and Ground water											
High usage of water	Construction	Demand for water for machinery and dust suppression during prospecting activities	1	3	2	1	1	3	-24	<ul style="list-style-type: none"> ✓ No new water boreholes must be drilled onsite for meeting operational water requirements; ✓ Water must be obtained from existing sources and a usage consent must be obtained from the municipality; ✓ The water usage bylaws for local Municipalities must be adhered to; ✓ Water usage must be recorded by the site Environmental officer on a daily basis. 	-8
Surface and ground water contamination	Site Establishment, Construction & Post-Mining	<ul style="list-style-type: none"> ✓ surface water getting into contact with contaminated soils; ✓ Contaminated materials going down drill holes into subsurface water; ✓ Flow of storm water from contaminated areas into surface water drainages 	1	3	1	1	2	3	-24	<ul style="list-style-type: none"> ✓ All drill holes must be capped once the prospecting is done at such drill area; ✓ Storm water must be diverted away from the drill areas; ✓ Contaminated water must be contained; ✓ All contaminated surfaces must be cleaned as soon as they are noticed; 	-10

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence									Where (E + D + I + R + L) X P = Significance		
Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
			E	D	I	R	L	P			
										<ul style="list-style-type: none"> ✓ Temporary chemical toilets must be provided by a company approved by the Engineer. These toilets must be made available for all site staff. The construction of "long drop" toilets is forbidden; ✓ Under no circumstances may open areas or the surrounding bush be used as a toilet facility; ✓ Aquifer detection methods should be applied before drilling can be undertaken. 	
Altering of river/ stream bed	Site Establishment & construction	<ul style="list-style-type: none"> ✓ Stream and river bed alteration during crossing to access drill points within the proposed site 	1	3	2	2	1	3	-27	<ul style="list-style-type: none"> ✓ Stream crossing must be through existing tracks, and no new crossings must be created; ✓ Crossing must be in dry streams that must be rehabilitated immediately after usage; and ✓ Alien plants invasion must be monitored in all disturbed river bed. 	-10
Enviro-Socioeconomic											
Job creation	Site Establishment & construction	The machinery and vehicle operate will be required.	2	3	1	0	0	4	24	<ul style="list-style-type: none"> ✓ The employees should be sourced from the local human resource pool; ✓ The number of employees required and the employment methods should be communicated. 	24
land owner conflicts	Site Establishment, Construction & Post-Mining	<ul style="list-style-type: none"> ✓ Property owner reluctant to grant access into their properties; ✓ Highly degraded properties after prospecting activities cease. 	1	4	2	0	0	4	-28	<ul style="list-style-type: none"> ✓ Land access agreement must be reached between the applicant and the property owners; ✓ Operational times must be communicated with the property owners; ✓ All mining activities must be limited to approved areas; ✓ No hunting must be allowed on site; ✓ No camping areas must be established on site; ✓ Access roads establishment must be done in consultation with property owners. 	-3

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence									Where (E + D + I + R + L) X P = Significance		
Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
			E	D	I	R	L	P			
Visual alterations	Site Establishment & construction	The presence of machineries in an open area will change the stance of the area during the prospecting period.	1	3	1	1	1	3	-21	<ul style="list-style-type: none"> ✓ All site activities must be limited to approved area; ✓ The property owners must be made aware of prospecting scheduling; ✓ All site personnel must be fully aware of property owners' access conditions. 	-10
Noise Pollution	Site Establishment & construction	Introduction of noisy heavy machinery and vehicles on site	1	3	2	1	1	2	-16	<ul style="list-style-type: none"> ✓ The property owners and other affected parties must be made aware of activity scheduling; ✓ The activities must be conducted during the day i.e. from 07:00 to 18:00. 	-12
Land Pollution	Site Establishment & Construction	General waste littering by site team	1	3	2	1	1	3	-24	<ul style="list-style-type: none"> ✓ All site personnel will be inducted on reduce, reuse and recycle concept; ✓ Temporary chemical toilets must be provided by a company approved by the Engineer. These toilets must be made available for all site staff. The construction of "long drop" toilets is forbidden; ✓ Under no circumstances may open areas or the surrounding bush be used as a toilet facility. ✓ Waste must be separated and stored in marked bins; ✓ Waste disposal certificates must be kept on-site; ✓ A clean-up campaign must be undertaken every second Friday; 	-7
Compromised safety and security	Site Establishment & Construction	The site activities will result in influx of people to site creating security risks for workers and property owners'.	1	3	2	3	3	4	-48	<ul style="list-style-type: none"> ✓ Land owners must be provided with mine schedule; ✓ No hiring must be done on site; ✓ All site personnel must have identification card; ✓ All activities must remain within the approved site. 	-24
Heritage Resources											
Destruction of Heritage Resources	Site Establishment & Construction	Unearthing of heritage significance artefacts during drilling activities.	1	1	1	1	1	2	-10	<ul style="list-style-type: none"> ✓ There are no historically or heritage resources known to be on site; ✓ Should any paleontological or cultural artefacts be discovered work at the point of discovery must stop, the location be clearly demarcated and SAHRA contacted immediately. Work at the 	-10

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence									Where (E + D + I + R + L) X P = Significance		
Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
			E	D	I	R	L	P			
										discovery site may only be recommended on instruction from SAHRA.	
Health and Safety											
Bodily injuries	Site Establishment & Operational	<ul style="list-style-type: none"> ✓ Injuries arising from erratic operations or mechanical failures of site machinery and vehicles; ✓ Fall into excavations either by personnel or general public; ✓ Chipping of outcrops to obtain outcrop samples; ✓ Encounter with dangerous wild animals during site survey; 	1	3	1	2	2	3	-27	<ul style="list-style-type: none"> ✓ The site machinery must be kept in good working conditions; ✓ All machinery operators must have permit/license to operate; ✓ Excavations must be demarcated and marked with visible tape; ✓ First aid kits must be made available on site and a trained Safety, Health and Environment Representatives be assigned for each team; ✓ The Geologists conducting field mapping should wear protective clothing. ✓ During prospecting activities all employees must be provided with Protective clothing; ✓ All site personnel must have a working cell phone to communicate in case of emergency during survey phase. 	-12
Wetlands											
Degradation of wetlands	Site Establishment & Operational	<ul style="list-style-type: none"> ✓ Driving through wetlands and destructing wetlands habitat; ✓ Drilling and sampling within wetlands and their buffers. ✓ Cutting off wetlands supply resulting in dried up wetlands; and ✓ Contaminating wetlands with hydrocarbons 	1	3	2	3	2	3	-30	<ul style="list-style-type: none"> ✓ The site wetlands must be identified and marked as "No-Go" Areas; and ✓ Stream crossings must be at existing crossings only, no new stream crossing must be created. 	6

k) Summary of specialist reports

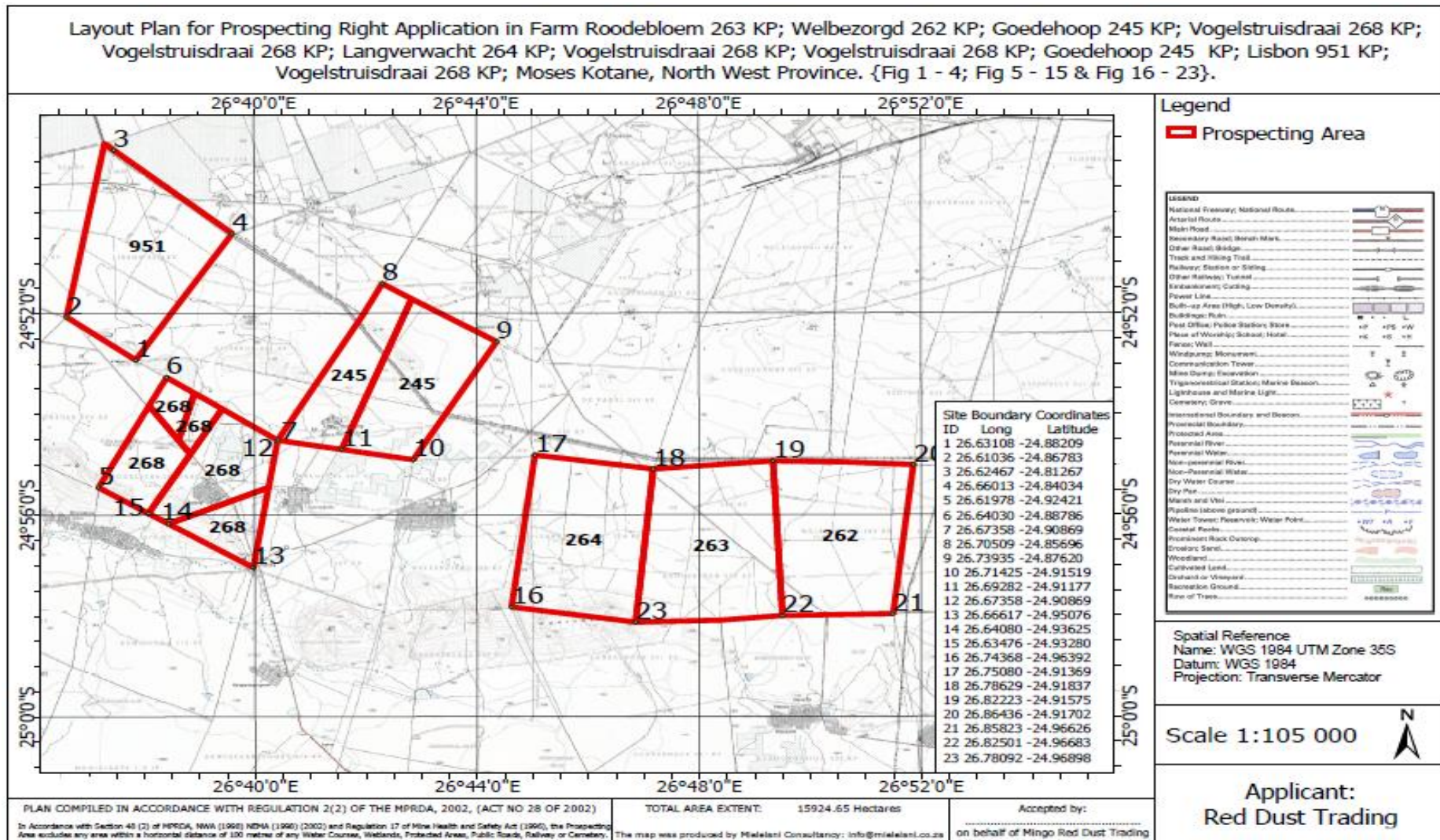
<p>LIST OF STUDIES UNDERTAKEN</p>	<p>RECOMMENDATIONS OF SPECIALIST REPORTS</p>	<p>SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT <i>(Mark with an X where applicable)</i></p>	<p>REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.</p>
<p>No specialist studies have been undertaken</p>			

I) Environmental impact statement

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

- The site lies within the grassland biome which according to the to the North West Terrestrial CBA of 2015, the site is located on a Critical Biodiversity Area and an Ecological Support Area. Critical Biodiversity Areas (CBAs) are terrestrial and aquatic areas of the landscape that need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services;
- The area of disturbance will be limited to exploration sites (i.e. the drill pad and access area) and as such the impacts can be managed, minimized and/or be prevented.
- The prospecting activities are not water intensive users (6 litres per 40m drill hole) and as such water requirements will be significantly low and so is the impact on water. Since the prospecting activities will be undertaken on dry land the impacts on water sources is considered **very low**;
- Prospecting activities are not labour intensive and will therefore not have any significant impact on the socioeconomic status of the local community;
- There are no wetlands within the proposed site. The wetlands areas are highly sensitive and will therefore be marked as "No-Go" areas;
- The disturbance will be limited to 0.3 ha per drill pad area, however this excludes access roads that may be created.

ii) Final Site Map



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

POSITIVE IMPACTS

Employment Opportunities: The prospecting activities are not labour intensive, however limited job opportunities will be created for the duration of prospecting period.

SMME and Street Vendor Support: The prospecting team will require basic services from the local community which would mainly be provided by the Small businesses and street vendors.

Ore Reserve quantification: The presence of ore deposit on site will be verified and thereafter the economic value of the minerals will be determined which could ultimately lead to the establishment of a mine. The mine itself have significant socioeconomic value. In the event that a viable reserve is confirmed, there would be high degree of positive impacts such as employment of large number of local residents, socio-economic balance of the local community and on the National and Provincial scale mining contribute highly to the Gross Domestic Product (GDP).

Contribution to South African Geology Knowledge: The proposed project will establish new geological information which will contribute significantly to mapping of south African geology based on field investigation supported by laboratory analysis.

Eradication of possible illegal mining: Where local knowledge exist about ore deposits the locals are tempted to embark on illicit mining activities to curb social challenges. Although no illegal mining has been noted on site. The illegal mining has detrimental effects on both the environment through the use of environmentally degrading mining techniques and lack of or absence of enforced site rehabilitation; the sale of minerals in the black market also contribute to economic losses. Therefore, a legalised prospecting activities will establish the ore reserve distribution and thereafter authorised mining activities can commence.

NEGATIVE IMPACTS

Generation of waste: The prospecting activities will generate both the general and hazardous wastes. The waste will be managed using the "triple R" principle, Reduce, Reuse and Recycle;

Land use alternative conflicts: The site is not zoned for mining/industrial activities. This will create a parallel demand for land as successful prospecting activities will result in the establishment of a mine. A thorough consultation must be undertaken with all affected parties;

Introduction of Alien Invasive Plants on site: Invasive plants flourish where there are disturbances and ecological imbalances. The clearing of vegetation to establish drill pads area has the potential to attract invasive alien plants;

Criminal activities: Crime in South Africa is a social challenge faced by almost everyone, the presence of prospecting machinery and equipment on site will attract criminals who would seek to steal and sell such equipment;

Noise Generation: The site is largely natural and there are also residential units within the proposed properties, the operation of drilling machinery will create noise that will easily reach the local residents;

Loss of biodiversity: The site is within a vulnerable grassland with threatened species, poor biodiversity management during prospecting activities will increase the threat on already vulnerable species;

Influx of labour to site: The locals who are under severe economic conditions will flux to site seeking employment, this may also create security threat as locals may revolt; and

Degradation of Wetlands, streams and other water sources: There are numerous wetlands and streams within the proposed site, there is high potential for impacting on the wetlands when crossing to access drilling points, should management measures be ignored.

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

Impact management objectives are described in terms of the Mitigation Hierarchy of the ERM Impact Assessment Standard. The mitigation hierarchy is as follows:

Avoid at Source: Reduce at Source: avoiding or reducing at source through the design of the Project (e.g., avoiding by siting or re-routing activity away from sensitive areas or reducing by restricting the working area or changing the time of the activity).

Abate on Site: add something to the design to abate the impact (e.g., pollution control equipment, traffic controls, perimeter screening and landscaping).

Abate at Receptor: if an impact cannot be abated on-site then control measures can be implemented off-site (e.g., noise barriers to reduce noise impact at a nearby residence or fencing to prevent animals straying onto the site).

Repair or Remedy: some impacts involve unavoidable damage to a resource (e.g. agricultural land and forestry due to creating access, work camps or materials storage areas) and these impacts can be addressed through repair, restoration or reinstatement measures.

Compensate in Kind; Compensate Through Other Means: where other mitigation approaches are not possible or fully effective, then compensation for loss, damage and disturbance might be appropriate (e.g., planting to replace damaged vegetation, financial compensation for damaged crops or providing community facilities for loss of fisheries access, recreation and amenity space).

Impact management objectives:

- ❖ Provide sufficient information to strategically plan the prospecting activities as to avoid unnecessary social and environmental impacts
- ❖ Provide sufficient information and guidance to plan the prospecting activities in a manner that would reduce impacts (both social and Environmental) as far as practicable.
- ❖ Ensure an approach that will provide the necessary confidence in terms of environmental compliance.
- ❖ Provide a management plan that is effective and practical for implementation

Through the implementation of the proposed mitigation measures, it is anticipated that the identified social and environmental impacts can be managed and mitigated effectively. Through the implementation of the mitigation and management measures it is expected that:

- ❖ Noise impacts can be managed through consultation and through the restriction of operating hours;
- ❖ The pollution of soil and water resources can be effectively managed through containment;
- ❖ Ecological impact can be managed through the implementation of pollution prevention measures, minimising land clearing, restricting working hours (faunal disturbances) and rehabilitation.
- ❖ Concerns regarding access control to the farm can be managed through the development and ensuring compliance to an appropriate access control procedure.
- ❖ Risks associated with crime can be mitigated through avoiding recruitment activities on site as well as monitoring and reporting.
- ❖ Visual impacts can be minimized through giving consideration to drill site, infrastructure placement and materials used.

n) Aspects for inclusion as conditions of Authorisation

- ❖ A map detailing the drilling locations should be submitted to the relevant landowners and the DMR prior to the commencement of these activities;
- ❖ Creation of access roads must be done in consultation with land owners and occupants;
- ❖ The land owners and occupants must be made aware of working hours and The drilling activities should be restricted to daytime;
- ❖ No activities may take place within 32 metres from any river and wetlands must be marked as "No-Go" areas;
- ❖ All wastes generated must be disposed of at an appropriate registered landfill and disposal certificate be kept on site;
- ❖ Clearing of vegetation should be limited to the working area only; and
- ❖ Threatened species must be rescued and relocated should they be within area of disturbance.

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

- ❖ The confidence for presence of mineral deposits is based on desktop studies;
- ❖ The entire site was not traversed for protected species identification, the identification was aided by desktop studies and as such care should be exercised when removing vegetation;
- ❖ The absence of Heritage significance areas and artefacts was based on desktop studies using pre-existing literature and GIS Software Programs.

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

i) Reasons why the activity should be authorized or not

It is the opinion of the EAP that the activity be authorised.

- ❖ Based on the desktop studies the site lies within the Eastern Bushveld Complex and therefore mineral deposits are more likely; prospecting activities must be undertaken to determine the mineral reserves;
- ❖ The disturbance on water resources will be very minimal as prospecting activities will be undertaken on dry lands;
- ❖ The disturbance on biodiversity can be full reversed once the prospecting activities ceases;
- ❖ The site is located outside sensitive and protected areas with no critical areas, the site is also dry with very few surface drainage; and
- ❖ The acquire geological knowledge will contribute significantly to the academic world towards mapping of South African geology based on drilling results.

ii) Conditions that must be included in the authorisation

- ❖ A map detailing the drilling locations should be submitted to the relevant landowners and the DMR prior to the commencement of these activities;
- ❖ Creation of access roads must be done in consultation with land owners and occupants;
- ❖ The land owners and occupants must be made aware of working hours and The drilling activities should be restricted to daytime;
- ❖ No activities may take place within 32m from any river and wetlands must be marked as "No-Go" areas;
- ❖ All wastes generated must be disposed of at an appropriate registered landfill and disposal certificate be kept on site;
- ❖ Clearing of vegetation should be limited to the working area only; and
- ❖ Threatened species must be rescued and relocated should they be within area of disturbance;
- ❖ An annual performance must be undertaken throughout the duration of the prospecting activities;
- ❖ The financial provision must be reviewed annually to determine if it's still appropriate to site activities; and

- ❖ A complaints register must be kept on site, recording each complaint and how it was addressed.

q) Period for which the Environmental Authorisation is required

The Prospecting Right has been applied for a period of five years. The Environmental Authorisation should therefore allow for the five years of prospecting and one year for decommissioning and rehabilitation.

r) Undertaking

An undertaking by the EAP and the client is provided for in Section 2 of the EMPr.

s) Financial Provision

The site rehabilitation processes will require **R 71 883.52**

(i) Explain how the aforesaid amount was derived.

The aforesaid amount was derived using the department of mineral resource guideline document for the evaluation of the quantum of closure-related financial provision provided by a mine.

CALCULATION OF THE QUANTUM

Applicant:		Ref No.:	
Evaluators:	Khuliso Ramulondi	Date:	

No.	Description	Unit	A	B	C	D	E=A*B*C*D
			Quantity	Master Rate	Multiplication factor	Weighting factor 1	Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	R14.05	1	1	R0.00
2 (A)	Demolition of steel buildings and structures	m2	0	R195.76	1	1	R0.00
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	R288.49	1	1	R0.00
3	Rehabilitation of access roads	m2	600	R35.03	1	1	R21 018.00
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	R340.01	1	1	R0.00
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	R185.46	1	1	R0.00
5	Demolition of housing and/or administration facilities	m2	0	R391.53	1	1	R0.00
6	Opencast rehabilitation including final voids and ramps	ha	0	R205 242.16	1	1	R0.00
7	Sealing of shafts adits and inclines	m3	0	R105.09	1	1	R0.00
8 (A)	Rehabilitation of overburden and spoils	ha	0.01	R136 828.10	1	1	R1 368.28
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	R170 416.93	1	1	R0.00
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	R494 971.55	1	1	R0.00
9	Rehabilitation of subsided areas	ha	0	R114 572.93	1	1	R0.00
10	General surface rehabilitation	ha	0.2	R108 390.94	1	1	R21 678.19
11	River diversions	ha	0	R108 390.94	1	1	R0.00
12	Fencing	m	23	R123.64	1	1	R2 843.72
13	Water management	ha	0	R41 213.28	0.6	1	R0.00
14	2 to 3 years of maintenance and aftercare	ha	0.3	R14 424.65	1	1	R4 327.40
15 (A)	Specialist study	Sum	0			1	R0.00
15 (B)	Specialist study	Sum				1	R0.00

			Sub Total 1				R51 235.58
1	Preliminary and General		R6 148.27				R6 148.27
			weighting factor 2				
			1				
2	Contingencies		R5 123.56				R5 123.56
			Subtotal 2				R62 507.41
			VAT (15%)				R9 376.11
			Grand Total				R71 883.52

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

It is hereby undertaken that the amount of **R 71 883.52** in the form of a bank guarantee for rehabilitation purposes as required in terms of section 24P (1) of the NEMA, will be provided to the DMR upon granting of the requested prospecting right.

t) 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.

The directly impacted person would be the land owners and/or occupiers within the proposed site. All the affected parties will be identified and consulted before the report is finalised.

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

The site has been disturbed previously by other activities i.e. agriculture and no heritage significance objects were found on site during the undertaking of such activities. It is presumed that there are no artefacts or sites of heritage importance on site.

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

The requirements of the Act in terms of section 24(4) (b) (i) – (vii) as guided by section 24(4A) are provided below with sections in which they have been addressed:

- (i) Investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity:

Part A sections 1.h)v), 1.h)vii, 1.j); and Part B 1.d)iv).

- (ii) Investigation of mitigation measures to keep adverse consequences or impacts to a minimum:

Part A section 1.j) and m); Part B sections 1.d)iv), 1.e), and 1.f).

- (iii) Investigation, assessment and evaluation of the impact of any proposed listed or specified activity on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act;

Part A section 1.t)i)2).

- (iv) Reporting on gaps in knowledge, the adequacy of predictive methods and underlying assumptions, and uncertainties encountered in compiling the required information:

Part A section 1.o).

- (v) Investigation and formulation of arrangements for the monitoring and management of consequences for or impacts on the environment, and the assessment of the effectiveness of such arrangements after their implementation;

Part B section 1.g) – 1.l)

- (vi) Consideration of environmental attributes identified in the compilation of information and maps contemplated in subsection (3);

Part A section 1.h)iv)

PART B

2 ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

a) Details of the EAP

The requirement for the provision of the details and expertise of the EAP are included in PART A, section 1(a).

b) Description of the Aspects of the Activity

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).

c) Composite Map

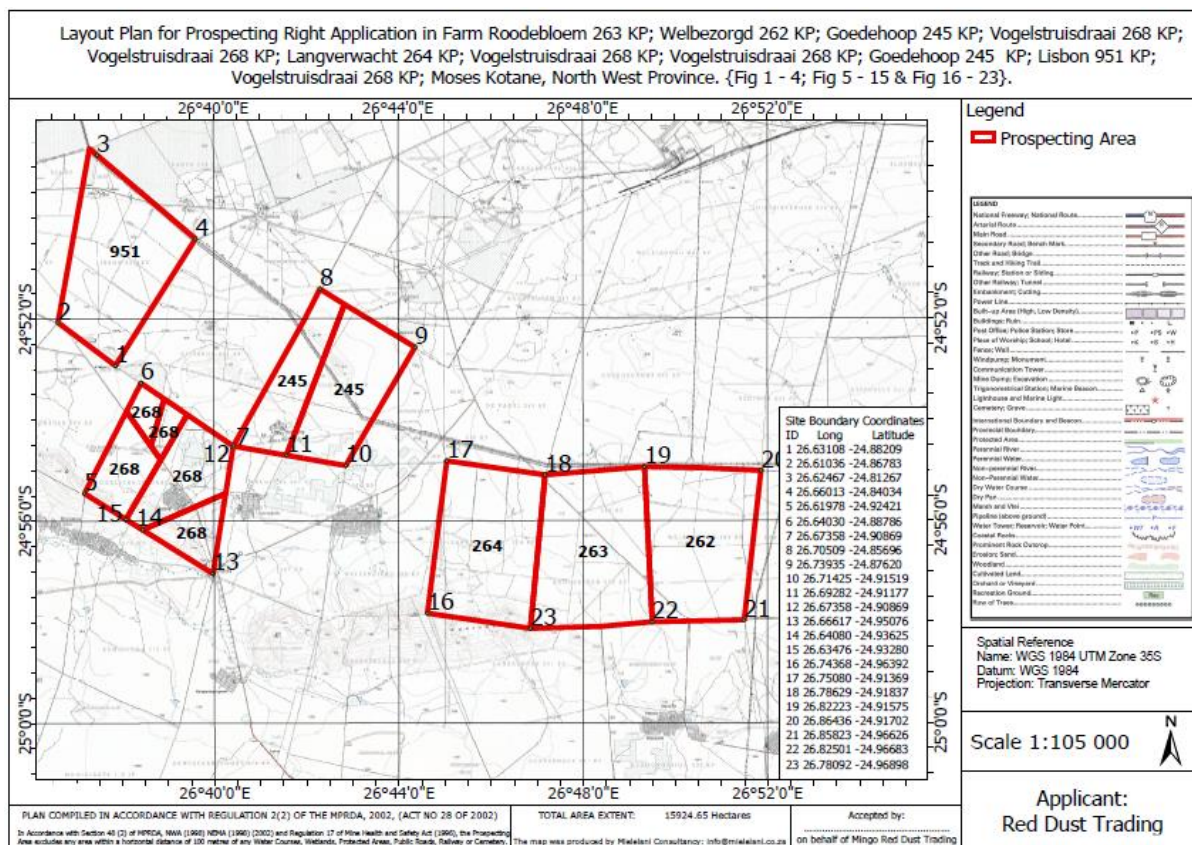


Figure 2-1: Composite Map

d) Description of Impact management objectives including management statements

i) Determination of closure objectives

The closure objectives thus are as follows:

- ❖ Eliminate any safety risk associated with drill holes and sumps through adequate drill hole capping and backfilling.
- ❖ Remove and / or rehabilitate all pollution and pollution sources such as waste materials and spills;
- ❖ To loosen the hardened surfaces which were used temporary site camp or access roads and re-vegetate with indigenous species.
- ❖ Establish rehabilitated area which is not subjected to soil erosion which may result in the loss of soil, degradation of the environment and cause pollution of surface water resources;
- ❖ Restore disturbed area and re-vegetate these areas with indigenous vegetation to restore the ecological function of such areas as far as is practicable.

ii) Volumes and rate of water use required for the operation.

The operational machinery and equipment is expected to use less than 60 litres of water per day for cooling and dust suppression. The water usage will not trigger the National Water Act (36;1998) listed water uses.

iii) Has a water use licence has been applied for?

A water use licence is not required for this project but should any NWA water uses be triggered a water use license will be applied for.

iv) Impacts to be mitigated in their respective phases

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

Table 2-1: Impacts Assessment & Mitigation

IMPACT ASSESSMENT FOR PROSPECTING ACTIVITIES BY RED DUST TRADING PTY LTD								
Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
Desktop Study								
No Impact	Planning	None	None	None	None	Protect sensitive site	Locate sensitive and protected areas such as rivers)	N/A
Creation of access roads (Access to drill points)								
Creation of access roads within streams/rivers and alteration of river beds	Construction	1 ha	Water Supply	Control through planning and design; Control through avoidance	<ul style="list-style-type: none"> ✓ Stream crossings must be through existing tracks; ✓ The altered river beds must be rehabilitated and alien invasive plants be monitored and all foreign materials be removed from the stream courses. 	Protect water resources;	Access roads created in dry lands;	Through the project
Introduction of Alien invasive species	Construction	1 ha	Biodiversity	Control through rehabilitation;	<ul style="list-style-type: none"> ✓ All possible alien invasive plants must be identified and be 	Control listed invasive plants	Alien invasive plants will be identified,	Through the project

IMPACT ASSESSMENT FOR PROSPECTING ACTIVITIES BY RED DUST TRADING PTY LTD

Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
				Control through monitoring;	communicated with site management team for control; ✓ Alien invasive plants must be removed as soon as they are identified; ✓ A post closure monitoring programme must be established.		removed and regrowth monitored.	
Loss of agricultural land	Construction	1 ha	Socioeconomic	Control through consultation with property owners.	The disturbance area must be limited to drill pads and access roads only; All affected property owners must be fully consulted and access agreement be established and signed by both parties.	Preserve economic agricultural area	Land owners will be consulted and compensated for loss of developed agricultural land.	Through the project
Establishment and preparation of drill pads/area								
Unauthorised access into private property	Construction	7 795.040 ha	Private Property	Control through consultation with property owners.	✓ Access agreements must be signed by the land owners; and ✓ All site personnel must have identification cards.	Protection of private properties.	Consult all land owners	Before and after accessing site.
Clearing of vegetation to establish survey	Construction Phase	500 m ²	✓ Biodiversity; ✓ Soil; ✓ Humans; and ✓ Water.	✓ Remedy through rehabilitation;	✓ Site walk must be done before vegetation clearing is undertaken and should there be protected	Biodiversity conservation	✓ Species will be identified before clearing;	Throughput the

IMPACT ASSESSMENT FOR PROSPECTING ACTIVITIES BY RED DUST TRADING PTY LTD

Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
stations and access roads.				<ul style="list-style-type: none"> ✓ Conduct site walks; ✓ Limiting disturbance areas; and ✓ Control through implementing activity methods statement. 	<ul style="list-style-type: none"> species, they must be marked and must not be removed without permit; ✓ Clearing of vegetation must be limited to drill areas only; ✓ New access roads must be created in consultation with the land owners and must not disturb drainage lines; ✓ Multiple tracks must not be created to access a single point; ✓ No fires are allowed on site; and ✓ All disturbed areas must be rehabilitated as soon as they are out of use; ✓ The site must be monitored for invasion by invasive alien plants and they must be removed as soon as they are identified. 		<ul style="list-style-type: none"> ✓ Disturbance will be limited 	Prospecting Period
Destruction of habitats when	Construction	1 ha	Fauna	<ul style="list-style-type: none"> ✓ Control through 	<ul style="list-style-type: none"> ✓ Before vegetation is cleared in each drill station, search and 	Biodiversity conservation	Search and rescue	Throughput the

IMPACT ASSESSMENT FOR PROSPECTING ACTIVITIES BY RED DUST TRADING PTY LTD

Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
clearing vegetation				<ul style="list-style-type: none"> search and rescue; and ✓ Limiting disturbance area. 	<ul style="list-style-type: none"> rescue must be ensured that there is no fauna; ✓ Where fauna are present they must be moved to undisturbed adjacent areas; 			Prospecting Period
Contamination and erosion of topsoil and stockpiles before, during removal and stockpiling	Construction	500 m ²	Soil	<ul style="list-style-type: none"> ✓ Control through storm water diversion beams; ✓ Control through implementing activity methods statement; 	<ul style="list-style-type: none"> ✓ Contamination of soil from any leaks, spillages of hydrocarbons and any other hazardous substances must be cleaned as soon as they occur; ✓ Topsoil stockpiles must be located away from any chemical substance storage; ✓ Site vehicles, machinery and equipment must always be in good working conditions and daily inspections be conducted before they are used and a checklist be kept onsite; ✓ No vehicles and equipment maintenance must be done on 	Rehabilitation standard	Topsoil will be preserved and protected from contamination and erosion for later use during rehabilitation	Throughput the Prospecting Period

IMPACT ASSESSMENT FOR PROSPECTING ACTIVITIES BY RED DUST TRADING PTY LTD

Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
					site and faulty equipment must be taken off site. ✓ Topsoil stockpiles must be located away from drainage lines to prevent erosion;			
Core drilling								
Disturbance of local sewage and water pipes connections	Construction	500m ²	Services supply	✓ Control through consultation with local municipality; ✓ Control through implementing activity methods statement.	✓ Obtain a layout plan for local connections to determine if there are any in the proposed site; and ✓ Should any pipe damage occur, the relevant authority must be notified immediately.	Preservation of private properties	Local connections layout plan will be reviewed to determine best possible area for drilling	Throughout the Prospecting Period
Water contamination emanating from site soil contaminations,	Construction	150 m ²	Water; and soil	✓ Control through environmental	✓ Littering must be controlled on site; ✓ Soil contamination from hazardous substances must be	Protection of water sources and water quality	✓ Contaminations will be prevented and when they occur they will	Throughout the Prospecting Period

IMPACT ASSESSMENT FOR PROSPECTING ACTIVITIES BY RED DUST TRADING PTY LTD

Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
and drainage lines crossings.				awareness training; ✓ Control through implementing activity methods statement; ✓ Control through daily inspection of site machinery and equipment;	attended to as soon as they occur; ✓ All major water contamination must be reported to the Department of Water Affairs; ✓ Site vehicles, machinery and equipment must always be in good working conditions and daily inspections be conducted before they are used and a checklist be kept onsite; ✓ No vehicles and equipment maintenance must be done on site and faulty equipment must be taken off site.		be reported to DWS; ✓ Daily inspections will be conducted.	
Disturbance, contamination of aquifers' in both quality and quantity	Construction	2 ha	Water	✓ Control through implementing activity methods statement; ✓ Control through daily	✓ Before drilling is undertaken ground water detection must be done to avoid water bearing lithologies; and ✓ Drilling holes must be capped overnight to prevent dirt and any impurities to get underground;	Protection of water sources and water quality	Presence of aquifers will be tested before drilling.	Before drilling at each drilling station.

IMPACT ASSESSMENT FOR PROSPECTING ACTIVITIES BY RED DUST TRADING PTY LTD

Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
				inspection of site machinery	<ul style="list-style-type: none"> ✓ The drilling machineries must be kept in good working conditions to prevent leakages of hydrocarbons; 			
Unearthing of heritage significance artefacts	Construction	500 m ²	Heritage Artefacts	Conduct site walks	<ul style="list-style-type: none"> ✓ The site walk conducted during the EIA and the history of site land uses ruled out the possibility of heritage artefacts on site; ✓ However, should any heritage significance artefacts be unearthed work at that area must be stopped immediately and the Police as well as SAHRAS be notified immediately. 	Preservation of heritage sites and objects	Site assessment was done	The site team must remain alert throughout the prospecting period
Generation of dust	Construction	1 ha	Air Quality	Control through dust suppression	<ul style="list-style-type: none"> ✓ Should the activities create significant, the working areas must be watered to prevent generation of dust 	<ul style="list-style-type: none"> ✓ Air Quality standards; ✓ Health and Safety 	Dust suppression	During prospecting activities
Generation of noise as the site is located at less	Construction	1 Ha	Noise	<ul style="list-style-type: none"> ✓ Maintain through servicing of site equipment; and 	<ul style="list-style-type: none"> ✓ All site machineries must be kept in good working conditions; 	Noise standards	Consult affected parties	During prospecting activities

IMPACT ASSESSMENT FOR PROSPECTING ACTIVITIES BY RED DUST TRADING PTY LTD

Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
than 1 km from the town.				✓ Consultation with affected parties.	✓ Faulty machineries must be taken off site for service			
Health and safety risks arising from machinery operations and human errors.	Construction	50 m ²	Health and safety	Control through implementation of activity based methods statements;	<ul style="list-style-type: none"> ✓ Each machine operator must have a certificate of competence for that specific machinery; ✓ All site machineries must be kept in good working conditions; ✓ All excavations must be clearly marked with a reflective tape and barricaded overnight; 	Health and safety standards	Machinery kept in good working conditions;	Throughout the Prospecting Period
Site Rehabilitation								
Soil Erosion	Post Closure	500 m ²	Soil; Water; and Biodiversity	Control through storm water control beams;	<ul style="list-style-type: none"> ✓ Where necessary storm water control beams must be used to control erosion along rehabilitated access roads; ✓ Rehabilitation materials including topsoil must be free of contaminates such as hydrocarbons; 	Erosion prevention	Control erosion	During and after prospecting period

IMPACT ASSESSMENT FOR PROSPECTING ACTIVITIES BY RED DUST TRADING PTY LTD

Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
					<ul style="list-style-type: none"> ✓ Topsoil must not be compacted but care should be given to prevent erosion; 			
Invasion by Alien invasive plants	Post Closure	1 ha	Biodiversity	Control through monitoring and removal.	<ul style="list-style-type: none"> ✓ Invasive alien plants must be monitored during and after prospecting activities; ✓ All invasive plants must be removed once identified and a follow-up be developed. 	Preserving biodiversity	Invasive species will be monitored and cleared.	During and after prospecting period
Other Impacts								
Failing to meet local community expectations especially job creation	Construction	-	Social	Control through consultation	<ul style="list-style-type: none"> ✓ Consultations must be done with local leaders and the number of people to be employed and how they will be employed be communicated; ✓ No unauthorised personnel must be allowed into prospecting site 	Engage local community	Community will be engaged through its elected leaders	Before undertaking prospecting activities
Property theft for both the land	Planning and Construction	-	Social and Security	Implement a working security system to control site access and	<ul style="list-style-type: none"> ✓ All authorised personnel must have identification card; 	Safety and Security	Ensure safety of site personnel	During prospecting activities.

IMPACT ASSESSMENT FOR PROSPECTING ACTIVITIES BY RED DUST TRADING PTY LTD

Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
owners/users and applicant				personnel identification.	✓ No unauthorised personnel must be allowed on site.			

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).	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATIONTYPE	STANDARD TO BE ACHIEVED
Impact management outcomes have been addressed in Table 8 above					

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)	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
Impact management Actions have been addressed in Table 8 above				

(i) Financial Provision

1. Determination of the amount of Financial Provision

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

- a) The facilitation of the re-establishment of the land use and capability to as close as reasonable to the original conditions;
- b) Removal of all infrastructure and material introduced to site;
- c) Removal of all wastes and their disposal;
- d) Promotion of the rapid re-establishment of the natural vegetation and the restoration of the site ecology. The disturbed areas shall be rehabilitated to ensure that:
 - ❖ The biodiversity habitat is encouraging the new land use after the prospecting;
 - ❖ Eliminate any safety risk associated with drill holes and sumps through adequate drill hole capping and backfilling;
 - ❖ Environment and resources are not subjected to physical and chemical deterioration;
 - ❖ The site is reversed to almost its original state;
 - ❖ The after-use of the site is beneficial and sustainable in a long term;
 - ❖ All socio-economic benefits are maximized

The rehabilitation plan shall entail removal of all generated wastes, infrastructure and materials, re-vegetation of disturbed and cleared areas, rehabilitation of access roads, ensuring the growth of the existing grasses and plants species and cleaning of spillages.

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

This Basic Assessment Report and Environmental Management Plan was made available to each registered stakeholder for review and comment for a period of 30 days. The contents of this report were also discussed during public meetings and all participants were given an opportunity to provide their input.

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

Due to the nature of the activities, the impacts will be very limited and of short duration. The management plan is provided in such a manner as to ensure concurrent rehabilitation. The areas for drilling purposes will be the main area experiencing impacts. In this event the activities will be temporary in nature, and a detailed management plan has been provided to address potential impacts associated with these activities. The only rehabilitation that will specifically be required is borehole capping, rehabilitation of access roads and re-vegetation:

❖ **Borehole capping**

Drill holes must be permanently capped as soon as is practicable. Figure below provides the prepared procedure for the secure plugging of exploration drill holes.

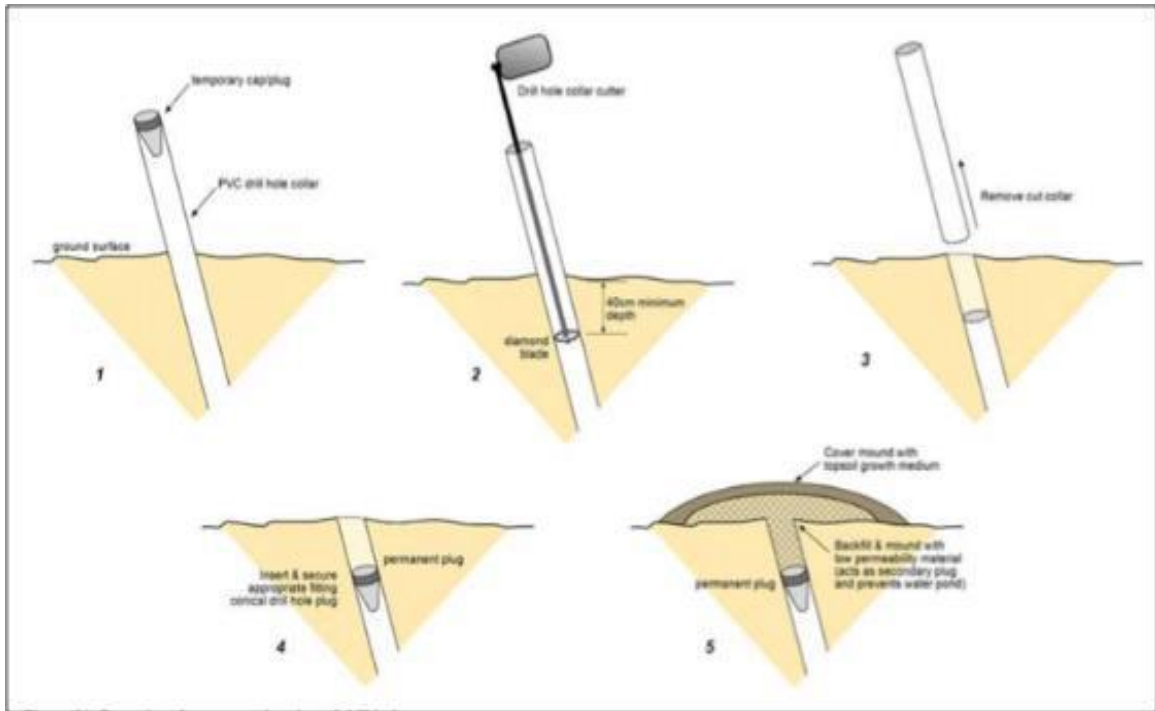


Figure 2-2: *Capping of Boreholes*

❖ **Rehabilitation of created internal access roads**

The internal access roads that were created solely for prospecting activities will be ripped to facilitate vegetation regrowth. The rehabilitation of access roads will be done in consultation with the land owners and the roads will not be ripped should they want to continue using the access roads. This will be done within the limitations of all the relevant Legislations.

❖ **Re-vegetation**

It is recommended that a standard commercial fertilizer high in the standard elements is added to the soil before re vegetation, at a rate of 10 -20k g/ha (application rate to be confirmed based on input from a suitably qualified specialist). The fertilizer should be added to the soil in a slow release granular form. A suitably qualified ecologist will be appointed to determine the appropriate veld grass mix for hand seeding.

Re-vegetation efforts will be monitored every second month for a period of six months after initial seeding. An effective vegetation cover of 45% must be achieved. Re-seeding will be undertaken if this cover has not been achieved after six months.

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

The closure objectives aim at restoring the site to its original state, i.e. conditions that were existing before the prospecting activities were undertaken. The rehabilitation measures will achieve the object, the created access roads will be ripped, boreholes capped and vegetation regrowth will be facilitated where necessary. Once all the rehabilitation activities are completed the site will be fully restored to its original state thus the closure objectives will be met.

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

CALCULATION OF THE QUANTUM							
Applicant:	Red Dust Trading (Pty) Ltd				Ref No.:	NW 30/5/1/1/2/12859 PR	
Evaluators:	Khuliso Ramulondi				Date:		
No.	Description	Unit	A	B	C	D	E=A*B*C*D
			Quantity	Master Rate	Multiplication factor	Weighting factor 1	Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	R14.05	1	1	R0.00
2 (A)	Demolition of steel buildings and structures	m2	0	R195.76	1	1	R0.00
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	R288.49	1	1	R0.00
3	Rehabilitation of access roads	m2	600	R35.03	1	1	R21 018.00
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	R340.01	1	1	R0.00
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	R185.46	1	1	R0.00
5	Demolition of housing and/or administration facilities	m2	0	R391.53	1	1	R0.00
6	Opencast rehabilitation including final voids and ramps	ha	0	R205 242.16	1	1	R0.00
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8 (A)	Rehabilitation of overburden and spoils	ha	0.01	R136 828.10	1	1	R1 368.28
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	R170 416.93	1	1	R0.00
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	R494 971.55	1	1	R0.00
9	Rehabilitation of subsided areas	ha	0	R114 572.93	1	1	R0.00
10	General surface rehabilitation	ha	0.2	R108 390.94	1	1	R21 678.19
11	River diversions	ha	0	R108 390.94	1	1	R0.00
12	Fencing	m	23	R123.64	1	1	R2 843.72
13	Water management	ha	0	R41 213.28	0.6	1	R0.00
14	2 to 3 years of maintenance and aftercare	ha	0.3	R14 424.65	1	1	R4 327.40
15 (A)	Specialist study	Sum	0			1	R0.00
15 (B)	Specialist study	Sum				1	R0.00
Sub Total 1							R51 235.58
1	Preliminary and General		R6 148.27		weighting factor 2		
							1
2	Contingencies				R5 123.56		R5 123.56
Subtotal 2							R62 507.41
VAT (15%)							R9 376.11
Grand Total							R71 883.52

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

It is hereby undertaken that the amount of **R 71 883.52** in the form of a bank guarantee for rehabilitation purposes as required in terms of section 24P (1) of the NEMA, will be provided to the DMR upon granting of the requested prospecting right.

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**

Table 2-2: Compliance Monitoring and Frequency

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Site establishment	Legal transgression; Accidents and Incidents	<ul style="list-style-type: none"> ✓ Prospecting Right; ✓ Environmental Authorisation ✓ Acts, Regulations and any other site permits; and ✓ Access agreements ✓ Emergency Preparedness and Response Plan 	Applicant/ Site EO/ ECO	Weekly monitoring; Monitoring reports must be submitted quarterly to DMR
Creation of access roads	Soil Erosion; Vegetation Clearing;	<ul style="list-style-type: none"> ✓ Existing roads are used as far as practicable; ✓ No multiple tracks are created; ✓ Erosion control beams effectiveness; 	Applicant/ Site EO/ ECO	After creation of each access road; Monitoring reports must be submitted quarterly.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
	Introduction of alien invasive plants.	<ul style="list-style-type: none"> ✓Vegetation clearing limited to working area; ✓ Site walk to identify absence/ presence of threatened and/or protected species; ✓ Control of alien invasive plants; 		
Drill pads establishment and Core drilling	Clearing of vegetation; Contamination of ground water; House keeping	<ul style="list-style-type: none"> ✓ Vegetation clearing limited to working area; ✓ Site walk to identify absence/ presence of threatened and/or protected species; ✓ Control of alien invasive plants; 	Applicant/ Site EO/ ECO	Weekly monitoring; Monitoring reports must be submitted quarterly to DMR

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
		<ul style="list-style-type: none"> ✓ Monitoring of water table depth; ✓ Reducing and reusing of waste on site; ✓ Waste separation and disposal; and ✓ Openings barricades and drill hole capping. 		
Topsoil stockpiling	<p>Stockpiling erosion;</p> <p>Stockpiling contamination;</p>	Erosion & contamination prevention.	Applicant/ Site EO/ ECO	<p>Weekly monitoring;</p> <p>Monitoring reports must be submitted quarterly to DMR</p>
Operation of site machinery	✓ Noise generation;	✓ Dust suppression;	Applicant/ Site EO/ ECO	Daily inspection of equipment; Monitoring

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
	<ul style="list-style-type: none"> ✓ Soil contamination; ✓ Dust generation 	<ul style="list-style-type: none"> ✓ Machinery operational standards; ✓ IAPs consultation. 		reports must be submitted quarterly to DMR
Site Personnel	Security breach	<ul style="list-style-type: none"> ✓ Site employees' identification; ✓ Land owners' complaints; ✓ Access restriction to private properties (beyond prospecting area). 	Applicant/ Site EO/ ECO	Weekly monitoring; Monitoring reports must be submitted quarterly to DMR
Ablution facility	Soil and water contamination	<ul style="list-style-type: none"> ✓ Provision of portable chemical toilets; ✓ Disposal of sewage wastes 	Applicant/ Site EO/ ECO	Weekly monitoring; Monitoring reports must be submitted quarterly to DMR

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Water requirements	Over extraction of water	✓ Water usage	Applicant/ Site EO/ ECO	Water usage must be recorded on a daily basis and monthly reports must be submitted quarterly to DMR
Rehabilitation	Erosion;	<ul style="list-style-type: none"> ✓ Rehabilitation rate and success ✓ Vegetation regrowth 	Applicant/ Site EO/ ECO	Post closure and findings submitted to DMR

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

Annual performance assessments must be undertaken on the EMPr. These reports must also include the assessment of the financial provision. The reports should be submitted to the DMR as per the requirement of section 24P(3) of NEMA (107;1998).

m) Environmental Awareness Plan

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

All the employees including visitors will undergo an environmental induction to ensure that all potential impacts, best practice guidelines and policies are communicated. The induction process will be conducted as per the attached Awareness Program (**Appendix 03**). The induction will cover amongst others the following:

- ❖ Legal requirements for the site i.e. EA, EMPr and WUL;
- ❖ Waste management;
- ❖ Incident and accident Management; and
- ❖ Emergency Response Procedure.

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

The following steps will be undertaken to ensure that risks are identified at the earliest and ensure that they are avoided:

(a) Delegation of a Project Environmental Officer

An Environmental Officer (EO) must be appointed before any activity can be undertaken on site. The officer must be a qualified environmental Practitioner.

(b) Notice of Commencement

Limpopo Department of Mineral Resource must be notified in writing 2 weeks before the prospecting activities are undertaken.

(c) Environmental Documents

Prior to commencement of work on site, the EO is to ensure that the following documents are available on site:

- ❖ The Environmental Authorisation;
- ❖ The final approved Environmental Management Programme (EMPr);
and
- ❖ Method statements for different site activities

(d) Environmental Monitoring

The EO is to undertake monthly internal environmental compliance audits and prepare monthly environmental audit reports during the construction period. The internal environmental audit must include the following information:

- (i) An assessment of the Contractor's compliance with:
 - ❖ The relevant conditions of all permits: EA, WUL, etc.;
 - ❖ The approved Environmental Management Programme;
 - ❖ The approved Construction Site Plan.
 - ❖ The approved Construction Method Statements.
- (ii) Provide feedback on:
 - ❖ Environmental training undertaken;
 - ❖ Any environmental incidents or complaints;
 - ❖ Waste type quantities recycled and disposed;
 - ❖ Any environmental issues identified;
 - ❖ The results of any environmental investigations;
 - ❖ Actions undertaken from previous audits; and
 - ❖ Recommended actions to be undertaken.

(e) Environmental Training

Prior to working on site, every person that will be undertaking any retrofit activities must receive training on the relevant environmental management requirements. The EO is to ensure that the environmental training includes the relevant requirements from:

- ❖ All site authorisations; and
- ❖ The final approved Environmental Management Programme.

(f) Development of procedures and checklists

The following procedures will be developed and all staff and workers will be adequately trained on the content and implementation thereof.

Emergency Preparedness and Response: The procedure will be developed to specifically include risk identification, preparedness, response measures and reporting. The procedure will specifically include spill and fire risk, preparedness and response measures. The appropriate emergency control centers (fire department, hospitals) will be identified and the contact numbers obtained and made available on site. The procedure must be developed in consultation with all potentially affected land owners. In the event that risks are identified which may affect adjacent landowners (or other persons), the procedure will include the appropriate communication strategy to inform such persons and provide response measures to minimize the impact.

Incident Reporting Procedure: Incident reporting will be undertaken in accordance with an established incident reporting procedure to (including but not limited to):

- ✓ Provide details of the responsible person including any person who: (i) is responsible for the incident; (ii) owns any hazardous substance involved in the incident; or (iii) was in control when the incident occurred;
- ✓ Provide details of the incident (time, date, location);
- ✓ The details of the cause of the incident;
- ✓ Identify the aspects of the environment impacted;
- ✓ The details corrective action taken, and
- ✓ The identification of any potential residual or secondary risks that must be monitored and corrected or managed.

Environmental and Social Audit Checklist: An environmental audit checklist will be established to include the environmental and social mitigation and management measures as developed and approved as part of the Environmental Management Plan. Non-conformances will be identified and corrective action taken where required.

n) Specific information required by the Competent Authority

No specific information was required by the Competent Authority.

1. UNDERTAKING

The EAP herewith confirms

- a. The correctness of the information provided in the reports
- b. The inclusion of comments and inputs from stakeholders and I&APs;
- c. The inclusion of inputs and recommendations from the specialist reports where relevant; and
- d. 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.



Signature of the environmental assessment practitioner:

Mielelani Consultancy

Name of company:

2021

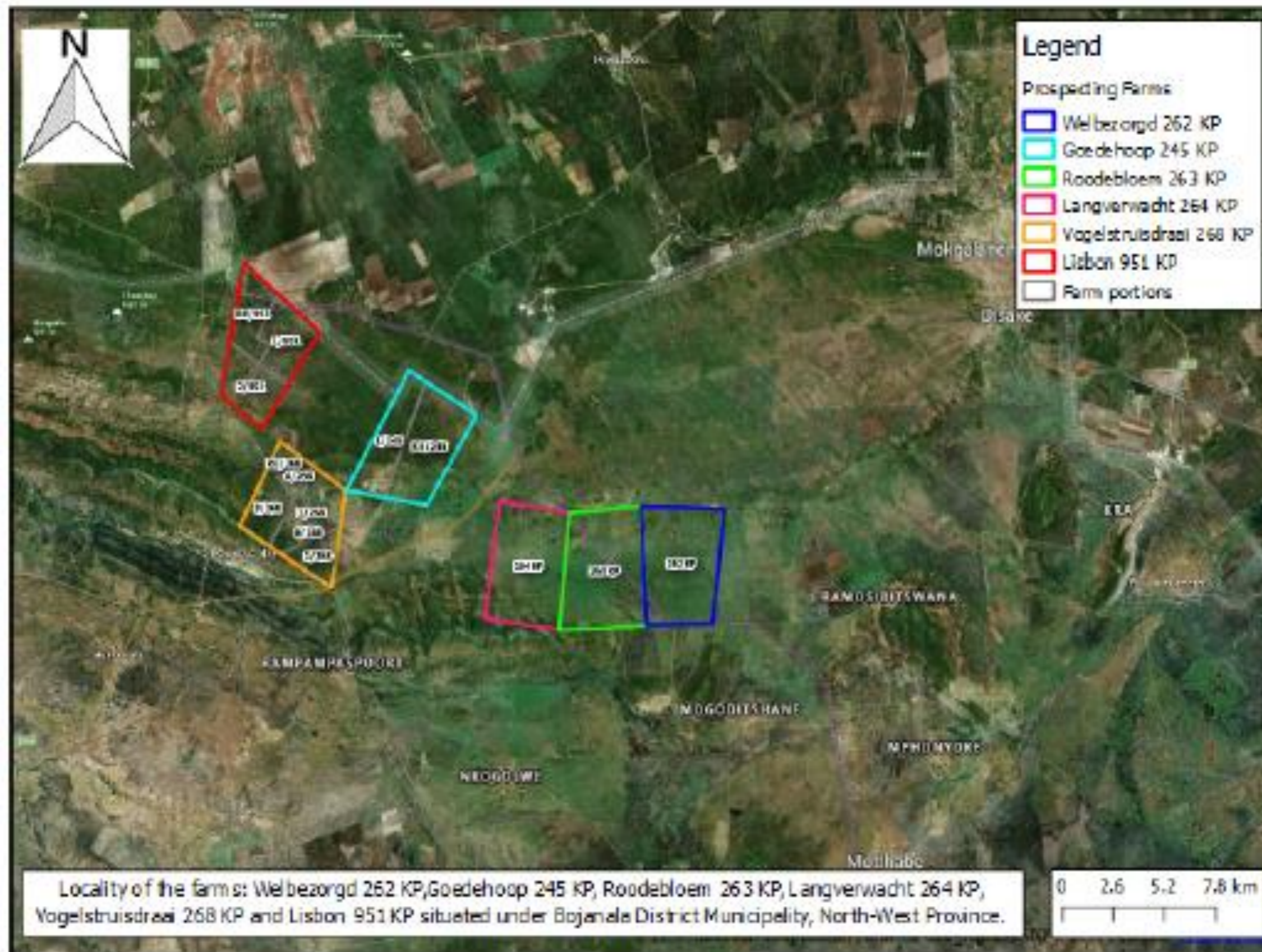
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APPENDICES

APPENDIX 01: Locality Map





APPENDIX 02: EAP C



APPENDIX 03: ENVIRONMENTAL AWARENESS PLAN

1. Introduction

Legislation requires that an prospecting/Prospecting company who prepares an environmental management program must develop an environmental awareness plan describing the manner in which the company intends to inform his or her employees of any environmental risks which may result from their work and the manner in which the risks must be dealt with in order to avoid pollution or the degradation of the environment. In recognition of the need to protect our environment, environmental management should not only be seen as a legal obligation but also as a moral obligation.

1.1. The Environmental Awareness Plan (EAP)

The EAP forms part of the EMPr and is intended to create the required awareness and culture with personnel and contractors/service providers on environmental safety and health issues associated with the prospecting activities.

1.2. The applicant's policy on environmental awareness

This Environmental Awareness Plan (EAP) will serve as the basis for the induction of all new employees (as well as contractors pending the nature of their work on site) on matters as described herein and read in conjunction with the EMPr. The Plan will also be used to hone awareness of all employees on a continuous basis. Specific environmental awareness performance criteria will also form part of the job descriptions of employees, to ensure diligence and full responsibility at all levels of the organisational work force.

1.3. Fostering environmental awareness

General environmental awareness will be fostered among the project's workforce to encourage the implementation of environmentally sound practices throughout its duration. This will ensure that environmental accidents are minimized and environmental compliance maximized.

Environmental awareness will be fostered in the following manner:

- a) Induction course for all workers on site, before commencing work on site.
- b) Refresher courses as and when required
- c) Daily toolbox talks at the start of each day with all workers coming on site, where workers can be alerted to particular environmental

concerns associated with their tasks for that day or the area/habitat in which they are working.

d) Taking part in national and international environmental campaigns like National Marine Week, National Harbour Day, National Wetlands Day etc.

e) Displaying of information posters and other environmental awareness material in the general assembly points.

1.4. Training and environmental awareness

The company accepts that environmental awareness training is critical for the workforce to understand how they can play a role in achieving the objectives specified in the EMP and ensure that the actions specified in the EMP are implemented effectively and efficiently. It is vital that all personnel are adequately trained to perform their designated tasks to an acceptable standard.

2. The environmental awareness training course

All employees should attend the course, regardless of position, status or level of responsibility. With a background of basic environmental awareness and an understanding of basic environmental issues and sensitivities, personnel may be motivated and empowered to do their share in helping to maintain the integrity of the environment on the prospecting site through environmental impact management.

The goal of this course is therefore to enable a shared understanding and common vision of the environment, the impact of a prospecting operation on the environment (and why this is important) and the role of prospecting personnel in terms of environmental management and compliance.

The induction course will consist of the following steps:

- The first step will include background discussion of the environment concept: of what it comprises and how we interact with it.
- The second step will be a description of the components and phases of the specific Prospecting operation.
- The third step will be a general account of how the Prospecting operation and its associated activities can affect the environment, giving rise to what we call Environmental Impacts.

- The fourth and most important step will be a discussion of what staff can do in order to help prevent the negative environmental impacts from degrading our environment. This is known as Environmental Impact Management.

3. Course content

The following can be seen as draft course content as it will be building on as specific needs arises and will be supplemented with the handout of reading material and extracts of the EMPr on which the course will be based.

3.1. The environment

The environment consists essentially of the living environment, the non-living environment and the man-made environment. The living environment consists of our plant and animal resources. The non-living environment includes the soil, water and geological resources. The man-made environment comprises our infrastructure, social, cultural and archaeological resources.

These environments depend on one another, and man depends on them all for his survival. Damage to one will be felt by so we must try to protect the as well as their interactions with one another as they occur in nature.

When undertaking a Prospecting operation or any other form of development this concept must be kept in mind. Development must be implemented in such a way that we benefit today without compromising the ability of future generations to benefit as well. Employees should understand this concept of sustainability and sustainable development.

3.2. Description of the components and phases of the operation

The project description should be explained as part of induction together with the main components or activities that can affect the environment, giving rise to what we call environmental impacts. The Prospecting operation consists of a number of different components

3.3. Description of Environmental Impacts

A general account of how the Prospecting operation and associated activities can affect the environment must be explained. This is basically a description of concept of environmental impacts.

- a) What is an Environmental Impact?

An environmental impact is the result, either good or bad, of man's actions on the natural environment. This results in one or many changes in the environment, which may also affect the availability of resources and the environment's capacity to function.

Impacts can occur either as a result of:

- The use of a resource;
- Or the pollution of a resource.

In addition, impacts can be categorised as the following:

- Foreseen, such as the necessary clearing of the vegetation before Prospecting begins, or Unforeseen, such as the flooding of an area following heavy rains;
- **Avoidable**, such as the unnecessary spillage of diesel during refuelling- or **Unavoidable**, such as the disturbance created during drilling; **Simple**- such as litter untidying the prospecting site, or **Cumulative** which is a collective impact from different existing activities.

a) Environmental Impacts

Typical environmental impacts anticipated on a Prospecting site include the following:

The loss of plants; The loss of animals; Soil pollution; Dust liberation; Soil compaction and erosion; and Water pollution;

b) Causes of environmental impacts

These environmental impacts are caused primarily by inadequate planning & not adhering to the EMPr Specifications'.

- The inadequate planning & preparation of the Prospecting site;
- The uncontrolled expansion of the Prospecting site footprint;
- The uncontrolled activity of Prospecting staff;
- The injudicious removal / disturbance of vegetation and habitat;
- The unnecessary loss of soil;
- Uncontrolled vehicular movement & circulation;
- The haphazard storage of vehicles, equipment and material;
- The uncontrolled servicing, repair and refuelling of vehicles;

- Unclear policy on solid waste management;
- Unclear policy on waste water;
- The uninformed use, storage and disposal of hazardous material;
- The erosive power of storm water and runoff;
- Unintentional fires;

3.4. Description of Environmental Impacts Mitigation

The fourth and most important step of an induction course will be a discussion of what staff can do in order to help prevent the negative environmental impacts from degrading their environment. This is known as Environmental Impact Management and is also described in the Environmental Management Programme. The course discussion should also include general environmental code of conduct practices such as:

Impact management: Prospecting site establishment (general):

- Do not cross any site fences;
- Do not walk, drive or store material in rehabilitating areas;
- Report any access into fenced off areas to the foreman environmental manager;
- Use only areas designated for certain construction activities;
- Do not access any stream or water body without permission;
- Report any headstones, graves or human remains you may find to the foreman environmental manager;

Impact management: Construction phase (general):

- Only eat, cook, sleep and recreate in the areas designated on site;
- Do not bathe anywhere except in the designated areas on site;
- Always use the toilet facilities provided;
- Only use the water provided on site- do not collect water from or dispose water into a natural water course;
- Always make use of the specified Prospecting site safety measures;
- Do not hunt, kill or injure any animals anywhere on site;
- Inform the foreman environmental of any dangerous or problem
- Do not leave any food or rubbish where scavengers can get at it. Impact management: Health and safety (general):

- Always use the toilet & hand washing facilities provided.
- Only use the water provided on site - do not collect water from or dispose water into a natural water course.
- Make use of the specified protective gear for noisy and dusty conditions.
- Always wear proper protective head and foot gear while on site.
- Know where to find a list of emergency numbers in the event of one.
- Report accidents, injuries and unsafe site conditions to the Safety Officer.

Impact management: Vegetation clearing (general):

- Do not damage, destroy or remove any significant tree that has been marked:
- No firewood may be harvested without permission;
- Newly planted trees may not be disturbed in any way;
- Do not excavate beneath the crown of any tree that has been marked;
- No conserved tree may be used to support or hang anything in;
- Report to the foreman environmental manager any damage to any significant tree that has been marked.

Impact management: Top Soil removal and storage (general):

- Only excavate soil, gravel, rock etc. from designated areas;
- Stockpile soil only as instructed and at the time it is instructed;
- Do not make new stockpiles without permission;
- Do not use soil or remove soil from any stockpile without permission;
- Do not walk, drive or store any equipment, machinery or material on any stockpile.

Impact management: Access and transport (general):

- Only drive on designated roads and tracks;
- Move obstacles out of the way rather than drive around them;
- Only cross drainage lines at designated points;
- Always drive within the specified speed limit.

Impact management: Storage of vehicles, equipment and material (general):

- Do not leave machinery and equipment standing around if not in use;
- Only park vehicles in designated areas;
- Do not park heavy vehicles or store equipment under or near trees
- Do not store machinery, vehicles or materials in undisturbed or rehabilitating areas.

Impact management Servicing, repair and refuelling of vehicles (general).

- Only service machinery and vehicles in designated areas;
- Regularly check your vehicle for fuel and oil leaks;
- Inform the foreman environmental manager of leaking vehicles and machinery so that he can schedule repairs;
- Only refuel by means of a pump and on the bund created for that purpose;
- Immediately clean any accidental fuel and oil spills - do not hose spills into the natural environment;
- Dispose of contaminated soil as hazardous waste in the correct location on site.

Impact management: Solid waste management (general):

- Do not litter - make use of refuse bins provided;
- Concrete may only be mixed in designated areas and not directly on the ground;
- Do not hose spills into the natural environment - inform the foreman environmental manager of spills you are unable to clean yourself;
- Dispose of construction rubble only in specified storage areas - if in doubt, ask;
- Do not bury, hide or burn any waste of any nature;
- Inform the foreman of any illegal litter or dumping site that you encounter.
- Impact management: Waste water management (general):
- Do not use any natural water course to wash machinery, vehicles or equipment;
- Only wash machinery, vehicles or equipment in designated areas;
- Conserve water and report any leaks and overflow to the foreman,

Impact management: Management of hazardous material (General):

- Make sure that you know how to handle all hazardous substances;
- Do not access stores for hazardous substances without permission;
- Immediately clean any minor accidental spills and leaks;
- Do not hose any leaks or spills into the natural environment;
- Dispose of all hazardous waste in specified storage areas - if in doubt, ask;
- Immediately report any major leaks and spills to the foreman environmental manager.

Impact management: Fire management (General)

- Do not make open fires except in permitted areas and at permitted times;
- Do not leave any fires unattended. Extinguish these before you leave the area;
- All cooking is to be done on gas / electric stoves and only in the areas provided;
- Ensure that you know where firefighting equipment is located.

APPENDIX 04: PUBLIC PARTICIPATION PROCESS REPORT