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# MATSOPA MINERALS (PTY) LTD

# BASIC ASSESSMENT REPORT (BAR) AND ENVIRONMENTAL MANAGEMENT PLAN (EMP) FOR THE PROPOSED PROSPECTING ACTIVITIES ON THE FARMS GELUK 237 AND GOUDLAAGTE 238, KOPPIES, FREE STATE PROVINCE

## REF. NUMBER: FS 30/5/1/1/3/2/1 (10631) EM

**APRIL 2022**

SUBMITTED TO THE DMRE FOR CONSIDERATION

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|---|---|---|
| 14/03/2022 | 01 | Quality Control |
| 21/04/2022 | 02 | Update from PPP |

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

**NAME OF APPLICANT:** Matsopa Minerals (Pty) Ltd

**TEL NO:** 011 878 0300

**FAX NO:** 011 824 2720

**POSTAL ADDRESS:** P.O.Box 14052, Wadeville, 1422

**PHYSICAL ADDRESS:** 155 Immelman Road, Wadeville, 1422

**FILE REFERENCE NUMBER SAMRAD:** FS 30/5/1/1/2/10631 PR

## 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 (as amended), 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—

a) can be reversed;

b) may cause irreplaceable loss of resources; and

c) can be managed, avoided or mitigated;

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

(i) identify and motivate a preferred site, activity and technology alternative;

(ii) identify suitable measures to manage, avoid or mitigate identified impacts; and

(iii) identify residual risks that need to be managed and monitored.

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# PART A: SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

## 1 INTRODUCTION

Matsopa Minerals (Pty) Ltd (hereinafter referred to as "Matsopa Minerals") has submitted an application for a Prospecting Right in terms of the Minerals and Petroleum Resources Development Act, Act 28 of 2002 (MPRDA) over the farms Geluk 237 and Goudlaagte 238, near Koppies, Free State. The application relates to the search for economically viable reserves of clay.

Prior to commencement of the proposed project, the Applicant must obtain environmental authorisation in terms of the National Environmental Management Act, 1998 (Act No 107 of 1998) (NEMA) (as Amended) for Listed Activities identified in the Environmental Impact Assessment (EIA) Regulations, 2014 (as amended).

South African Law requires that the environmental and social impacts associated with a proposed development be assessed to identify any potential negative and/or positive consequences as result thereof. Following which, measures must be proposed to avoid or minimise these impacts. As the application relates to Activities published in terms of Listing Notice 1 and Listing Notice 3 of the EIA Regulations a Basic Assessment process is applicable.

This report constitutes the Basic Assessment Report (BAR) and Environmental Management Plan (EMP), and has been compiled for submission to the Competent Authority, being the Department of Mineral Resources and Energy (DMRE).

## 2 CONTACT DETAILS

### 2.1 Applicant

| | |
|---|---|
| **Applicant Name:** | Matsopa Minerals (Pty) Ltd |
| **Registration No.:** | 2001/019554/07 |
| **Contact Person:** | Darryl Bennett (Mining Manager) |
| **Telephone:** | 011 878 0300 |
| **Fax:** | 011 824 2720 |
| **E-mail:** | Darryl.bennett@ecobat.com |
| **Postal Address:** | P.O.Box 14052, Wadeville, 1422 |
| **Physical Address:** | 155 Immelman Road, Wadeville, 1422 |

## 2.2 Environmental Assessment Practitioner

Cabanga Environmental has been appointed by Matsopa Minerals as the independent Environmental Assessment Practitioners (EAP), responsible for the completing the BAR and EMP for the proposed project. The contact particulars of the EAP are indicated below.

| | |
|---|---|
| **EAP:** | Cabanga Environmental<br>(*t/a Cabanga Concepts cc*) |
| **Telephone:** | + 27 11 794 7534 |
| **Fax:** | + 27 11 794 6946 |
| **E-mail:** | jane@cabangaenvironmental.co.za |
| **Postal Address:** | Postnet Suite 470, Private Bag x3, Northriding, 2162 |
| **Physical Address:** | Units 5 & 6 Beyers Office Park, Bosbok Road, Randpark Ridge |

## 2.3 Expertise & Experience of the EAP

| Name: | Role: | Highest Qualification: | Professional Affiliations: | Experience: |
|---|---|---|---|---|
| J.Barrett | Author and Project Manager | BSc. in Environmental Management & Botany | Cert.Sci.Nat (Reg. 130485) | 12+ years |
| M.Venter | Geographical Information Systems (GIS) and Review | BSc. (Hons) Geography | Cert.Sci.Nat (Reg. 114447)<br>Registered EAP. Registration Number 2019/456. | 8+ years |
| K.van Rooyen | Approval | MSc Geography | Pr. Sci. Nat Reg. 400121/93 | 30+ years |

All of the above have worked on mineral and environmental applications under the MPRDA, NEMA, NEM:WA and NEM:AQA for various mines and industries. Please refer to Appendix B for copies of the relevant Curriculum Vitae and for more details on the EAP's past project experience.

# 3 LOCATION OF THE OVERALL ACTIVITY

The site is situated near the town of Koppies, within Ward 1 of the Ngwathe Local Municipality of the Fezile Dabi District Municipality, Free State Province. The proposed Prospecting Right Area (PRA) encompasses the farms Geluk 237 and Goudlaagte 238, totalling 340.4897 hectares (Table 1) and is located approximately 10km north of the town of Koppies, immediately west of Matsopa's current mining operations (Koppies Bentonite Mine) and north of the R82 regional road.

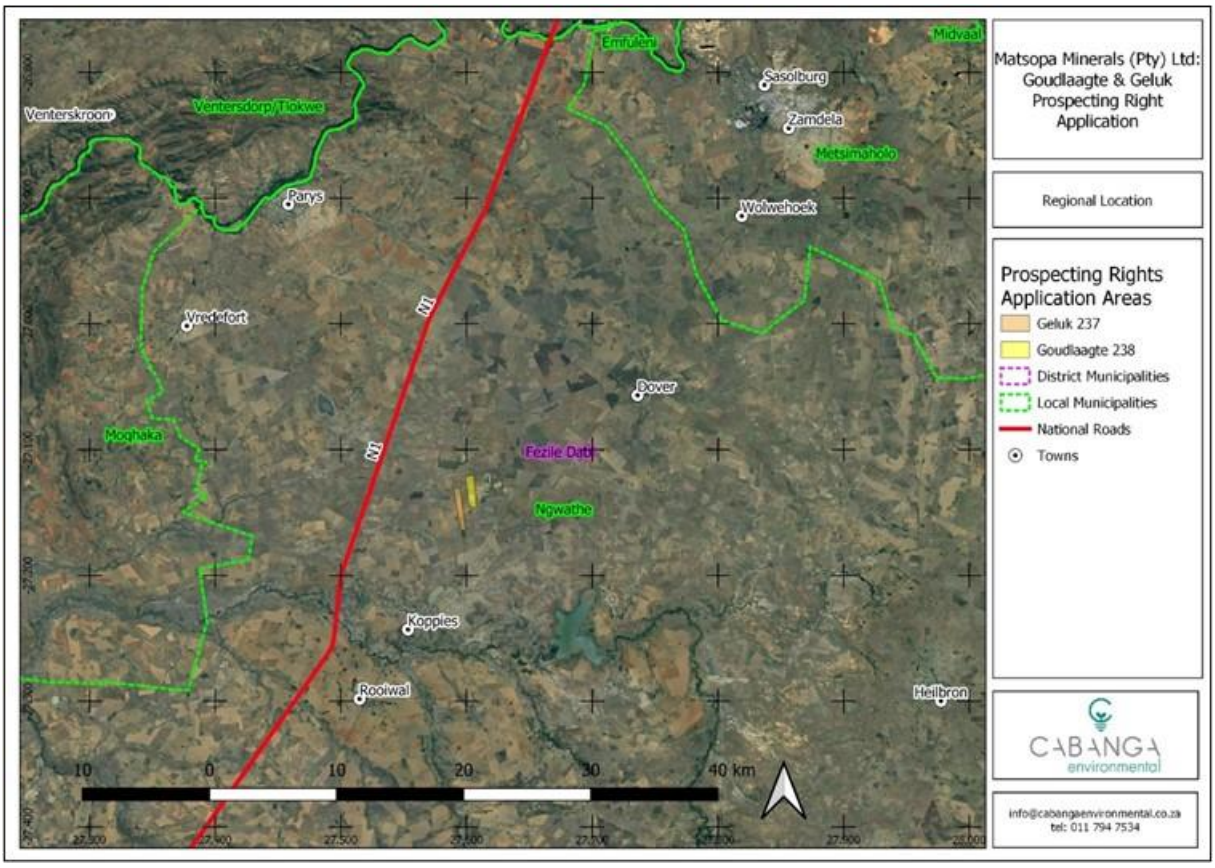
Plan 1 and Plan 2 overleaf indicate the regional and local setting of the project area. Refer

also to Appendix A for copies of the relevant plans in A3 format.

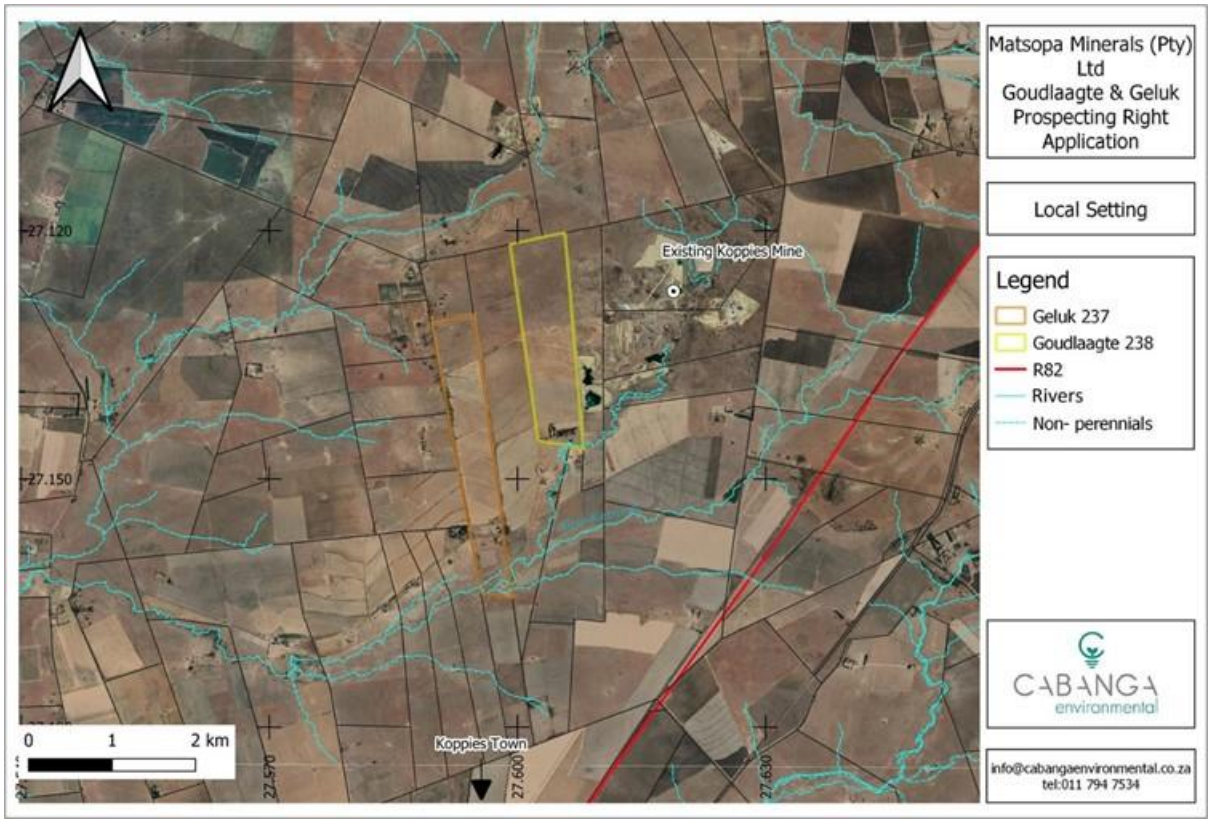
**Table 1: Affected Properties**

| | |
|---|---|
| Farm Name: | Geluk 237 |
| Sub-division: | 0 |
| Application area (Ha) | 171.6925 |
| Magisterial district: | Koppies |
| Centre Co-ordinates of Site | 27° 8'50.49"S 27°35'40.53" |
| 21 digit Surveyor General Code | F01900000000023700000 |
| Surface Rights Holder: | P.S.Loggenberg |

| | |
|---|---|
| Farm Name: | Goudlaagte 238 |
| Sub-division: | 0 |
| Application area (Ha) | 168.7972 |
| Magisterial district: | Koppies |
| Centre Co-ordinates of Site | 27° 8'16.70"S 27°36'17.04"E |
| 21 digit Surveyor General | F01900000000023800000 |
| Surface Rights Holder: | Dawid Herbst Trust |




**Plan 1: Regional Map**




**Plan 2: Local Setting**

# 4 DESCRIPTION OF THE OVERALL ACTIVITY

## 4.1 Project Background

Matsopa Minerals owns and operates the existing Koppies Mine, located on various portions of the farms Oceaan 99, Oceaan 64, Broodkop 304, Ongegund 7, Blaauwboschpoort 13 and Enkelbos 98 (FS/30/5/1/2/2/004MR).

Matsopa Minerals mines bentonite clay by means of opencast mining methods at the Koppies Mine. Bentonite is a clay that is used in cattle feed, as bleaching clay, as a binding and plasticising agent in various industries, as well as a sealant for dams.

It is understood that operations at the Koppies Mine commenced in circa. 1964 and that the reserves are nearing depletion. The proposed PRA is immediately west of Matsopa Mineral's Koppies Mine, and the purpose of the prospecting programme will be to identify additional reserves in the area to ensure the sustainability of the company and continued employment of the current workforce.

## 4.2 Listed Activities to be undertaken

The Department of Environmental Affairs have published three notices listing activities for which environmental authorisation is required in terms of Section 24(2) and 24D of NEMA prior to commencement.

Furthermore, a list of waste management activities that have or are likely to have, a detrimental effect on the environment were published in terms of section 19(2) of the NEM:WA (GN 921 as amended). No person may commence, undertake or conduct a listed waste management activity unless a waste management license (WML) is issued in respect of that activity.

The DMRE is the Competent Authority for mineral related activities in terms of both NEMA and NEM:WA.

Figure 1 outlines the main activities associated with the proposed prospecting programme, whilst Table 2 identifies the applicable Listed Activities for which environmental authorisation (EA) is being sought.


**Figure 1: Main activities associated with the prospecting programme**

**Table 2: Listed and Specified Activities**

| NAME OF ACTIVITY: | Aerial extent of the Activity<br>Ha or m² | LISTED ACTIVITY | APPLICABLE LISTING NOTICE | WASTE MANAGEMENT AUTHORISATION |
|---|---|---|---|---|
| Non-Invasive Prospecting (i.e. desktop study and geophysical survey) | - | - | - | - |
| Overland movement of drill rig and equipment to drilling locations | 0<br>(existing farm roads and tracks will be utilised) | -- | - | - |
| Clearance of vegetation associated with the drill sites and contractor's camp | 3,500 m² | Activity 12 | GN 985 (as amended)<br>Listing Notice 3 | - |
| Invasive Prospecting (Drilling approx. 330 holes) | 3,300 m² | Activity 20 | GN 983 (as amended)<br>Listing Notice 1 | - |
| Contractor's Camp (incl. equipment and sample storage, generators and ablution facilities) | 200 m² | - | - | - |
| Rehabilitation activities | 3,500 m² | - | - | - |
| Pre-feasibility studies | - | - | - | |

## 4.3 Description of the activities to be undertaken

This application relates to prospecting for the mineral, Clay including Bentonite Clay (CB), and Clay (General), Shale/Brick Clay (CS), and Illite-Montmorillinte Group (Clay) (CI).

Prospecting activities will include non-invasive and invasive techniques; these are further detailed below. It is currently expected that the prospecting programme will be completed over a 5 year period.

### 4.3.1 Prospecting Programme

Phase I: Application Process

Phase I constitutes the application process associated with obtaining the applicable Rights, Permits and Authorisations in terms of the MPRDA, NEMA and the National Water Act, Act 36 of 1998 (NWA).

Phase II: Non-invasive prospecting

This phase will focus on research and information gathering to increase knowledge and assist with mapping areas for future drilling. This Phase will include the review and assessment of available aerial photographs, GIS maps, Google Earth imagery, historic reports and studies of the area that might be available in the public domain with regards to the geology. This will be a preliminary study that will be undertaken prior to any physical investigations onsite.

Once the desktop investigations are complete, areas of interest will be selected for geophysical surveys. If the area lacks outcrops, geophysical surveys of the whole PRA will be conducted. The geophysical surveys will help with identifying sub-surface geological information, which information will be used to identify geological structures such as faults, shear zones, veins, magmatic bodies and if possible, differentiate between shale and bentonite (Hlungwani, 2021).

Phase III: Preliminary Drilling

Reconnaissance drilling will consist of ±330 holes, on a 100m x 100m grid. An environmental footprint of approximately 10m$^2$ per borehole will be impacted by the drilling activities (total affected area of 3,300 m$^2$). Holes will be drilled to a depth of 30 metres using a jumper drill rig which will be used to retrieve core samples of the different geological units (Hlungwani, 2021).

A jumper drill rig operates using a plunging action, this technology is ideal for drilling through unconsolidated alluvial deposits such as sands, silts and clays. This method is considered a 'dry' drilling method, as no additives, such as water, are used during the drilling process. It is estimated that the depth for the holes can be drilled in 1-3 days.

Material derived from the core will be examined on site and logged. The preliminary boreholes will be used as a guide for detailing drilling and sample planning.

**Figure 2: Jumper Drill Rig**
(Source: Matsopa Minerals)

**Figure 3: Core samples**

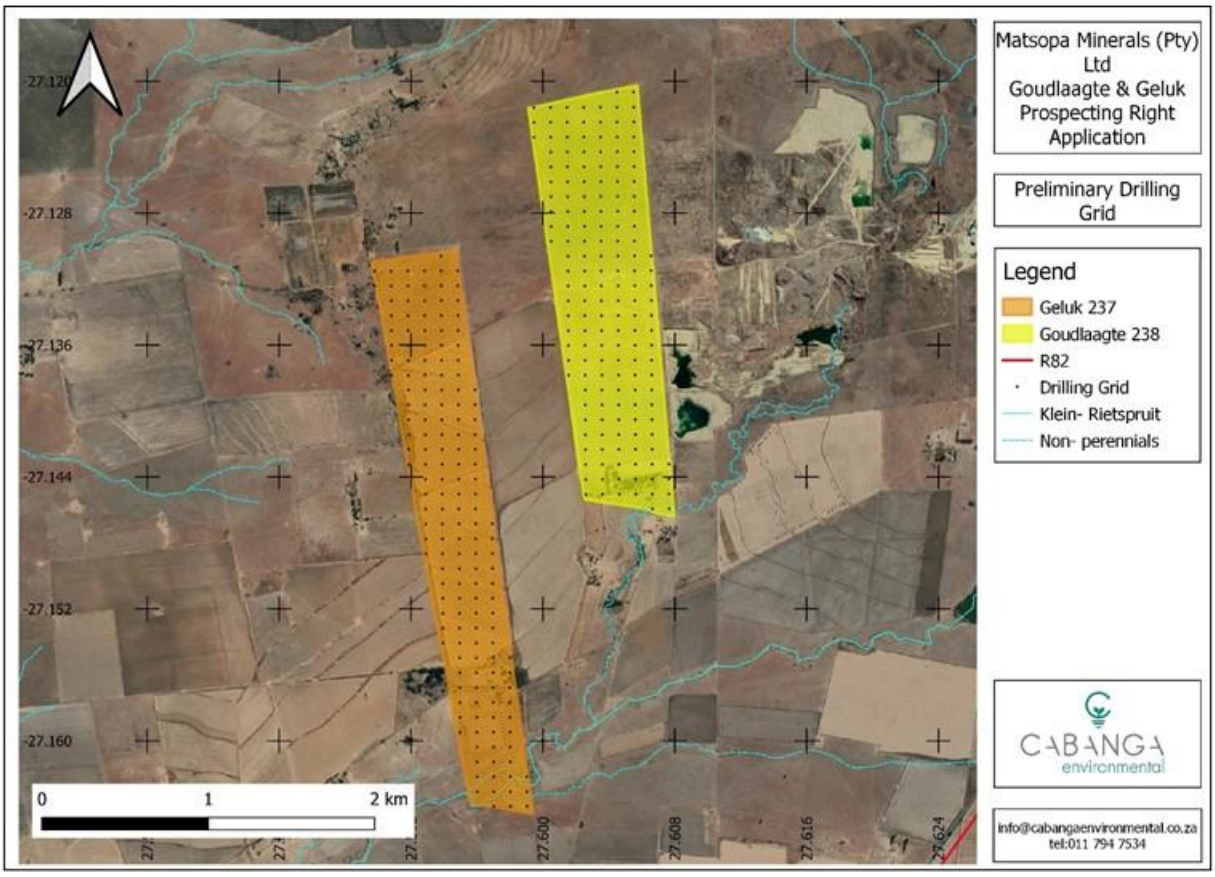
Phase IV: Detailing Drilling & Sampling

This phase will consist of drilling within the determined target areas, to delineate the ore body accurately, and to determine depth to bedrock and internal stratigraphic composition of the ore body. The drilling programme will determine the exact outline, shape and size of the ore body. The core drilling is generally done in this target area.

Samples will be collected from the borehole cores and submitted to an accredited laboratory for analysis, this will give qualitative values with regards to qualities (Hlungwani, 2021).

Phase V: Pre-feasibility Studies

The pre-feasibility study will combine the results of the overall prospecting programme, constructing a geological model of the specific area that shows the highest potential for mining. This model will give a rough estimate of the ore body size and should bring the reserve to an inferred stage. Based on the immense nature of bentonite ore bodies there are primarily three criteria that need to be assessed to determine the feasibility of mining the material these include, stripping ratio, transport distance and current selling price. This will be assessed once the ore reserve model has been completed.




**Plan 3: Original Layout of Prospecting Programme**

### 4.3.2 Associated Activities, Infrastructure and Services

Access Roads:

No formal roads will be constructed, existing farm roads and tracks will be utilised as far as possible.

Contractor's Camp:

A site camp and laydown area will be established on site for the storage of equipment, samples etc. No staff will be housed on site.

Power Supply:

Diesel powered generators will be used on site.

Hydrocarbon Storage:

Vehicles and machinery used on site will be petrol or diesel operated.

Hydrocarbons will be stored on site for use by the jumper drill rig; this will be located within the contractor's camp and laydown area. Storage volumes will remain below 30m$^3$.

Water Supply:

No water is required for the drilling process.

Water requirements are minimal and limited to that of domestic use. Potable water will be trucked to site from the nearby Koppies Mine and stored within a tank. Alternatively bottled water will be brought to site.

Waste Management

Waste streams that will be generated onsite will include sewage waste, general domestic waste and hazardous waste. General waste includes empty food containers and office waste. Hazardous waste includes used oils and dirty rags.

Bins will be provided on site, the waste will be collected and fed into the waste streams at the existing Koppies Mine.

Portable chemical toilets will be used and sewage collected by a reputable contractor and disposed of at a licensed facility; disposal certificates will be kept on file.

# 5 POLICY AND LEGISLATIVE CONTEXT

Table 3 below summarises the Legislation and Guidelines considered to be applicable to the proposed prospecting activities; and were considered at the time of compiling this report.

**Table 3: Summary of Applicable Legislation**

| APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT | HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT | REFERENCE WHERE APPLIED |
|---|---|---|
| The Constitution of South Africa, 1996 (Act 108 of 1996)<br>• Everyone has the right to an environment that is not harmful to their health or well-being; to have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation; promote conservation; and secure ecological sustainable development and use of natural resources while promoting justifiable economic and social development.<br>• Every person has a right to information held by the State and to information held by other people that is required in the exercise or protection of a right.<br>• Everyone has the right to just and procedurally fair administrative action. | To give effect to Section 24 of the Constitution, several laws have been promulgated towards realisation of these rights, which broadly speaking relates to:<br>• Development and Use of Resources (in this case, prospecting);<br>• Environmental Management; and<br>• Conservation and Protected Areas.<br>A BAR process has been followed for the project to determine the impact to the environment. This report has been made available for public review and comment for a period of 30 days (minimum). All comments received have been incorporated into the final document for submission to the Competent Authority, being the DMRE.<br>Once the Competent Authority has reached a decision on the application, all registered I&APs will be notified of thereof, as well as their right to Appeal. | This report. |
| The Minerals and Petroleum Resources Development Act (MPRDA), Act No. 28 of and its Regulations (GNR527as amended). | The MPRDA and its Regulations (is the predominant legislation dealing with the acquisition of rights to search for, extract and process mineral resources in South Africa. The MPRDA came into effect on 1 May 2004. The MPRDA holds that mineral resources in South Africa belong to the nation and that the State is the custodian thereof. | A copy of the Acceptance Letter from the DMRE is attached as Annexure 3 |

| APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT | HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT | REFERENCE WHERE APPLIED |
|---|---|---|
| | Any person may apply for a right by following the application procedure set out in the MPRDA and administrated by the DMRE. Applications for rights must be accepted if the application requirements are met, and if no other person holds rights or permits for the same mineral on the same land.<br>Furthermore, any person who wishes to apply for a Prospecting Right must simultaneously apply for environmental authorisation under NEMA.<br>An application for a Prospecting Right and associated authorisation was submitted to, and accepted by, the DMRE Regional Office.<br>Submission of information has been on the prescribed forms, and submitted via the SAMRAD portal where applicable. | |
| National Environmental Management Act (NEMA), Act 107 of 1998 as amended and its associated regulations: (GNR982 – EIA Regulations; NEMA Regulation GNR983 – Listing Notice 1; NEMA Regulation GNR984 – Listing Notice 2; and NEMA Regulation GNR985 – Listing Notice 3 as amended). | The undertaking of Listed Activities in terms of NEMA and the EIA Regulations requires Environmental Authorisation to be obtained prior to commencement.<br>Matsopa Minerals has submitted an application for EA. As the proposed project will trigger activities under Listing Notice 1 and 3, a BAR process applies. | Table 2 identifies the applicable Listed Activities applicable to the application. |
| NEMA: Public Participation Guidelines (GNR807) and Department of Environmental Affairs (2017), Public Participation guideline in terms of NEMA EIA Regulations, Department of Environmental Affairs, Pretoria, South Africa. | Guidelines were followed during the Public Participation Process (PPP). | The PPP followed is outlined in Section 8. A copy of the Comments and Response Report (CRR) will be attached to the final BAR for submission. |

| APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT | HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT | REFERENCE WHERE APPLIED |
|---|---|---|
| | | |
| Protection of Personal Information Act, Act No. 4 of 2013 (POPIA) | The Act promotes the protection of personal information processed by public and private bodies and aims to protect data subjects from security breaches, theft, and discrimination.<br>This Act has been read together with Regulation 19(1)(a) and 42 of the NEMA EIA Regulations. | The Background Information Document (BID) has included a section for consent to process personal information. Please refer to Annexure B of the PPP Report attached as Annexure 3. |
| DEA (2017), Guideline on Need and Desirability, Department of Environmental Affairs (DEA), Pretoria, South Africa | The Guideline was considered in assessing the need and desirability of the Project aspects. | Refer to Section 6. |
| NEMA Procedures for reporting on identified environmental themes in terms of S24(5)(a) and (h) and 44 of NEMA when applying for environmental authorisation (GN 320 and GN1150). | These protocols provide criteria for specialist assessment and minimum report content requirements for certain environmental themes. The assessment and reporting requirements of this protocol are associated with the level of environmental sensitivity identified by the national web based screening tool (https://screening.environment.gov.za/screeningtool/#/pages/welcome).<br>The protocols replace the requirements of Appendix 6 of the EIA Regulations. The Screening Tool highlighted the need for compliance statements/specialist studies for the following environmental themes: Agriculture; Archaeological and Heritage; Palaeontology; Terrestrial Biodiversity and Aquatic Biodiversity. | The relevant compliance statements and specialist studies are attached as Annexure 5 - Annexure 8, the findings of which are discussed under Section 9. |
| NEMA Regulations pertaining to the financial provision for prospecting, exploration, mining or | Financial Provision for the rehabilitation of the prospecting programme has been calculated and | Refer to Section 22. |

| APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT | HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT | REFERENCE WHERE APPLIED |
|---|---|---|
| production activities (GNR1147). | will be provided for by means of an acceptable guarantee. | |
| National Environmental Management: Waste Act (NEM:WA), Act 59 of 2008 as amended and its associated regulations. The regulations and various addendums pertaining to scheduled waste activities (GNR921). Including the Norms and standards for the storage of waste on site as per GNR926. | The Listed Activities as published under GNR921 were evaluated against the project description provided by the client. Based on the information provided no Listed Activities will be triggered, thus no waste management license (WML) will be required for the proposed project.<br>Waste volumes generated on site will be minimal, and are not expected to trigger Category C. | Mitigation measures relevant to waste management have been included in the EMP (Table 13). |
| National Water Act (NWA), Act 36 of 1998 as amended and its associated regulations (GNR 1352, GN 665, GN 509, GN 538, GNR 267, GN 383). | The NWA provides for the sustainable and equitable use and protection of water resources. It is founded on the principle that the National Government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest, and that a person is only entitled to use water, without a license, if the use is listed under Schedule 1, is an existing lawful use or is permissible in terms of a General Authorisation.<br>A jumper drill rig will be used for the prospecting programme, this is a 'dry' drilling method and as such water requirements are limited to that of domestic/potable use.<br>Wetlands have been delineated within the project area. The regulated area of a watercourse for Section 21(c) and (i) of the NWA means the outer edge of the 1:100 year floodline and/or delineated riparian habitat; in the absence of a determined | Refer to Annexure 7 for a copy of the Wetland Assessment.<br>The DWS has been included as a key stakeholder in the project. |

| APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT | HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT | REFERENCE WHERE APPLIED |
|---|---|---|
| | 1:100 year floodline or riparian area the area within 100m horizontal distance from the edge of the watercourse; or a 500m radius from the delineated boundary of a wetland. A risk assessment has been completed by a SACNASP registered Scientist, and mitigation measures proposed. Post mitigation the risk is expected to be Low and a General Authorisation will be sought in terms of GN509. | |
| GNR704 of the NWA, Regulations on the use of water for mining and related activities aimed at the protection of water resources. | Specific regulations made in terms of Section 26(1) of the NWA pertain to the use of water for mining and related activities.<br>The provisions of GN704 have been incorporated into the design of the proposed Project i.e. no prospecting or other activities will be permitted within the 1:50 year flood-line or within a horizontal distance of 100 metres from a watercourse, whichever is greatest.<br>Ablution facilities, hydrocarbon storage and other substances which are likely to cause pollution will be located outside the 1:50 year flood line and/or 100 metre horizontal distance. | Relevant buffer zones have been included in the EMP (Table 13). |
| National Environmental Management: Air Quality Act (NEM:AQA), Act 39 of 2004 as amended and its associated regulations (GN 893, GN R 827) | The Listed Activities as published under GN893 were evaluated against the project description provided by the client. Based on the information provided no Listed Activities will be triggered, thus no atmospheric emission license (AEL) will be required for the proposed project.<br>The National Dust Control Regulations (GN R827) prescribe general measures for dust in all areas, and | Mitigation measures relevant to dust generation have been incorporated into the EMP. Refer to Table 13. |

| APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT | HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT | REFERENCE WHERE APPLIED |
|---|---|---|
| | stipulated dust fallout levels for residential and non-residential areas. It is not expected that the proposed prospecting programme will give rise to dust in quantities and concentrations that will exceed the dust fallout standard. | |
| Free State Noise Control Regulations, 1998 published under Section 25 of the Environment Conservation Act, 1989 | These Regulations provide for the control of noise in the Free State Province. The Regulations define powers of local authorities to control noise; define general prohibitions in relation with activities that produce noise and define exemptions; define and prohibit noise nuisance.<br>The proposed drilling operations will be limited to 07:00 am – 17:00 pm so as to limit noise nuisance. Employees will be provided with the necessary personal protective equipment (PPE). | Mitigation measures relevant to noise nuisance have been incorporated into the EMP. Refer to Table 13. |
| National Environmental Management: Biodiversity Act (NEM:BA), Act 10 OF 2004 as amended and its regulations, including various regulations pertaining to protected species and to alien and invasive species. | The NEM:BA provides for the management and conservation of South Africa's biodiversity within the framework of the NEMA. The Act relates to the protection of species and ecosystems that warrant national protection, among others.<br>A Terrestrial Biodiversity Survey was undertaken by The Biodiversity Company in January 2022. The study found that a large portion of the project area has a 'High' to 'Very High' sensitivity, because of the numerous protected plants recorded and the possible presence of the sensitive Sungazer lizard, in addition to the rich diversity of indigenous grass and herbaceous plant species observed (Schrenk, 2022). | The proposed drilling programme has been amended to exclude areas of 'High' to 'Very High' sensitivity". The final proposed drilling programme is depicted in Plan 19 - Plan 20. |

| APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT | HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT | REFERENCE WHERE APPLIED |
|---|---|---|
| Spatial Land Use and Management Act, 2013 (Act No. 16 of 2013) (SPLUMA) | SPLUMA aims to develop a framework to govern planning permissions and the lawful use of land.<br>The current land use is agriculture and wilderness. It is expected that the Prospecting Programme will be undertaken in the drier months as far as practically possible, so as to accommodate the maize production season. No change in land use is proposed. | Mitigation measures have been incorporated into the EMP. Refer to Table 13. |
| Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) (CARA) (as amended) and its associated Regulations | CARA provides for control over the utilisation of the natural agricultural resources of the Republic to promote the conservation of soil, water sources and vegetation and the combating of weeds and invader plants. | Mitigation measures relevant to the conservation of soil, water resources and vegetation and the combating of weeds and invasive species have been incorporated into the EMP. Refer to Table 13. |
| National Veld and Forest Fire Act, Act 101 of 1998 | This Act provides for the prevention of veld, forest and mountain fires throughout the country.<br>No fires will be permitted on site. Matsopa Minerals will join the local fire protection association. In the event that there is no fire protection association Matsopa Minerals join local community groups to stay in contact with local landowners and users. | Mitigation measures have been incorporated into the EMP. Refer to Table 13. |
| National Forests Act, 1998 (Act no. 84 of 1998) | The National Forests Act provides for the sustainable management of natural forests and woodlands. A list of protected tree species has been published under the National Forests Act (National Gazettes, No. 44204 of 01 March 2021).<br>In terms of the Act forest trees or protected tree species may not be cut, disturbed, damaged or | A copy of the Terrestrial Biodiversity Assessment is attached as Annexure 6. The baseline terrestrial biodiversity is further discussed in Section 9.1.7<br>The proposed drilling programme has been amended to exclude |

| APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT | HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT | REFERENCE WHERE APPLIED |
|---|---|---|
| | destroyed and their products may not be possessed, collected, removed, transported, exported, donated, purchased or sold – except under license.<br>A Terrestrial Biodiversity Assessment was undertaken for the project, no protected tree species were identified during the site survey. | areas of 'High' to 'Very High' sensitivity". The final proposed drilling programme is depicted in Plan 19 - Plan 20. |
| Free State Nature Conservation Ordinance 8 of 1969 | Provides for the conservation of fauna and flora in the Free State Province. Schedule 6 lists protected plant species.<br>Based on the Plants of Southern Africa (BODATSA-POSA, 2019) database, 516 plant species have the potential to occur in the project area and its surroundings. Of these 516 plant species, 1 species is listed as being a Species of Conservation Concern (SCC) and 23 are listed as provincially protected plants. The Terrestrial Biodiversity Assessment found that a large number of provincially protected *Boophone disticha* plant species were recorded across the grassland portions of the project area. (Schrenk, 2022). | |
| National Environmental Management: Protected Areas Act (NEMPAA), Act 57 of 2003 as amended and its associated regulations. | The NEMPAA (as amended) provides for the protection and conservation of ecologically viable areas of South Africa's biological diversity, natural landscapes and seascapes. It further provides for the establishment of a register of protected areas, the management of those areas and for intergovernmental co-operation and public consultation in matters concerning protected areas. | - |

| APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT | HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT | REFERENCE WHERE APPLIED |
|---|---|---|
| | No formally or informally protected areas are situated in close proximity to the project area. The nearest protected area is the Koppies Dam Nature Reserve which is situated approximately 9 km south east of the site. | |
| Restitution of Land Rights Act, 1994, the Land Reform (Labour Tenants) Act, 1996 and the Extension of Security of Tenure Act, 1997. | The Commission on the Restitution of Land Rights was contacted to determine whether any Land Claims have been lodged against the affected properties.<br>The Commission has confirmed in writing that no Land Claims have been lodged to date. | A copy of the letter is attached in Annexure F of the PPP Report attached as Annexure 3. |
| National Heritage Resources Act (NHRA), Act No. 25 of 1999 | The NHRA aims to promote good management and preservation of the country's Heritage Resources.<br>As part of the BAR process, a Phase I Heritage Assessment and desktop Palaeontological Study was undertaken for the project area. The Heritage Assessment identified a number of a graves and ruins associated with old farmsteads however, based on the drill point locations no adverse impact to heritage resources is expected (Walt J. v., 2022). Further to this, the Palaeontological Study concluded that it is extremely unlikely that any fossils would be preserved in the Volksrust Formation and the impact on palaeontological heritage would be very low. There is a very small chance that fragmentary and transported fossils may occur in the shales of the Permian Volksrust Formation, so a Fossil Chance Find Protocol should be added to the EMP (Bamford P. M., 2022). | The Heritage Assessment is attached as Annexure 8. The identified heritage resources are further discussed in Section 9.1.9 and depicted in Plan 15<br>The chance find protocol has been included in 17.1.2 |

| APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT | HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT | REFERENCE WHERE APPLIED |
|---|---|---|
| Hazardous Substances Act, Act No. 15 of 1973 | Hazardous substances on site will be limited to hydrocarbons. | Mitigation measures have been incorporated into the EMP, where relevant. Refer to Table 13. |
| South African National Standard: SANS 10234:2008 - Globally Harmonized System of classification and labelling of chemicals. | Material Safety Data Sheets (MSDS) will be kept on site, where applicable. | |
| South African National Standard: SANS 10228:2006 - The identification and classification of dangerous goods for transport | The transportation and storage of dangerous good will be limited to hydrocarbons. | |
| Mine Health and Safety Act, Act 29 of 1996 (MHSA) and associated Regulations | Although not directly addressed in the EMP report, protecting the environment contributes to a safe working environment. | Mitigation measures have been incorporated into the EMP, where relevant. Refer to Table 13. |

# 6 NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

The Department of Environmental Affairs published an updated Integrated Environmental Management Guideline on Need and Desirability in 2017.

According to these guidelines, the consideration of "need and desirability" in EIA decision-making requires the consideration of the strategic context of the proposed Project along with the broader public interest and societal needs. Furthermore, the development must not exceed ecological limits and the proposed actions must be measured against the short-term and long-term public interest to promote justifiable social and economic development.

The latest Guideline Document on the assessment of Need and Desirability (DEA, 2017) includes a number of questions, the answers to which should be considered in the BAR Process. These questions (as per the Guideline) have been summarised and grouped and answers to each are presented in Table 4.

**Table 4: Need and Desirability Motivation**

| Theme | Specific Questions | Answer related to this Application |
|---|---|---|
| " Securing ecological sustainable development and use of natural resources" | How will this development (and its separate elements/aspects) impact on the ecological integrity of the area? | The impact assessment is presented in Table 11of this Report. |
| | How were the following ecological integrity considerations considered?<br>• Threatened and sensitive Ecosystems<br>• Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs)<br>• Conservation targets | The state of ecosystems, biodiversity areas and conservation targets have been evaluated in the biodiversity assessments (Annexure 6):<br>• The project area was superimposed on the terrestrial ecosystem threat status database, and it falls in an ecosystem of Least Concern.<br>• The site does not overlap with any Critical Biodiversity Areas (CBAs) however according to the Free State Province Biodiversity Plan, the project area does overlap with Ecological Support Areas (ESAs)<br>• The project area is located within the Central Free State Grassland (Gh 6), which is regarded as vulnerable. The national conservation target is 24%, but only small portions are protected within public and private Nature Reserves (Schrenk, 2022). |
| | How does the proposed development respond to the relevant framework documents?<br>• Environmental Management Framework<br>• Spatial Development Framework<br>• Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.). | The application relates to Prospecting, no change in land use is anticipated. Alignment with municipal planning tools is further discussed in Section 9.1.11 of this report.<br>The site is not located in close proximity to any RAMSAR Sites. |
| | How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity, | The proposed drilling programme has been amended to exclude areas of 'High' to 'Very High' sensitivity". The final proposed drilling |

| Theme | Specific Questions | Answer related to this Application |
|---|---|---|
| | or pollute or degrade the biophysical environment?<br>What measures were explored to avoid negative impacts, or minimise and remedy (including offsetting) the impacts?<br>What measures were explored to enhance positive impacts? | programme is depicted in Plan 19 - Plan 20.<br>The impact assessment is presented in Table 11of this Report.<br>Mitigation measures are discussed in Table 13. |
| | What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, to minimise, reuse and/or recycle or to safely treat and/or dispose of unavoidable waste? | The project is associated with prospecting and as such limited waste is expected to be generated. Waste streams that will be generated onsite will include sewage waste, general domestic waste and hazardous waste. General waste includes empty food containers and office waste. Hazardous waste includes used oils and dirty rags.<br>Separate bins will be provided on site, the waste will be collected and fed into the waste streams at the existing Koppies Mine. Where possible waste will be recycled.<br>Portable chemical toilets will be used and sewage collected by a reputable contractor and disposed of at a licensed facility, disposal certificates will be kept on file. |
| | How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to avoid these impacts or minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts? | A heritage impact assessment and desktop palaeontological assessment have been completed (Annexure 8). No heritage sites will be impacted on by the proposed Prospecting Programme.<br>The impact assessment is presented in Table 11of this Report.<br>Mitigation measures are discussed in Table 13. |
| | How will this development use and/or impact on natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of resources been | Minimal water is required for the project; limited to domestic/potable purposes. The drilling technique to be utilised is considered a "dry" technique, as drilling muds and water are not required. |

| Theme | Specific Questions | Answer related to this Application |
|---|---|---|
| | considered? What measures were explored to avoid these impacts or minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts? | The proposed project involves the exploration for economically viable reserves. Resource use is minimal and limited to equipment use (diesel) and potable water requirements of personnel.<br>The impact assessment is presented in Table 11of this Report.<br>Mitigation measures are discussed in Table 13. |
| | Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency? Do the proposed location, type and scale of development promote a reduced dependency on resources? | The application relates to the exploration for economically viable reserves.<br>The project does not exacerbate or reduce resource dependency, but addresses a demand for the mineral in question (dependant on the results of the prospecting programme). |
| | Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used? | |
| | How were a risk-adverse and cautious approach applied in identifying and assessing impacts? | The impact assessment methodology is described in Section 9.6. Where information is lacking the precautionary approach is implemented. |
| | What are the limits of current knowledge and the risks associated therewith? | Knowledge gaps and assumptions are further discussed in Section 12 of this report. |
| | How will the ecological impacts of this development impact on people's environmental rights? | Ecological Impacts of the proposed project are assessed in Table 11of this Report. |
| | Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified resulted in the selection of the "best practicable environmental option" | Alternatives are discussed in Section 7 |
| pr<br>om<br>eti | What is the socio-economic context of the area in terms of: | The project area is situated in Ward 1 of the Ngwathe Local |

| Theme | Specific Questions | Answer related to this Application |
|---|---|---|
| | • The IDP and any other strategic plans, frameworks of policies applicable to the area,<br>• Spatial priorities and desired spatial patterns;<br>• Existing land uses, planned land uses, cultural landscapes etc.<br>• Municipal Economic Development Strategy ("LED Strategy") | Municipality of the Fezile Dabi District Municipality. The Socio-economic context of the project area is discussed in Section 9.1.11 |
| | Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?<br>Will the impact be socially and economically sustainable in the short- and long-term? | Please refer to the impact assessment in Table 11of this Report, where socio-economic impacts associated with the proposed Prospecting Programme have been assessed.<br>Matsopa Minerals owns and operates the existing Koppies Mine, located immediately east of the PRA. It is understood that these reserves are nearing depletion. The purpose of the proposed prospecting programme will be to identify additional reserves in the area to ensure the sustainability of the company and continued employment of the current workforce in the long run.<br>Once the reserves are depleted, the Mine will have to close down, which will be associated with job losses and negative economic impacts, though some ecological improvements will be realised through rehabilitation of affected areas. |
| | In terms of location, describe how the placement of the proposed development will:<br>• result in the creation of residential and employment opportunities in close proximity to or integrated with each other; reduce the need for transport of people and goods; result in access to public transport or enable non-motorised and pedestrian transport; compliment other uses in the area; be in line with the planning for the area; optimise the use | The application relates to Prospecting; employment and procurement opportunities are therefore limited.<br>Contractors and procurement of goods will be sourced locally, where available.<br>The results of the prospecting programme will be used to quantify the mineral resource and the economic feasibility of mining these areas in future. Should the results of the Prospecting be favourable, Matsopa Minerals will apply for a Mining Right and associated EA. The application for a Mining Right will be associated with the |

| Theme | Specific Questions | Answer related to this Application |
|---|---|---|
| | of existing resources and infrastructure; contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs; encourage environmentally sustainable land development practices and processes the investment in the settlement or area in question will generate the highest socio-economic returns; impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement? | retention of employment opportunities at the existing Koppies Mine.<br>The site will be accessed using existing provincial, district and farm roads. No new roads will be constructed.<br>The project area is situated in close proximity to the existing residential area of Koppies. Sufficient accommodation is available in town. |
| | What measures were taken to pursue environmental justice and equitable access to environmental resources, benefits and services so that adverse environmental impacts shall not be distributed so as to unfairly discriminate against any person, (who are the beneficiaries and is the development located appropriately)?<br>What measures were taken to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination? | This application relates to Prospecting. The results of the prospecting programme will be used to quantify the mineral resource and the economic feasibility of mining these areas in future. Should the results of the Prospecting be favourable, Matsopa Minerals will apply for a Mining Right and associated EA. The application for a Mining Right will be associated with the retention of employment opportunities at the existing Koppies Mine, should the mineral resource prove to be economically feasible.<br>The primary beneficiaries of the Project are thus considered to be the employees of the existing Koppies Mine. The Koppies Mine S&LP programme will address Human Resources Development Programmes, Mine Community Development Plan, Housing and Living Conditions Plan, Employment Equity Plan, and Processes to save jobs and manage downscaling and/or closure. |
| | What measures were taken to ensure that the responsibility for the environmental health and safety consequences of | The mine will be operated in strict accordance with the Mine Health and Safety Act, which is beyond the scope of the BAR process and |

| Theme | Specific Questions | Answer related to this Application |
|---|---|---|
| | the development has been addressed throughout the development's life cycle? | beyond the expertise of the EAP. |
| | What measures were taken to:<br>• ensure the participation of all interested and affected parties,<br>• provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation,<br>• ensure participation by vulnerable and disadvantaged persons<br>• ensure openness and transparency, and access to information in terms of the process,<br>• ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge | A public participation process (PPP) has been initiated for the BAR Process (see Section 8). The PPP is guided by the EIA Regulations, 2014 (as amended).<br>PPP documentation has and will be made available in English and Afrikaans. The reports themselves have been compiled in English. Micro-consultation with affected landowners and users will be held in English and Afrikaans.<br>Documents for public review have been made available electronically (on the Cabanga website and via Dropbox/Onedrive/WeTransfer (should I&APs request)) and in hard copy. I&APs will be kept informed of the process and any developments via e-mail, telephone and/or SMS communication.<br>I&AP comments have and will be incorporated in to the reports, and into the comment and response report (CRR) for submission to the Competent Authority. |
| | Considering the interests, needs and values of all the I&APs, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)? | The predominant land use in the area is agriculture (maize cultivation). Landowners/farmers are therefore concerned about crop production and land use fragmentation.<br>It is expected that the Prospecting Programme will be undertaken in the drier months, as far as practically possible, so as to accommodate the maize production season. No change in land use is currently proposed. |
| | What measures have been taken to ensure that workers will be informed of work that might be harmful to human health or the environment or dangerous, and what measures have been taken to ensure that the right of workers to refuse such | Matsopa Minerals are cognisant of the provisions of the Mine Health and Safety Act and the Basic Conditions of Employment Act. Further to the above, specific environmental awareness training/induction will be required for all personnel involved in the |

| Theme | Specific Questions | Answer related to this Application |
|---|---|---|
| | work will be respected and protected? | proposed Project. |
| | Describe how the development will impact on job creation in terms of, amongst other aspects:<br>• the number of temporary versus permanent jobs that will be created;<br>• whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area);<br>• the distance from where labourers will have to travel;<br>• the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits); and<br>• the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.). | This application relates to Prospecting. All drilling and geophysics will be undertaken by contractors, whilst the overall project management will be undertaken by the Matsopa Mineral's Mining Manager and Geologist. Thus no new jobs are anticipated with the proposed prospecting activities.<br>The results of the prospecting programme will be used to quantify the mineral resource and the economic feasibility of mining these areas in future. Should the results of the Prospecting be favourable, Matsopa Minerals will apply for a Mining Right and associated EA. The application for a Mining Right will be associated with the retention of employment opportunities at the existing Koppies Mine.<br>Should any new opportunities become available Matsopa Minerals will implement a strict local procurement policy, thereby ensuring minimal travel distances between the labour force's current homes and the operations.<br>The communities closest to the mine will be most directly impacted by the proposed projects, and should be evaluated for the availability of appropriate skills before advertising such job opportunities further afield, to ensure that the communities that are most affected, also benefit the most from the proposed project. Furthermore, the Mine's S&LP should focus on the upliftment of the communities closest to the Mine, in consultation with the relevant authorities. |
| | What measures were taken to ensure:<br>• that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment, and<br>that actual or potential conflicts of interest between organs | This Report contains a comprehensive discussion on the relevant legislative framework (Section 5), looking at national, provincial and local legislation pertaining to land uses, prospecting of minerals, environmental management and conservation.<br>Various government departments at different levels have been |

| Theme | Specific Questions | Answer related to this Application |
|---|---|---|
| | of state were resolved through conflict resolution procedures? | informed of the proposed project and requested to participate in the PPP.<br>No conflicts of interest have been highlighted to date. |
| | What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage? | The BAR process, and development of the Environmental Management Plan (EMP) aims to achieve environmental protection (where relevant) and restoration of the environment. |
| | Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left? | Mitigation measures are defined and refined in Table 13, proportionate to the significance of the Impacts that are anticipated.<br>Section 22 deals with rehabilitation and the financial provision thereof. |
| | What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment? | Please refer to Section 22 of this report which addresses the rehabilitation and financial provision for the activities associated with the prospecting programme. |

# 7 MOTIVATION FOR THE OVERALL PREFERRED SITE, ACTIVITIES, AND TECHNOLOGY ALTERNATIVE

The role of identification and assessment of alternatives "is to provide a framework for sound decision- making based on the principles of sustainable development" (Roseanne Diab (University of KwaZulu-Natal), 2004). Alternatives find the most effective way for a project to go ahead, either the environmental benefits are enhanced and/or negative impacts are avoided.

With regard to location, the prospecting activities are delimited by the properties available for prospecting (i.e. not held by another company) and the geology of the area.

No activity alternatives are considered. Drilling is still the most effective way and the industry norm to complete resource evaluation as required by the MPRDA.

Alternative drilling technologies were considered and the use of a jumper drill rig was determined to be the most beneficial.

The preliminary positions of the proposed prospecting boreholes were sited to give a representative sample for the area of interest. The layout/design of the prospecting programme has been refined based on the findings of the BAR. The final, preferred layout is depicted in Plan 20.

## 7.1 Property/Location Alternatives

Properties are delimited by the properties available for prospecting (i.e. not held by another company); and the geology of the area as such no property alternatives were considered.

The area to be prospected is underlain predominantly by the sediments of the Volksrust Formation of the Ecca Group of the Karoo Supergroup as well as quartzites from the Witwatersrand System, diabase sills and pre-Karoo gabbro and epidiorite. Bentonite is known to occur within the Volksrust Formation as demonstrated on the current mining properties within the area including those owned by Matsopa Minerals at the Koppies Mine (Hlungwani, 2021).

## 7.2 The Type of Activity to be Undertaken

No activity alternatives have been considered. The activities to be undertaken include reconnaissance and prospecting, this is a pre-requisite to mining and is governed in terms of the MPRDA. As limited geological information is available for the project area Matsopa Minerals will need to complete the prospecting programme as outlined in this document to determine the viability of the reserves and the possibility of future mining.

Various soil forms were identified within the project area, namely the Rensburg, Valsrivier, Sterkspruit, Westleigh and Glenrosa soil forms. The most sensitive of these soil forms are characterised by a land potential 6, due to the poor climate. According to the National Web based Environmental Screening Tool, the PRA is situated within a "Medium" sensitivity land capability area. This correlates with the findings from the baseline assessment and compliance statement undertaken by the Biodiversity Company (Schrenk, 2022).

Considering the nature of the proposed activities and the low to moderate sensitivity soil resources, it is expected that the current land use can continue concurrent to the prospecting programme. No segregation of farming practices nor loss of land capability for periods longer than 7 days (at a time) are expected.

## 7.3 The Design or Layout of the Activity

No formal roads will be constructed; existing farm tracks will be used as far as possible so as to reduce the environmental impacts. Thus no access or route alternatives were considered.

Minimal surface infrastructure will be required, this will include a small contractor's camp and laydown area for the storage of equipment and samples. This will be located outside of all environmentally sensitive areas, in an area predetermined with the landowner. It is expected that the camp will move as prospecting progresses.

The preliminary positions of the proposed prospecting boreholes (Plan 3) were sited to give a representative sample for the project area. This has been revised to avoid areas of 'high' to 'very high sensitivity', and to implement the relevant buffers as per the recommendations of the specialist studies. The final proposed layout is indicated in Plan 19 Based on the revised layout, no fatal flaws have been identified for the project.

## 7.4 The Technology to be Used in the Activity;

A jumper rig will be used for drilling, this is a 'dry' drilling method that uses a plunging action. Alternative drilling technology was considered (i.e diamond core drilling), the advantages and disadvantages thereof are briefly discussed below:

**Table 5: Comparison of drilling technologies**

| Jumper Rig | | Diamond Core Drilling | |
|---|---|---|---|
| **Advantages** | **Disadvantages** | **Advantages** | **Disadvantages** |
| Cost effective. | Outdated technology. | Latest technology means the drill can be operate by remote control. | Water and drilling muds are required. |
| Boreholes do not need to be cased. On rehabilitation these can be backfilled. | | Cutting is more accurate which in turn means less debris. | Boreholes require casing. On rehabilitation these need to be capped. |
| Drilling muds and water not required for drilling. | No sumps required for drilling muds / water, therefore a smaller footprint area is impacted. | | Drilling muds and water will be required making it more expensive |
| Ideal for drilling through unconsolidated alluvial deposits such as sands, silts and clays. | | | Sumps are required for drilling muds / water, therefor a larger footprint area is impacted. |

## 7.5 The Operational Aspects of the Activity

Drilling is still the most effective way to complete resource evaluation as required by the

MPRDA. No alternatives were assessed.

### 7.6 The No-Go Alternative

Reconnaissance and prospecting is required to complete the geological model. The model will be used to quantify the mineral resource and the economic feasibility of mining these areas in future.

The no-go option will result in the protection of the environment *in situ*. However, the potential reserves may not be defined and ultimately utilised. The socio-economic benefits associated with the continued employment of the existing workforce at the Koppies Mine will not be realised.

## 8 DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED

Table 6 highlights the requirements for a public participation process (PPP) as per NEMA and includes PPP carried out as part of this application process. Please refer to Annexure 3 for a copy of the PPP Report.

The PPP aims to involve the authorities and Interested and Affected Parties (I&APs) in the project process, and determines their needs, expectations and perceptions which in turn ensures a complete and comprehensive environmental study. An open and transparent process has and will be followed at all times and will be based on the reciprocal dissemination of information.

**Table 6: NEMA PPP requirements and PPP conducted to date**

| **Legal and Regulatory Requirement: NEMA Regulation 982 as amended, Section 41 – Public participation process** | |
|---|---|
| 1 | This regulation only applies in instances where adherence to the provisions of this regulation is specifically required |
| Noted | |
| 2 | The person conducting a public participation process must take into account any relevant guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of an application or proposed application which is subjected to public participation b: |
| NEMA PPP Guidelines have been followed. | |
| a | fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of: |
| i | the site where the activity to which the application or proposed application relates is or is to be undertaken |
| ii | An alternative site |
| Notices were compiled in English and Afrikaans and erected on the site boundary fence as well as other public locations. These posters inform the public of the proposed activities and request people to register as I&APs for the project. The poster also contains a map of the project location.<br>Copies of the Posters have been attached as Annexure E of the PPP Report attached as Annexure 3. | |
| b | giving written notice, in any of the manners provided for in section 47D of the Act, to: |
| i | the occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken; |
| ii | owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken; |
| iii | the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area; |
| iv | the municipality which has jurisdiction in the area; |
| v | any organ of state having jurisdiction in respect of any aspect of the activity; and |
| vi | any other party as required by the Competent Authority. |
| A comprehensive database / I&AP register was compiled, this included various stakeholders, authorities, land owners, land users and associations within the area.<br>Background Information Documents (BIDs), detailing the project, were compiled in English and Afrikaans and circulated to identified I&APs between 14 - 16 March 2022. In addition | |

| **Legal and Regulatory Requirement: NEMA Regulation 982 as amended, Section 41 – Public participation process** | |
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| the BID was uploaded onto the Cabanga website. Proof of delivery is attached in the PPP report (Annexure 3). | |
| c | Placing an advertisement in: |
| i | One local newspaper; or |
| ii | Any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations. |
| d | placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official Gazette referred to in paragraph (c)(ii) |
| Advertisements were published in the Parys Gazette on 17 March 2022 in English and Afrikaans. Please refer to the PPP Report for copies of the advertisement - Annexure 3. | |
| e | Using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desirous of but unable to participate in the process due to- (i) illiteracy; (ii) disability; or (iii) any other disadvantage. |
| No issues in information dissemination have been noted to date. Any additional requirements made by the authorities will be applied during the PPP process. | |
| 3 | A notice, notice board or advertisement referred to in sub regulation (2) must – |
| a | Give details of the application which is subject to public participation |
| b | State - |
| i | whether basic assessment or S&EIR procedures are being applied to the application |
| ii | Whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation |
| iii | The nature and location of the activity to which the application relates |
| iv | Where further information on the application or activity can be obtained |
| v | The manner in which and the person to whom representations in respect of the application may be made |
| These aspects are addressed in the BIDs, Notices and Adverts. Please see the relevant annexures included in the PPP Report (Annexure 3). | |
| 4 | A notice board referred to in sub regulation (2) must - |
| a | be of a size at least 60cm by 42 cm |
| b | Display the required information in lettering and in a format as may be determined by the Competent Authority |
| Notices (posters) were A2 in size (42 x 60 cm). Copies of the posters have been included in | |

| **Legal and Regulatory Requirement: NEMA Regulation 982 as amended, Section 41 – Public participation process** | |
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| the PPP Report (Annexure 3). | |
| 5 | Where public participation is conducted in terms of this regulation for an application or proposed application, sub regulation (2)(a), (b), (c) and (d) need not be complied with again during the additional public participation process contemplated in regulations 19(1)(b) or 23(1)(b) or the public participation process contemplated in regulation 21(2)(d), on condition that : - |
| a | such process has been preceded by a public participation process which included compliance with sub regulation (2)(a), (b), (c) and (d); and |
| b | written notice is given to registered interested and affected parties regarding where the: - |
| i | revised basic assessment report or, EMPr or closure plan, as contemplated in regulation 19(1)(b) may be obtained, the manner in which and the person to whom representations on these reports or plans may be made and the date on which such representations are due; |
| ii | revised environmental impact report or EMPr as contemplated in regulation 23(1)(b) may be obtained, the manner in which and the person to whom representations on these reports or plans may be made and the date on which such representations are due; or |
| iii | environmental impact report and EMPr as contemplated in regulation 21(2)(d) may be obtained, the manner in which and the person to whom representations on these reports or plans may be made and the date on which such representations are due; |
| Noted. No deviation required. | |
| 6 | When complying with this regulation, the person conducting the public participation process must ensure that: |
| a | Information containing all the relevant facts in respect of the application is made available to potential interested and affected parties; and |
| b | Participation by potential interested and affected parties is facilitated in such a manner that all potential interested and affected parties are provided with a reasonable opportunity to comment on the application. |
| Noted.<br>The BAR and EMP has been made available for public review for a period of 30 days (16 March 2022 – 19 April 2022). Comments received have been included in the final document for submission to the Competent Authority. | |
| 7 | Where an environmental authorisation is required in terms of these Regulations and an authorisation, permit or licence is required in terms of a specific environmental management Act, the public participation process contemplated in this Chapter may be combined with any public participation processes prescribed in terms of a specific environmental management Act, on condition that all relevant authorities agree to such combination of processes. |
| Noted. The PPP has been combined for the authorisations required in terms the MPRDA, | |

| **Legal and Regulatory Requirement: NEMA Regulation 982 as amended, Section 41 – Public participation process** |
|---|
| NEMA and NWA. |

## 8.1 Details of the PPP followed to Date

Authorities and Stakeholder Consultation:

The following key stakeholders have been identified and notified of the project by means of Background Information Documents (BIDs) delivered via e-mail, fax, post and/or hand delivery:

- DMRE
- DWS
- Department of Small Business Development, Tourism and Environmental Affairs (DESTEA)
- Agriculture, Land Reform and Rural Development (DALRRD)
- Department of Agriculture & Rural Development, Free State Province
- Fezile Dabi District Municipality
- Ngwathe Local Municipality
- South African Heritage Resources Agency (SAHRA)

Interested and Affected Parties (I&APs) Consultation

The I&APs include a broad database of immediately affected landowners, adjacent land owners/users, communities, ward councillors and other interest groups.

BIDs were compiled in English and Afrikaans and were distributed by h,and[1], fax, e-mail and post to all the identified I&APs between 14 - 16 March 2022. In addition the BID was uploaded onto the Cabanga website.

The purpose of the BID was to:

- Introduce the project to the public;
- Inform them of the proposed applications and associated regulatory processes; and
- Initiate a process of public consultation to record perceptions and issues and invite them to register as an I&AP.

No public meetings have been held for the project, however micro-consultation meetings were held with the directly affected landowners on 6 January 2022.

Notices

Notices compiled in English and Afrikaans were erected (16 March 2022) on the site boundary fence as well as other public locations:

- Kwakwatsi Clinic
- Koppies Club
- Friesland Hotel

[1] In some instance when no one was home, these were affixed to a gate, slipped under the door or inserted into the post box.

- Senwes Hinterland Koppies

Further to this, advertisements will be published in one newspaper, The Parys Gazette, in both English and Afrikaans (Publication Date: 17 March 2022).

Document Review

The BAR has been made available to the public for review and comment from the 16 March 2022 – 19 April 2022. The report was made available at the following locations:

- Online at www.cabangaenvironmental.co.za/public-documents;
- Koppies public library;
- Koppies Bentonite Mine (at the security offices); and
- Dropbox/Onedrive/WeTransfer (at the request of I&APs).

Notification of the reports availability has been included in the BID, advertisements and notices as described above.

### 8.2 Summary of Issues Raised by I&APs

Comments and concerns received to date have been summarised in the table overleaf. This table has been updated with all comments received to date.

## Table 7: Issues & Response Table

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
|---|---|---|---|
| **Competent and Commenting Authorities** | | | |
| Norman Phemula<br>DMRE - Mineral Regulation | 08/11/2021<br>Letter via e-mail | Application for Environmental Authorisation for prospecting lodged in terms of Regulation 16 of the EIA Regulations, 2014 in respect of the farms Geluk 237 and Goudlaagte 238, situated in the magisterial district of Koppies in the Free State Province. Applicant: Matsopa Minerals (Pty) Ltd.<br>• The abovementioned application dated 26th October 2021 and received by the Department on the 28th October 2021 refers.<br>• The Department hereby acknowledges receipt of an application for a NEMA BAR application on its own application for a prospecting right application in terms of regulation 3(6) of the EIA Regulations.<br>• You are hereby kindly advised that only those activities listed in the application form will be considered for authorisation. The onus is on the applicant to ensure that all activities related to the proposed project are included in the application. Your attention is brought to the provisions of regulation 15(1) – (3) of the EIA Regulations.<br>• Your application will be checked as required in terms of regulation 17 of the EIA Regulations and should there be any issues of concern, you will be informed in writing so that such issues can be addressed. | All listed activities have been included in the application form.<br>The applicant confirms that they are aware of Section 24F(1) of the NEMA and have no intention of commencing with activities until all the necessary authorisations, rights and licenses are in place.<br>The EAP has every intention of meeting the stipulated timeframes. Extensions were applied for and granted where necessary. |

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
|---|---|---|---|
| | | • Kindly note that the acknowledgement of your environmental authorisation application does not grant you a right to commence with the listed activity/ies (prospecting operation) applied for. Your application will be processed and a recommendation on granting or refusal of an environmental authorisation will be forwarded to the Minister or his delegate for consideration, and the decision will be communicated as stipulated in regulation 4(1) of the EIA Regulations. This acknowledgement also, does not serve as an acceptance of your prospecting right application lodged simultaneously with this application.<br>• You should also note that commencement with a listed activity without environmental authorisation contravenes the provisions of section 24F(1) of the National Environmental Management Act, 1998 (Act 107 of 1998), as amended (NEMA) and constitutes an offence in terms of Section 49A(1)(a) of NEMA.<br>• Further note that in terms of regulation 45 of the EIA Regulations, your failure to submit the documents or meet any timeframes prescribed in terms of the said Regulations will result in your application deemed to have lapsed. | |
| Tshifhiwa Makhokha<br>DMRE - Environmental Directorate | 08/11/2021<br>Letter via e-mail | • Please be informed that your application for a prospecting right for Bentonite | The BEE Report and certified copies of the requested documents were uploaded onto the |

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
|---|---|---|---|
| | | (Clay), Shale/Brick clay, Clay (General) and Illite Montmorillonite Group (Clay) on the farm Goudlaagte 238 and Geluk 237 situated in the Magisterial District of Koppies has been accepted.<br>• Note that in terms of section 17(1) of the MPRDA, you are required to give effect to the objects referred to in terms of section 2(d) of the MPRDA by submitting compliance with BEE on or before 22 December 2021 to this office any documentation proving including but not limited to: -<br>o Certified copies of share certificates and shareholders register;<br>2.2 Certified copies of Shareholder agreements;<br>o Certified copies of Articles and Memorandum of Association of the company;<br>o Trust deed documents and letter of authority for any trust holding shares;<br>o Details relating to funding (all relevant agreements);<br>o Any other information that may be necessary to explain and serve as evidence that your Company meets the appropriate HDSA ownership and/or compliance requirements of the MPRDA and Mining Charter.<br>• In light of the minimum requirements as stipulated in Regulation 16(1) and 16(2) of the EIA Regulations, your application for an Environmental Authorisation was | SAMRAD portal on the 03/12/2021 and hard copies couriered to the DMRE offices on 06/12/2021.<br>The applicant will ensure that all prospecting fees are up to date.<br>The applicant is aware that they may not commence with prospecting activities until all the necessary authorisations, rights and licenses are in place. |

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
|---|---|---|---|
| | | incomplete as it was not accompanied by this acceptance letter as per Sub Regulation 16(1)(ix) and considering that it is now completed by this acceptance letter, you are hereby required to submit the documents stipulated in Regulation 19(1) to (8) of the EIA Regulations.<br>• Your attention is drawn to the provision of section 7(1)(e) of the MPRDA, which provides that the Minister may grant an application for a prospecting right if the applicant is not in contravention of any relevant provision of this Act. Section 19(2)(f) places an obligation on the holder of a prospecting right to pay the prescribed prospecting fees, as per regulation 76 of the MPRDA.<br>• You are therefore reminded to ensure that payment of all prospecting fees for all prospecting rights that you hold, are up to date, failing which this may have a negative impact on the outcome of your current application.<br>• Take further note that the acceptance of this application does not imply that you may prospect on the land accepted for, however merely implies that your application is being processed further.<br>• Further note that should this office discover at a later stage the existence of a right or permit issued in respect of the properties forming the subject of the application, further processing of this application shall discontinue. | |

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
|---|---|---|---|
| Tshifhiwa Makhokha<br>DMRE - Environmental Directorate | 22/11/2021<br>Letter via e-mail | Evaluation of an application for Environmental Authorisation in terms of Regulation 17 of the EIA Regulations, 2014 for prospecting in respect of the farms Geluk 237 and Goudlaagte 238, situated in the magisterial district of Koppies in the Free State Province. Applicant: Matsopa Minerals (Pty) Ltd.<br>• The abovementioned application received by the Department on the 28th October 2021 refers.<br>• Your application has been checked as required in terms of regulation 17 of the EIA Regulations and the following issues which need to be addressed by 07 December 2021 have been noted :<br>(a) Item 3 on the Environmental Assessment Practioner (EAP) information, Curriculum Vitae of an EAP indicating the experience with environmental impact assessment and relevant application processes must be attached.<br>(b) Please use the correct magisterial district as per the acceptance letter dated 09th November 2021.<br>(c) Please note that the screening report attached on the application form is not signed by the compiler. Please make sure the report is signed by the relevant person.<br>• Based on paragraph 2 above, you are hereby kindly requested to submit by the 07th December 2021, a revised application form which addresses all the requirements of regulation 16(b) of the | Cabanga confirms that the revised application form which addresses all the requirements of regulation 16(b) of the EIA Regulations 2014 was uploaded to the SAMRAD portal on the 03/12/2021 and hard copies couriered on 06/12/2021.<br>An application for extension of the timeframes applicable to the BAR submission was made to the Department on 13 January 2022. This was approved on 14 January 2022. The submission deadline for the BAR and EMPr is now the 22 April 2022. The final report will be submitted online via SAMRAD (1 x electronic copy) and manually (3 x hard copies).<br>The BAR was made available for public review and comment for a period of 30 days, from16 March 2022 – 19 April 2022. All comments received from the competent and commenting authorities, as well as I&APs have been included in the final report for submission to the DMRE.<br>The application relates to a BAR and not a Scoping / EIA process. Thus Appendix 1, 4 and 6 of the EIA Regulations were consulted.<br>Cabanga confirms that the PPP has been undertaken as per chapter 6 of the EIA Regulations, please refer to Table 6<br>The following specialist studies were identified and undertaken for the application:<br>• Terrestrial Biodiversity Assessment;<br>• Freshwater Ecology Assessment and Wetland Delineation; |

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
|---|---|---|---|
| | | EIA Regulations 2014, putting more focus on the issues raised above. The revised form should be uploaded on the SAMRAD online application system as an Annexure using the same method the initial form was uploaded and a copy must also be submitted manually to this office.<br>• In view of the aforementioned application form and paragraph 2 above, you are hereby requested to submit by the 03rd March 2022. Three (3) copies manually and one (1) electronic copy through SAMRAD, of a basic assessment report inclusive of specialist reports and an EMPr which have been subjected to the public participation process of at least 30 days incorporating the comments received, including all comments from the competent authority. Kindly refer to section 24N(2) of the National Environmental Management Act, 1998 (Act 107 of 1998) as amended and Appendix 2, 4 and 6 of the EIA Regulations for the minimum requirements set for the aforementioned reports. The public participation process should be conducted as stipulated in chapter 6 of the EIA Regulations and taking into consideration any guidelines applicable for public participation.<br>• You should also take into account the minimum requirements with regards to specific specialist studies which should be undertaken for any development or | • Compliance Statement for Soils, land use and land capability;<br>• Heritage Impact Assessment;<br>• Desktop Palaeontological Assessment; and<br>• Geohydrology.<br>These studies were compiled in accordance with Appendix 6 of the EIA Regulations as well as the Government Notice 1150 in terms of NEMA dated 30 October 2020: "Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation".<br>The BAR was made available for public review and comment for a period of 30 days, from16 March 2022 – 19 April 2022. The relevant State departments as listed in Section 5.2 of this report were made aware of the report's availability for review and comment. All comments received from the competent and commenting authorities, as well as I&APs have been included in the final report for submission to the DMRE.<br>No comments on the BAR has been received from the DMRE Regional Office to date.<br>The properties under application are privately owned. The Commission on Restitution and Land Rights was consulted, a clearance letter was received on 08 March 2022 confirming that no land rights have been lodged against the properties. A copy of the letter has been |

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
|---|---|---|---|
| | | projects such as a Heritage Impact Assessment Studies, Biodiversity/Ecological Studies and Wetland delineation. It is the EAP's responsibility to identify the specialist studies required for this environmental authorisation in order to avoid delay in processing and finalisation of the application.<br>• The Basic Assessment Report and EMPr to be submitted as mentioned on paragraph 4 above must also first be subjected to a 30 days consultation process with every State department which administers a law relating to a matter affecting the environment, and this includes this department (regional office).<br>• Your consultation must be extended to the Department of Land Affairs if the land is state owned or in the event the land is subject to land restitution, consult the office of the Commission on Restitution and Land Rights and submit proof and results of such consultation as part of the reports requested on paragraph 5 above.<br>• Kindly note that acknowledgement of your environmental authorisation application does not grant you a right to commence with the listed activity/ies (mining operation) applied for. Your application will be processed and a recommendation on granting or refusal of an environmental authorisation will be | attached to this Report (Annexure F).<br>Please note that the application relates to Prospecting and not Mining.<br>The applicant is aware that they may not commence with prospecting activities until all the necessary authorisations, rights and licenses are in place.<br>In accordance with Regulation 3(7) and 19(1)(b) of GNR. 982 an extension on the relevant timeframes was requested and approved. |

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
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| | | forwarded to the Minister or his delegate for consideration, and the decision will be communicated as stipulated in regulation 4(1) of the EIA Regulations.<br>• You should also note that commencement with a listed activity without environmental authorisation contravenes the provisions of section 24F(1) of NEMA and constitutes an offence in terms of Section 49A(1)(a) of the said Act.<br>• Further note that in terms of regulation 45 of the EIA Regulations, your failure to submit the documents or meet any timeframes prescribed in terms of the said Regulations will result in your application deemed to have lapsed (refer to paragraph 4 above). The provisions or regulation 19(1)(b) of the EIA Regulations should be used where deemed necessary as once this application lapses, the department will not process any documentation submitted outside the prescribed timeframe. | |
| Leada Khubana<br>DMRE - Mine Economics | 23/11/2021<br>E-mail | The relevant application has inter alia been evaluated by the department's Sub-directorate: Mine Economics. Kindly note that the Prospecting Work Programme (PWP) submitted does not meet the minimum requirements of MPRDA due to the following issue (s) that need to be addressed:<br>REGULATION 7(1)(g): A DESCRIPTION OF THE PROSPECTING METHOD OR METHODS TO BE IMPLEMENTED | The Revised Prospecting Works Programme was submitted via email on 24/11/2021 and uploaded onto SAMRAD on the 03/12/2021. |

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
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| | | You have not provided the maximum estimated depth of holes to drilled and the proposed drilling method. You are requested to amend your PWP and include the estimated depth of holes to be drilled as well as the proposed drilling method to be implemented.<br>The amended PWP should be sent through email and also uploaded on SAMRAD on or before 10 December 2021. | |
| Tshifhiwa Makhokha<br>DMRE - Environmental Directorate | 14/01/2022<br>Letter via e-mail | ACKNOWLEDGEMENT OF EXTENSION LETTER TO SUBMIT REQUESTED INFORMATION CONCERNING ENVIRONMENTAL AUTHORISATION FOR A PROSPECTING RIGHT LODGED IN TERMS OF REGULATION 16 OF THE EIA REGULATIONS, 2014 IN RESPECT OF THE FARMS GOUDLAAGTE 238 AND GELUK 237, SITUATED IN THE MAGISTERIAL DISTRICT OF KOPPIES<br>Receipt of a request for an extension to Basic Assessment Report and Environmental Management Programme in terms of Regulation 23 of the EIA Regulations, 2014 as amended, is hereby acknowledged.<br>Please note that failure to submit the requested information by the due date which is the **22nd April 2022** will result in this office processing the application using the information that is already submitted. | Thank you. The reports will be submitted by 22 April 2022. |
| Department of Agriculture, Land Reform and Rural Development | 08/03/2022<br>Letter via e-mail | No land claims have been lodged against the farms Geluk 237 and Goudlaagte 238.<br>Factors that are beyond the Commission's control:<br>• Various factors that some claimants referred to properties that claim | No response needed. Email received due to an inquiry emailed to the Office of the Regional Land Claims Commissioner: Free State. |

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
|---|---|---|---|
| | | dispossession of rights in land against using historical property descriptions which may not match the current property description.<br>• Some claimants provided the geographic descriptions of the land they claim without mentioning the particular actual property description they claim dispossession of rights in land against.<br>The Commission therefore does not accept any liability whatsoever, if through the process of further investigation of claims it is found that there is in fact a claim in respect of the properties. | |
| George Nel<br>Department of Water & Sanitation (DWS) | 23/03/2022<br>Letter via e-mail | CONSULTATION IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 FOR THE APPROVAL OF A BASIC ASSESSMENT REPORT. FARM: GELUK 237 AND GOUDLAAGTE 238. DISTRICT: KOPPIES. APPLICANT; MATSOPA MINERALS (PTY) LTD The consultation letter with reference no; FS 30/5/1/1/3/2/1/10631 MP and a copy of the Basic Assessment Report is here by referred to: The Department of Water and Sanitation has no objection towards the proposed prospecting on condition that the following is adhered to:<br>• The applicant must ensure the storm water run-off has to be directed away from the site to ensure the separation of clean and dirty water.<br>• No activities may take place, without the necessary authorisation from this | • The proposed prospecting programme will be undertaken over a period of five (5) years, and will be limited to drilling (no trenching or bulk sampling will be undertaken). An environmental footprint of approximately 10m$^2$ per borehole will be impacted by the drilling activities, drill sites must be decommissioned and rehabilitated on completion of each hole before moving onto the next. Thus at any one time only 10 m$^2$ will be disturbed by the prospecting activities.<br>• Based on the recommendations of the specialists the boreholes have largely been sited within cultivated fields.<br>• Thus the impacts to the water resources will largely be limited to the potential of silt loading of downstream water courses and/or contamination |

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
|---|---|---|---|
| | | Department, within a horizontal distance of 100 m from any watercourse or estuary or within a 500 m radius from a delineated boundary of any a wetland or pan.<br>• The Plant should be sited, designed and managed so that the quality of surface and groundwater in the vicinity are not degraded by runoff, leaching or seepage from the site or waste utilization areas<br>• Zero discharge of contaminated surface water.<br>• Monitoring must take place on a continuous basis to ensure the above.<br>• The storage of material, chemicals, fuels, etc must not pose a risk to the surrounding environment and this includes surface and groundwater resources. Temporary bunds must also be constructed around chemical or fuel storage areas to contain possible spillages. Such storage areas must be located outside the 1:100 year floodline of a river and must be fenced to prevent unauthorised access into the area. The maintenance of vehicles and equipment used for any purpose during the prospecting activity will take place only in the maintenance yard area.<br>• The applicant must comply with all the conditions of the National Water Act (Act 38 of 1998)(NWA). | from any potential leakages/spills occurring from machinery and vehicles. Mitigation measures have been included in the EMPr.<br>• A buffer zone of 100m will be implemented around all rivers and tributaries. An application in terms of Section 21(c) and (i) of the National Water Act, Act 36 of 1998 (NWA) will be made for the activities falling within the 500m regulated zone of a wetland.<br>• This application relates to prospecting. No plant is proposed.<br>• All hydrocarbons and/or dangerous goods will be stored within a bunded facility. These will be located outside the 1:100 year floodline / 100m horizontal distance of water course (whichever is greater).<br>• Maintenance of vehicles will not be undertaken on site unless absolutely necessary.<br>• The provisions of GN704 have been incorporated into the design of the project and the EMPr.<br>• Water use will be limited to that of domestic/potable use. This will be brought onto site.<br>An application for General Authorisation in terms of 21(c) and (i) of the NWA will be submitted in due course. |

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
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| | | • Registration of Water uses under Section 21 of the NWA is compulsory.<br>• The proposed operation must not contravene Government Notice 704 (4 June 1899, Vol. 408, No. 20119) regarding the 'Regulations on use of water for mining and related activities aimed at the protection of water resources''.<br>• In terms of Section 22 of the NWA a person may only use water without a license:<br>o If that water use 18 permissible under Schedule 1.<br>o If that water use is permissible as a continuation of an existing lawful use.<br>o If that water use is permissible in terms of a General Authorisation issued under Section 39 of the NWA,<br>o In terms of Section 4(1) of the NWA a person may use water from a water resource for purposes such as reasonable domestic use, domestic gardening, animal watering, firefighting and recreational use, as set out In Schedule 1.<br>To apply for authorisation and registration of water uses the responsible official can be contacted at the following address: Deputy Director; Water Use Attention: Mr. V Blair Private Bag 528, | |

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
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| | | Bloemfontein.<br>9300<br>Telephone: 051 405 9000<br>For any clarity, please do not hesitate to contact this Department | |
| Sityhilelo Ngcatsha<br>Archaeology, Paleontology, Meteorite Assistant South African Heritage Resources Agency | 01/04/2022<br>Via SAHRIS portal | The following comments are made as a requirement in terms of section 3(4) of the NEMA Regulations and section 38(8) of the NHRA in the format provided in section 38(4) of the NHRA and must be included in the Final BAR and EMPr:<br>• 38(4)a – The SAHRA Archaeology, Palaeontology and Meteorites (APM) and Burial Grounds and Graves (BGG) Unit has no objections to the authorised development;<br>• 38(4)b – The recommendations of the specialists are supported and must be adhered to. No further additional specific conditions are provided for the development;<br>• 38(4)c(i) – If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Sityhilelo Ngcatsha/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section | The Chance Find Protocol in the EMPR has been updated to include the condtions provided by SAHRA.<br>A copy of the final BAR / EMPR will be uploaded onto the SAHRIS website. |

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
|---|---|---|---|
| | | 51(1)e of the NHRA and item 5 of the Schedule;<br>• 38(4)c(ii) – If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Ngqalabutho Madida 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule;<br>• 38(4)d – See section 51(1) of the NHRA with regards to offences;<br>• 38(4)e – The following conditions apply with regards to the appointment of specialists:<br>o If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA;<br>The Final BAR and EMPRr must be updated to include conditions provided by SAHRA in this comment; The Environmental Authorisation (EA) must be submitted to SAHRA for recorded | |

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
|---|---|---|---|
| | | purposes. | |
| **DIRECTLY AFFECTED LANDOWNERS / USERS** | | | |
| Dawie Herbst, Farm Goudlaagte 238 | 06/01/2022<br>Micro-consultation & site visit | • Concerned about the fragmentation of land use should the prospecting programme indicate that the reserves are economically viable for mining. If Matsopa Minerals ends up mining the farm Goudlaagte, he will not have enough hectarage remaining to farm.<br>• Is opposed to the project in general.<br>• Specific issues relating to the prospecting programme include stock theft; gates being left open by contractors and boreholes not being backfilled and rehabilitated corrected. In the past stock have broken their limbs falling into unrehabilitated boreholes.<br>• Indicated several graves sites within the farm boundary.<br>• Raised concerns about the current backlog of rehabilitation at the neighbouring Koppies Mine. Also indicated that material has been pushed up against his fence line from the Blaauwboschpoort pit which has raised the ground level. The livestock use this to climb over the fence into the mining area. | • Should the prospecting programme indicate that the reserves are economically viable, Matsopa Minerals will apply for a Mining Right in terms of the MPRDA. This will be accompanied by an application for EA, which process will be subject to a full Scoping and EIA. In terms of the NEMA Procedures for reporting on identified environmental themes a detailed agricultural study will then need to be undertaken. Matsopa Minerals has also indicated that there is the potential for land swops in future.<br>• Matsopa Minerals has a zero tolerance policy on theft, any employees or contractors found to be involved in stock theft will be dealt with accordingly.<br>• Employees and contractors will undergo induction and environmental awareness.<br>• Rehabilitation actions and site monitoring / inspections will be included in the EMPR to ensure boreholes are properly backfilled.<br>• No drilling will be undertaken within 50m from a grave or heritage site.<br>• The comments and concerns raised regarding the current mining operations at Koppies Mine have been |

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| | | | passed onto Mr. D.Bennett of Matsopa Minerals for action. |
| Mr.P.Loggenberg, Farm Geluk 237 | 06/01/2022<br>Micro-consultation & site visit | • Requested that water samples be taken to understand the baseline.<br>• Raised concerns about the existing water qualities and the impact that the current Koppies Mine is having on the surrounding water users. Queried whether any waste disposal is undertaken onsite at the Koppies Mine that may have an impact on the water qualities.<br>• Understands that the application is for prospecting and not mining, but would like to see Matsopa Minerals to address outstanding queries and issues before proceeding with additional developments.<br>• Specific issues relating to the prospecting programme include stock theft; general safety due to an increase in crime; gates being left open by contractors and loss of species of conservation concern (SCC).<br>• Indicated that Sungazer lizards and South African hedgehog have been sighted in the northern sections of the farm.<br>• Indicated several graves sites within the farm boundary. | • Shangoni Aquiscience was appointed to conduct a hydrocensus for the proposed project. Baseline water samples were taken in February 2022.<br>• The comments and concerns raised regarding the current mining operations at Koppies Mine have been passed onto Mr. D.Bennett of Matsopa Minerals for action.<br>• Matsopa Minerals has a zero tolerance policy on theft, any employees or contractors found to be involved in stock theft will be dealt with accordingly.<br>• Employees and contractors will undergo induction and environmental awareness.<br>• A terrestrial biodiversity assessment has been commissioned to identify any potential SCC. The study (Schrenk, 2022) indicated that large sections of the habitat within the project area and immediate surrounds are conducive to supporting the nesting or regular foraging of SCC recorded via the desktop study. Further to this several burrows were recorded within the project area which are characteristic of the Sungazer lizard. A large number of provincially protected *Boophone disticha* plant species were recorded across the grassland portions of the project area.<br>• Based on these findings recommendations were made by the Specialist that the intact grasslands be classified as strict 'no-go' areas. |

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| | | | • No drilling will be undertaken within 50m from a grave or heritage site. |
| Mr.P.Loggenberg, Farm Geluk 237 | 15/03/2022<br>E-mail | • Thank you for the info, I got it a while ago. However, what I am interested in now is the results of the water samples that you took from me about a month or so ago as well as on the surrounding farms.<br>• Frans? was the person I spoke to when he was on the farm that day and he promised we would get the results. There should not be anything that prevents us from getting it for us, right?<br>• I heard yesterday that it takes up to 3 months for the analysts that I unfortunately cannot accept! | • This is a different report from the one previously sent through to you. The one that I sent through this morning (15/03/2022) has the results that Franz took a few weeks back, and I myself only received yesterday. |
| Dawie Herbst, Farm Goudlaagte 238 | 16/03/2022<br>Micro-consultation / Hand out of BID | • The existing Koppies Mine has not rehabilitated historic pits, and does not implement roll-over rehabilitation.<br>• The Mine also does not listen to I&AP concerns regarding fencing, security, water, alien invasive species etc.<br>• The current, un-rehabilitated Koppies A-Pit adjacent to the Herbst Farm is causing problems with water, alien plants. The boundary fence is affected by spoil heaps placed adjacent to it, allowing livestock to gain access to the adjacent mine pits. When the landowner complains to the Mine, they indicate that they do not see anything wrong with the current situation. | • The pits adjacent to Goudlaagte are called C-mine and this has not been rehabilitated yet, as it is believed that the bentonite orebody is still open to the west in the direction of Goudlaagte.<br>• Cabanga has been appointed to undertake the application for environmental authorisation associated with the proposed prospecting. The comments and concerns raised regarding the current mining operations at Koppies Mine have been passed onto Mr. D.Bennett of Matsopa Minerals for action.<br>• Please note that a complaints register is available at the existing Koppies Mine should you wish to raise any concerns on a day-to-day basis with regards to the existing mining activities. The complaints register |

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| | | | and actions/responses thereto are inspected during the annual compliance audits, and submitted to the DMRE. Alternatively the Safety Officer/ECO (Andries Phoheli) and/or the Mine Manager (Johan Daffue) can be contacted on (056) 777 2291 (office number). |
| Johan Human<br>Lengana Health SA (Pty) Ltd | 16/03/2022<br>E-mail | • Please confirm that the PR application is on for Clay (Clay general ?)<br>• Lengana do have a PR on same properties for Lithium. | • The PR application is over Clay (General), as well as Bentonite Clay (CB), Shale/Brick Clay (CS) and the Illite-Montmorillinte Group (CI). Section 3 of the BID includes a brief project overview and lists the minerals applicable to the operation. |
| **INTERESTED & AFFECTED PARTIES** | | | |
| Natasha Smalberger<br>On behalf of various land owners and users in the Koppies District | 11/04/2022<br>Letter via e-mail | EXISTING PROSPECTING RIGHTS HELD BY MATSOPA:<br>Firstly, it is our understanding that a Prospecting Permit was issued to Matsopa in 2019: The Prospecting area far exceeds the legislated limit of 5Ha. Further, the first prospecting hole was drilled in 2021 (three years later). Can we as the affected land owners please get clarification on the status of the 2019 prospecting permit, and the legality of prospecting activities carried out under that permit?<br>• Now there is this application for another Prospecting Right, but we do not have clarity on the status or the findings of the previous prospecting activities. We cannot in good conscience allow this application to be approved if activities under previous authorisations were not carried out correctly. | Matsopa Minerals holds a valid Prospecting Right (Reference: FS30/5/1/1/2/10358PR) in terms of the Mineral and Petroleum Resources Development Act, Act 28 of 2002 (MPRDA). The Prospecting Right extends over approximately 7 523 Ha, and includes the following properties:<br>• The farm Allendale 308<br>• Remainder and Portion 1 of the farm Aurora 142<br>• Portions 1 and 3 of Brakspruit 15<br>• The farm Deelspruit 451<br>• RE and Portions 1, 2 of the farm Honingskloof 78<br>• The farm Kirkdale 391<br>• The farm Nooitgedacht 286<br>• The farm Nooitgedacht 445<br>• The farm Nooitgedacht 91 |

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| | | | • RE and Portions 1 and 2 of the farm Onverwacht 419<br>• The farm Orleans 221<br>• RE of the farm Prospect 107<br>• Remainder and Portions 1, 2, 3, 4, 5, 6 of the farm Rusthof 376<br>• The farm Smaldeel 85<br>• The farm Spaarveld 132<br>• Remainder of the farm Susannaskui 114<br>• Remainder and Portions 1 and 2 of the farm Verdeel 46<br>• The farm Verdeel 278<br>• The farm Vrede 450<br>Matsopa Minerals is applying for a Prospecting Right and not a Mining Permit. Please note that the 5 hectare limit referred to is not applicable to Prospecting Rights, but only to Mining Permits. The difference between mineral rights and permits is briefly discussed below:<br>Prospecting Rights allow the holder to survey or investigate an area of land for the purpose of identifying a probable mineral deposit. The Right gives the holder permission to take samples for testing but does not permit the holder to exploit or mine the said mineral. A Prospecting Right is issued for a specific period of up to five (5) years, and may be renewed once for a period not exceeding three (3) years.<br>A Mining Permit allows the holder to mine and process the mineral on a small scale i.e. on an area of less than 5 hectares. An applicant may not be granted more than one (1) Mining Permit over the same or adjacent land. A Mining |

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| | | | Permit is valid for the period stipulated in the Permit, which may not exceed a period of two (2) years, and may be renewed for three (3) periods each of which may not exceed a year.<br>A Mining Right grants the holder the right to mine and process the minerals for a specified period of up to thirty (30) years. A Mining Right may be renewed for further periods, each of which may not exceed thirty (30) years at a time.<br>In addition to the above, activities which require a Prospecting Right, Mining Permit or Mining Right will require environmental authorisation in terms of the National Environmental Management Act, Act 107 of 1998 (NEMA) and its Environmental Impact Assessment (EIA) Regulations, 2014 (as amended). Depending on whether the activities identified are included in Listing Notice 1, Listing Notice 2 or Listing Notice 3 of the EIA Regulations the application is subject to either a Basic Assessment or Scoping and EIA process.<br>The application for the aforementioned Prospecting Right (Reference: FS30/5/1/1/2/10358PR) and associated environmental authorisation was undertaken in June 2015. The environmental authorisation was approved in terms of the National Environmental Management Act, Act 107 of 1998 (NEMA) on 01 March 2017 subject to the approval of the Prospecting Right. The Prospecting Right was approved on 10 December 2018 (the effective date) however it |

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| | | | is understood that the Prospecting Right was only executed two years later, in April 2019, following the outcome of an appeal2. The Prospecting Right was issued for a period of three (3) years from the effective date, and renewed for an additional three (3) years.<br>The environmental authorisation is valid for the period for which the Right is granted provided that the activity must commence within ten (10) years from the date the environmental authorisation was issued. If commencement of the activity does not occur within the specified period, the environmental authorisation lapses and a new application in terms of NEMA and the Environmental Impact Assessment (EIA) Regulations would be required.<br>• Due to the onset of Covid-19 the prospecting programme was delayed, and drilling commenced in September 2021. In terms of the conditions of the environmental authorisation, Matsopa Minerals must audit the compliance of the prospecting operations annually and submit the findings of the audit to the Department of Mineral Resources and |

[2] The appeal was lodged by Matsopa Minerals against the Department's decision to exclude certain properties from the Prospecting Right. It is understood that these properties were excluded by the Department on the basis that Lengana Health SA (Pty) Ltd had already been issued with a Mining Right for the same mineral over these properties.

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| | | | Energy (DMRE). The first operational audit is due by September 2022. |
| | | The area affected by the previous Prospecting Authorisation is home to more than 14 recorded Red-list Endangered Species, inhabiting more than 30 farms. Some protected species like the Sungazer lizards does not move or migrate, they are 100% stationary and eat all sorts of insects that co-exists with other small game and livestock farming. Any interference to the environment will cause a chain-reaction of food sources to be interrupted to the point where valuable colonies are likely to die. | The environmental authorisation for the previous Prospecting Right (Reference: FS30/5/1/1/2/10358PR) authorised the drilling of thirty three (33) boreholes. The location of these boreholes were largely sited within cultivated fields, and outside of sensitive habitat areas. The impacts associated with the approved Prospecting Programme are therefore expected to be localised and of low significance. |
| | | Species-specific, or at least specialist herpetofauna studies must be undertaken to determine the potential effect/ impact of any mining or prospecting projects in the region. | As mentioned above, the environmental authorisation associated with the Prospecting Right (Reference: FS30/5/1/1/2/10358PR) approves the primary drilling programme of thirty three (33) boreholes spread out across 7 523 Ha. As the areas for drilling are largely cultivated, the impacts on the herpetofauna are not expected to be greater than those associated with the existing land use activities (i.e. ploughing) and therefore the impact assessment did not identify the need for site specific specialist studies.<br>However, should any changes to the layout be proposed or in the event that detailed secondary drilling be required, Matsopa Minerals would need to apply for an Amendment in terms of the NEMA and the EIA Regulations, 2014 (as amended). In this instance additional specialist studies would likely be required. |

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| | | ENDANGERED WILDLIFE:<br>There is a known, recorded breeding pair of Secretarybirds that nest on the property between Geluk and Goudlaagte Farms. These are listed as Endangered by the IUCN.<br>We believe any extended daily activity will result in the Secretarybirds abandoning their nest, and think it is not likely that future breeding of this pair will not occur in adjacent areas if they are disturbed in this area that they found safe and protected. | According to the approved Prospecting Works Programme, Basic Assessment Report (BAR) and Environmental Management Programme for the existing Prospecting Right (Reference: FS30/5/1/1/2/10358PR) the boreholes have largely been sited within the cultivated fields.<br>A moderate to high likelihood of the Sagittarius serpentarius (Secretarybird) occurring within the project area has been indicated by the specialist. The nesting of the species is typically in acacia trees, often foraging in the adjacent agricultural lands. Disturbance to any breeding pairs must be mitigated, this includes limiting noise levels from the prospecting activities by means of best practice guidelines.<br>The proposed prospecting activities at Geluk 237 and Goudlaagte 238 will have a limited impact (in area) to the agricultural fields, allowing for other agricultural areas to be foraged by the species and no additional studies are deemed necessary at this stage. Should the prospecting programme indicate that the reserves are feasible for mining, and Matsopa Minerals decide to apply for a Mining Right in future then it is recommended that a avifauna study be undertaken. |
| | | Goudlaagte is also the home of a flock of 20+ Blue Cranes between March and October, breeding occurs on the farm as well.<br>No prospecting or mining activity on the Farm can be supported in the absence of a specialist Avifauna Study to determine how proposed prospecting activities may impact on these | The National Environmental Management Screening Tool indicated contrasting set of habitats and sensitivity within and surrounding the proposed prospecting area. The specialist terrestrial biodiversity study undertaken on the farms Geluk 237 and Goudlaagte 238 confirmed this. The intact grassland were |

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| | | endangered birds.<br>Sungazers, Hedgehog, Brown Hyena, Serval, Blackfooted Cat, Oribi, Aardwolf and Aardvark are a few of the endangered Animals recorded on the 2 farms and surroundings.<br>These Farms and surroundings are bounded by the N1 & R82 (busy roads), Municipality Ground where Township Dogs hunt, and a big company Farm without enough grass/ natural habitat. Therefore, these Endangered animals have no alternative habitat to migrate to if disturbed in their current habitat – if disturbance occurs (in the form of prospecting or mining), we believe that these animals will suffer. No specialist studies have been provided to convince us that these animals will be able to migrate away from the disturbance without tipping the eco-systems balance that keeps them thriving.<br>Endangered Wildlife trust is actively involved with our Conservation projects like the Sungazer Custodians and Blue Cranes and gets regular updates from us. University Students regularly visit various areas to study a field of interest, for example the Broodkop Shear zone Studies and Reptiles such as the Sungazer. | confirmed as having a high to very high sensitivity whilst the transformed areas under cultivation and the degraded grassland habitats were confirmed as having a low sensitivity and are likely to face minimal further impacts from any low to medium impact prospecting activities. As such the proposed activities may only proceed within these areas.<br>The proposed prospecting programme will be undertaken over a period of five (5) years, and will be limited to drilling (no trenching or bulk sampling will be undertaken). An environmental footprint of approximately 10m$^2$ per borehole will be impacted by the drilling activities, drill sites must be decommissioned and rehabilitated on completion of each hole before moving onto the next. Thus at any one time only 10 m$^2$ will be disturbed by the prospecting activities. |
| | | <u>WATER:</u><br>Water interference for Human, Livestock, Wildlife and water bodies for Migrating flocks of Birds such as the Flamingos and Cranes is a big concern.<br>We experience less water in the creeks and dams downstream from current and previous mining areas. There are recorded health issues and | A copy of the water analysis undertaken in November 2009 by the University of Pretoria's Faculty of Veterinary Sciences was provided to Cabanga by Mr. P. Loggenberg on 06 January 2022. The results of which indicated unfavourable levels of Bromide and Nitrate in samples 2, 3, 4, 7 and 8, as well as high levels of |

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| | | concerns in every Household downstream of the current Mine, and lower breeding records in Livestock. We conducted a private water analysis some years ago through the University of Pretoria, that proved our concerns are valid.<br>As there are existing concerns regarding the Mine's impact to our local water resources, what guarantees can be made that the proposed prospecting (potentially leading to additional mining) will not further affect our water? The existing un-rehabilitated mine pits should be rehabilitated first, before giving any consideration to expansion of mining activities. | Lead in samples 1 and 2[3].<br>Based on these results and the concerns raised by Mr. P. Loggenberg Cabanga appointed a third party, Shangoni Aquiscience to define the current groundwater regime and highlight risks to the surface and groundwater environment. This report was attached as Annexure 6 to the Basic Assessment Report (BAR). Water samples were taken by Shangoni Aquiscience at a total of 33 points, these included the existing mine pit, upstream and downstream of the existing mining operations as well as various farm and monitoring boreholes. The results show that the mine water contains slightly raised levels of Chlorine (Cl), Magnesium (Mg), Sodium (Na) and Sulphate ($SO_4$) but all remain well within the drinking water and livestock water standards. Trace metals including Iron (Fe), Manganese (Mn), Lead (Pb) and Bromide (Br) together with the nutrients, Nitrate ($NO^3$), Ammonia ($NH^4$) and Orthophosphate ($PO^4$) were recorded in relatively low concentration. All parameters, except for $NH_4$ at H/BH05, recorded below the relevant standards and pose little contamination concern.<br>Water quality is subject to seasonal variation and thus it is recommended that regular water quality monitoring be undertaken at the mine pits, upstream and downstream relative to the |

[3] Details of sampling locations, methodology and laboratory certificates not included in the documents provided.

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| | | | mine and its discharge points.<br>Possible impacts to the water resources associated with the prospecting programme are largely limited to siltation of downstream water resources and the potential for contamination as a result of hydrocarbon spills and/leaks from vehicles and equipment.<br>Matsopa Minerals undertakes water monitoring and submits the results to the Department of Water and Sanitation (DWS) on an annual basis. Limits for the water quality, including discharge, are outlined in the water use license. |
| | | REHABILITATION:<br>As mentioned, open mines from previous operations are clearly visible, and full of water. No rehabilitation has been done. No rehabilitation on the current mine site has started, so with all due respect, how can we trust any document, Plan or Promise relating to new areas? To keep changing ownership and the company name is not a valid escape from responsibility, especially to such a great concern. | Please see attached letter from Matsopa Minerals detailing the rehabilitation done to date.<br>For the FY2021 the mine has spent in excess of R1 million on rehabilitating certain areas on the old Ocean mine, A-mine as well as C-mine area. Further to this, the mine has provided the DMRE with an updated financial guarantee which is in excess of R15 million for outstanding rehabilitation work which still needs to be done on the property.<br>The financial guarantee does make provision for the backfilling of the Ocean pit but we believe that the surface owner requested that this not be backfilled as he would like to use it as a water storage dam. On-going negotiations and necessary approvals will first be obtained before a final decision can be taken on this.<br>The pits adjacent to Goudlaagte are called C-mine and this has not been rehabilitated yet, as |

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| | | | it is believed that the bentonite orebody is still open to the west in the direction of Goudlaagte. The pits do however have safety berms erected around its perimeter and the entire mining property is fenced off. |
| | | HERITAGE<br>Vredeford weg Concentration camp was not mentioned in the Heritage report page 25 6.3.1.1, which raises a great concern into the Studies conducted on the 2019 prospecting permit. On the 2019 Prospecting Permit the camp is IN the marked area, surrounded by Allendale, Prospect and Rusthof. The Camp is less than 4km from Goudlaagte.<br>More than 500 graves at this site are from the Anglo Boer War (1902).<br>If this extremely important site was not picked up by the Heritage Specialist, how are we to trust that there aren't other important heritage sites that were missed by the Specialist in his study for this Prospecting Application?<br>Regular visits and metal detecting companies visit the area from the R82 to the N1 in search of more Anglo Boer War artifacts with great success. New information and understanding of how the history played out is learned with every visit. With the mine or prospecting proceeding, all this history will be lost. | Section 6 of the Heritage Impact Assessment Report provides background on the area, so as to contextualize the site. The Vredefort Road Concentration Camp is indeed mentioned in Section 6.1.1. on Page 23 of the report. Cabanga confirms that this site is 4km from the proposed Prospecting Area under application and thus will not be impacted on by the drilling programme.<br>Any subsurface finds will be mitigated and managed through the implementation of the recommended chance find procedure as detailed in Section 10.2 of the Heritage Impact Assessment and Section 17.1.2 of the EMPr.<br>The archaeologist has updated his report to include your comments. A copy of the draft and final BAR and Heritage Impact Assessment was also submitted to the South African Heritage Resources Agency (SAHRA) for review and comment.<br>Please see attached Annexure A for a plan indicating the approved area relevant to the existing Prospecting Right (Reference: FS30/5/1/1/2/10358PR). The Vredefort Road Concentration Camp is located outside of the approved Prospecting Right area. Prospecting is however proposed on two (2) of the farms adjacent to the Vredefort Road Concentration |

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| | | | Camp – Prospect 107 and Orleans 221 RE. |
| | | CURRENT EMPLOYMENT<br>Matsopa mentions how this prospecting will enable them to secure work for their current employees. What about our current employees and families, generations building up the land securing food on your plate? Loss of farm-space and long-term, slow, damage to crops, Livestock, Game and vegetation as well as quality of crops, will result in downsizing farm composition and employees, leaving generations of families in the farming industry unemployed. Is there any information available on how the employment at the Mine compares to employment at existing farming operations that will be detrimentally affected if the prospecting goes ahead?<br>If the prospecting goes ahead, and the results are favourable, mining will result in the depletion of minerals on the properties, and after a few years when all minerals are depleted, and the earth is ruined for decades, you just move on to the next available area securing work for your staff...? This is not fair. | As the current application relates to prospecting and not mining, the existing land use will not be excluded and can continue concurrent with the prospecting investigations. As there will be no change to the current land use, no studies on the socio-economics have been undertaken. Should the results of the prospecting programme indicate that clay reserves in the area are economically viable to mine, an application for a Mining Right subject to a separate Environmental Authorisation process will be required at which time it would be necessary to conduct a Socio-economic Assessment. |
| | | ACCESS ROADS & LIABILITIES TO DAMAGE / LOSS<br>Which roads will be accessed to the Drilling holes? How will any control over access in the area be conducted? Due to crime in the area we all work together to keep an eye out for any unusual and unfamiliar faces as most scouting for Livestock (in preparation for theft) happens through the day.<br>Livestock and crops are secured with gates, how can we stay confident in the security of our area if | Existing farm roads and tracks will be utilised as far as possible, it will be necessary to traverse the cultivated fields / ploughed areas to access the drill holes. All routes will be discussed and agreed upon with the farm owners beforehand, in addition to this all routes must be walked through at least once by the Environmental Control Officer (ECO) prior to first location. The EMPr proposes that prospecting activities be |

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| | | this prospecting goes ahead?<br>Fire hazards in winter months is a great concern... how are any of these and other hazards going to be handled? | undertaken in the drier months as far as practically possible to accommodate the maize production season. It is expected that one (1) drill rig, one (1) tractor and two (2) light duty vehicles (4x4 bakkies) will be used on site. Compaction of soils by means of vehicle movement will need to be mitigated by means of ripping.<br>It is anticipated that 7 - 9 persons will be on site for the duration of prospecting, this includes drilling supervisors (2), Drill rig operator (1), drilling assistants (2), Driver (1), Geologist (1), General Manager (1), Safety Officer/ECO (1) and Mine Manager (1). The Geologist and General manger will be on site on occasional basis All site personnel will be introduced to the landowners beforehand and will be required to carry company identification. Site personnel will be instructed to keep farm gates closed at all times, and regular inspections will be undertaken by the Site Manager. Any employee found guilty of theft or misconduct will be dealt with accordingly.<br>The increased risk of veldt fires has been assessed in the BAR and mitigation measures included in the EMPr. No open fires will be permitted and fire extinguishers will be provided to site personnel. Matsopa Minerals will join the local fire protection association. Where no fire protection association exists, Matsopa Minerals will join local community groups.<br>All site personnel will be required to undertake induction, proof of induction must be kept on |

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| | | | file. |
| | | FUTURE APPLICATION, STUDIES GOING FORWARD<br>It is very important to us, the landowners neighbours and public to be included and stay involved in every step forward and that the minimum requirements will not be accepted, as this is not enough for the environmental sensitivity and Heritage of the area – as proofed above. We expect full feedback of our concerns mentioned above as previous feedback on concerns were marked as noted, with no attempts to investigate or updated to public. | Meaningful public participation is an important component of any development, your comments have been included in the final BAR for submission to the DMRE and we will keep you informed of any progress in the application going forward.<br>Please note that a complaints register is also available at the existing Koppies Mine should you wish to raise any concerns on a day-to-day basis with regards to the existing mining activities. The complaints register and actions/responses thereto are inspected during the annual compliance audits, and submitted to the DMRE. Alternatively the Safety Officer/ECO (Andries Phoheli) and/or the Mine Manager (Johan Daffue) can be contacted on (056) 777 2291 (office number). |
| Francois Smit<br>The Smit Family, Landowners: Hoogebult, Verdeel and Smaldeel | 13/04/2022<br>Letter via e-mail | 1. Notice in Parys Gazette<br>The second paragraph reads:<br>The proposed Prospecting right Area is adjacent to Matsopa's existing Koppies Bentonite Mine, and the purpose of the Prospecting programme will be to identify additional reserves in the area to ENSURE THE SUSTAINABILITY OF THE COMPANY AND CONTINUED EMPLOYMENT OF THE CURRENT WORKFORCE.<br>With regards to the above the following questions:<br>a) How many people (from the Koppies area) were employed by the mine (and drying Plant) at the Koppies Bentonite mine in | a) An average of 45 people are directly employed from the Koppies community on an annual basis.<br>b) This information is confidential.<br>c) Mining of the existing bentonite reserves commenced in 1964, and has been ongoing for some 58 years. Currently there is approximately 6 – 8 months life of mine remaining, based on the remaining bentonite reserves contained in the existing Mining Right Area. However it is noted that the Plant can continue to operate by processing existing stock and stock from alternative sources including other |

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| | | 2015, 2016, 2017, 2018, 2019, 2020, 2021 and 2022?<br>b) What is their monthly average pay per year?<br>c) How sustainable is the mine in this area, as there is no bentonite reserves available anymore and apparently Bentonite are brought in from Mozambique by truck?<br>d) How many tons of bentonite must be processed by the mine per year to be sustainable?<br>e) How much Bentonite reserves (tons) are needed for the mine to be sustainable for the next five years?<br>f) Does the drying plant form part of the mining activities (as per the mining license) and if no mining is taken place by Matsopa mining how will the drying plant be treated. In other words will the drying plant still be used at the current site if no bentonite is mined by Matsopa? If the answer is yes – does the mining license authorise such activity?<br>g) From the notice the sustainability of the mine and its USA owners seems to be an important motivation. My counter question in this regard - What about the sustainability of the farmers on the implicated farms? This is all happening at the expense of the farmers/young farmers that are building a future for themselves and is contributing to the South African economy, food security and also employing labourers. | mines, such as the Boane Bentonite Mine in Mozambique.<br>• Minerals are non-renewable resources and thus there is a finite amount of reserves available. The purpose of the proposed prospecting programme is to identify additional reserves in the area.<br>d) Matsopa Minerals has indicated that this is confidential proprietary information.<br>e) Matsopa Minerals has indicated that this is confidential proprietary information.<br>f) The current drying plant is authorised in terms of the Mineral and Petroleum Resources Development Act, Act 28 of 2002 (MPRDA), National Environmental Management Act, Act 107 of 1998 (NEMA) and National Environmental Management Air Quality Act, Act 39 of 2004 (NEMAQA). If no viable reserves are identified in the area, the drying plant can continue to be utilised at the current site for beneficiation on a toll basis. This can be done after written notice and in consultation with the Minister of the Department of Mineral Resources and Energy (DMRE).<br>g) The notice states the purpose and objectives of the prospecting programme.<br>• As the current application |

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| | | h) It seems that only the wellbeing of the mine, its workers, SA and USA shareholders and other stakeholders are being considered in this case, but the wellbeing of the farming community i.e. farmers, farmers families, future offspring, workers, workers families and other stakeholders are not considered important in this matter.<br>i) Last point on this matter, the possibility for mining in this area might be another ten years, while farming will carry on for decades(as it did for the last hundreds of years) (some of the farms are farmed by our family for more than 100 years) and feed a lot people. | relates to prospecting and not mining, the existing land use will not be excluded and can continue concurrent with the prospecting investigations. As there will be no change to the current land use, no studies on the potential socio-economic benefits and impacts, or trade-off studies have been undertaken. Should the results of the prospecting programme indicate that clay reserves in the area are economically viable to mine, an application for a Mining Right subject to a separate Environmental Authorisation process will be required at which time it would be necessary to conduct a Socio-economic Assessment.<br>h) As mentioned above, the notice states the purpose and objectives of the prospecting programme. No change to the current land use is currently proposed, should the results of the prospecting programme indicate that clay reserves in the area are economically viable to mine, an application for a Mining Right subject to a separate Environmental Authorisation process will be required at which time it would be necessary to conduct a Socio-economic Assessment. |

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| | | | As mentioned above, minerals are non-renewable resources and thus there is a finite amount of reserves available. Any mining activity is always associated with a limited life-span. As the proposed Prospecting Activities will not directly alter the land use of affected farms, the proposed prospecting does not directly threaten the sustainability of farming on the affected properties. Should positive Prospecting Results be obtained, additional studies will be required to determine the sustainability of a potential mining operation only then can a decision be taken whether or not to proceed to a Mining Right Application. At which time the affected farms' contribution to employment and food security will of course form part of such potential future studies. However, the Mine cannot be expected to undertake such studies until motivated to do so by the results of a prospecting programmme. |
| | | <u>Uncertainty, insecurity created by time span of application, etc.</u><br>The time span of these application (5 years) create a lot of uncertainty and insecurity which means:<br>a) No capital can be spend as we has no guarantee of recouping the money<br>I. We can for instance not renovate my son's house which create a lot of problems.<br>II. This house will be the epicentre of the farming business which mean we have to put temporary | a) This Prospecting Right application relates to the farms Geluk 237 and Goudlaagte 238. It is noted that Matsopa Minerals does hold a Prospecting Right (Reference: FS30/5/1/1/2/10358PR) over the farms Verdeel 278 and Smaldeel 85 owned by Johanna Smit.<br>The Prospecting Right (Reference: FS30/5/1/1/2/10358PR) was approved on 10 December 2018 (the effective date) however it is understood that the Right was only executed two years |

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| | | measure in place, which cost extra money.<br>III. We cannot repair any soil erosion or change layouts of planting areas because of the cost of earthmoving and the uncertainty involve.<br>IV. I can give a lot more examples, fact is we cannot implement a 5<br>V. year plan or any plans because of the uncertainty.<br>b) No bank or finance house will finance any capital expenditure because of the uncertain of the future.<br>c) The uncertainty and the fact that we cannot put our plans into place has a massive effect on the future as we are pushing our targets further into future on a continuous basis.<br>d) Again My Question – How do the mine address these concern of the farmers on the implicated farms? Again this is happening at the expense of the farmers/young farmers that is building a future for themselves and is contributing to the South African economy and also employing labourers. | later, in April 2019, following the outcome of an appeal4. The Prospecting Right was issued for a period of three (3) years from the effective date, and renewed for an additional three (3) years. No further renewals are permitted. Matsopa Minerals will need to complete their prospecting and associated feasibilities studies prior to the expiration of the Prospecting Right at which time they will need to make a decision whether or not to proceed to a Mining Right Application or the Prospecting Right will fall away.<br>b) We cannot comment on behalf of the banks or any other financial institution.<br>c) This application relates to prospecting, the objectives of the prospecting programme are to determine how far the bentonite clay reserves extend and whether these are viable. There is no guarantee that mining activity will take place on these farms, this will depend on the outcome of the prospecting programme and associated feasibility studies. |

[4] The appeal was lodged by Matsopa Minerals against the Department's decision to exclude certain properties from the Prospecting Right. It is understood that these properties were excluded by the Department on the basis that Lengana Health SA (Pty) Ltd had already been issued with a Mining Right for the same mineral over these properties.

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| | | • a. | a. We reiterate that the application at hand relates to a Prospecting Right. A Prospecting Right allows the holder to survey or investigate an area of land for the purpose of identifying a probable mineral deposit. The Right gives the holder permission to take samples for testing but does not permit the holder to exploit or mine the said mineral. |
| | | 2. Rehabilitation<br>The Farm, Hoogebult is in our family since 1983 and over the years it seems that NO rehabilitation has been done by the mine to the areas that were mined. The area were the old process plant was situated is still not brought back to its former status and the surroundings were just left as is.<br>At the mined area adjacent to Goudlaagte no rehabilitation has taken place over last few years (There are big dams that are not fenced off appropriately which create a big danger).<br>That leave us with following questions:<br>b. Why has no rehabilitation been done?<br>c. How can the company pass environmental audits if no rehabilitation has been done?<br>d. What does the mining licence prescribe with regards to these rehabilitation?<br>e. Is there money provided/reserved on the balance sheet for the rehabilitation?<br>f. What is the rehabilitation plan for the mined areas (timeline, activities, etc.)? | a) Please see attached letter from Matsopa Minerals detailing the rehabilitation done to date.<br>• For the FY2021 the mine has spent in excess of R1 million on rehabilitating certain areas on the old Ocean mine, A-mine as well as C-mine area. Further to this, the mine has provided the DMRE with an updated financial guarantee which is in excess of R15 million for outstanding rehabilitation work which still needs to be done on the property.<br>• The financial guarantee does make provision for the backfilling of the Ocean pit but we believe that the surface owner requested that this not be backfilled as he would like to use it as a water storage dam. On-going negotiations and necessary approvals will |

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| | | g. What is the rehabilitation plan for the prospecting areas (timeline, activities, etc.)?<br>h. How can any mining activity be approved or carry on before rehabilitation of the old mined areas were not completed.<br>i. If future mining might take place, what is the rehabilitation plan for these areas (timeline, activities, etc.)?<br>• | first be obtained before a final decision can be taken on this.<br>• The pits adjacent to Goudlaagte are called C-mine and this has not been rehabilitated yet, as it is believed that the bentonite orebody is still open to the west in the direction of Goudlaagte. The pits do however have safety berms erected around its perimeter and the entire mining property is fenced off.<br>b) Environmental audits are conducted annually by external/third party consultants and are submitted to the Department of Mineral Resources and Energy (DMRE), the previous audit found that the Mine was 86% compliant with the EMPr. Non-compliances and areas for improvement noted in the audit related to the backlog in the rehabilitation.<br>c) The conditions of the EMPr approval state that all excavations must be backfilled to natural surface level; if a bulking factor exists it must be accommodated on the total area of disturbance. However, available survey data indicates that there will be a shortage of material and thus some final voids will remain. Rehabilitation efforts at the final voids will focus on grading side slopes to ensure safety of |

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| | | | the area. The side slopes of the pits will be sloped to 1:3 and graded to blend into the surroundings as far as possible.<br>d) In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) Mines must comply with the prescribed financial provision for the rehabilitation, closure and on-going post decommissioning management of negative environmental impacts arising from the mining operation. In accordance with NEMA and the Financial Provisioning Regulations, 2015 (as amended) Matsopa Minerals assesses the rehabilitation annually. The total calculated financial provision for 2021 is R15,927,638.95, guarantees to the amount of R15 992 828.28 have been secured and submitted to the DMRE.<br>e) Please see attached letter from Matsopa Minerals detailing the rehabilitation.<br>The plan is to rehabilitate these areas and bring them to their previous state as soon as possible, and in the process, reduce the financial liabilities associated with the outstanding rehabilitation. For the FY2022, the plan is to mine out the remainder of the reserves and rehabilitate the Island mine pits, along with sections of A-mine and C-mine. |

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| | | | An environmental footprint of approximately 10m2 per borehole will be impacted by the drilling activities, drill sites must be decommissioned and rehabilitated on completion of each hole before moving onto the next. Thus at any one time only 10 m2 will be disturbed by the prospecting activities.<br>f) An environmental footprint of approximately 10$m^2$ per borehole will be impacted by the drilling activities, drill sites must be decommissioned and rehabilitated on completion of each hole before moving onto the next. Thus at any one time only 10 $m^2$ will be disturbed by the prospecting activities.<br>g) The MPRDA permits individuals and companies to hold more than one Right at a time. Each Right is managed in terms of its own EMPr and Environmental Authorisation, unless an application is made in terms of Section 102 of the MPRDA to consolidate these Rights.<br>• Matsopa Minerals will however remain liable for the rehabilitation of the old mined areas until such time that a closure certificate is issued by the DMRE (Section 43 of the MPRDA). The Holder of the Mining Right must apply for a closure certificate upon the lapsing of the validity of the |

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| | | | Mining Right (or abandonment or cancellation); cessation of the mining operation or relinquishment of any portion of the land to which the Mining Right relates.<br>- The rehabilitation plan can only be compiled once a Life of Mine Plan is available, this in turn can only be compiled once pre-feasibilities studies have been completed and the results of the prospecting programme are available. |
| | | 3. <u>Water Problems and water licence</u><br>There is a big concern with regards to the ground water management by Matsopa and the future impact on water resources. In the past boreholes has dried up.<br>The sprout was flooded (in the dry season) with the releasing of water from a mine source without any warning to the farmers downstream nor was the farmers informed that the water released was quality checked and conform to the necessary standards.<br>j. There is also a believe amongst the farmers that the water quality and volumes are affected by the mining activities. A test to | Due to the nature of bentonite clay mining is only undertaken in the dry season. The pits are allowed to flood during the summer months, and the water is discharged at the start of the dry season to allow for mining activities to commence. The Koppies Mine holds a water use license to discharge this water into the Spruit.<br>A copy of the water analysis undertaken in November 2009 by the University of Pretoria's Faculty of Veterinary Sciences was provided to Cabanga by Mr. P. Loggenberg on 06 January 2022. The results of which indicated unfavourable levels of Bromide and Nitrate in samples 2, 3, 4, 7 and 8, as well as high levels of Lead in samples 1 and 2[5]. |

[5] Details of sampling locations, methodology and laboratory certificates not included in the documents provided.

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| | | this effect was done by the University of Pretoria. | Based on these results and the concerns raised by Mr. P. Loggenberg Cabanga appointed a third party, Shangoni Aquiscience to define the current groundwater regime and highlight risks to the surface and groundwater environment. This report was attached as Annexure 6 to the Basic Assessment Report (BAR). Water samples were taken by Shangoni Aquiscience at a total of 33 points, these included the existing mine pit, upstream and downstream of the existing mining operations as well as various farm and monitoring boreholes. The results show that the mine water contains slightly raised levels of Chlorine (Cl), Magnesium (Mg), Sodium (Na) and Sulphate ($SO_4$)but all remain well within the drinking water and livestock water standards. Trace metals including Iron (Fe), Manganese (Mn), Lead (Pb) and Bromide (Br) together with the nutrients, Nitrate ($NO^3$), Ammonia ($NH^4$) and Orthophosphate ($PO^4$) were recorded in relatively low concentration. All parameters, except for $NH_4$ at H/BH05, recorded below the relevant standards and pose little contamination concern.<br>Water quality is subject to seasonal variation and thus it is recommended that regular water quality monitoring be undertaken at the mine pits, upstream and downstream relative to the mine and its discharge points.<br>Possible impacts to the water resources associated with the prospecting programme are largely limited to siltation of downstream water resources and the potential for contamination as a result of hydrocarbon spills |

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| | | | and/leaks from vehicles and equipment.<br>• Matsopa Minerals undertakes water monitoring and submits the results to the Department of Water and Sanitation (DWS) on an annual basis. Limits for the water quality, including discharge, are outlined in the water use license. |
| | | Questions:<br>a. Please supply Matsopa's water management plan.<br>b. Please supply copy of water licence since 2010 up to now.<br>k. Please supply audit results with regards to the water management of Matsopa for the last 5 years | The above documents can be accessed and viewed at the Koppies Mine, please see relevant contact details below. |
| | | 4. <u>Roads</u><br>The tar roads and farm roads were not kept up to standard for many a year by the government, which mean that the road infrastructure cannot handle more traffic. The use of these roads by heavy mine vehicles will create an even bigger problem.<br>Questions:<br>b. How will Matsopa address this increase of mine vehicles?<br>c. What roads will be used?<br>d. How will the increase of heavy mine vehicles and other traffic be managed to make sure no accidents happen on the roads killing local lives? | a) The application relates to Prospecting. It is expected that one (1) drill rig, (1) Tractor and two (2) light duty vehicles (4x4 bakkies) will be used on site, impacts to traffic will therefore be negligible.<br>• Should the results of the prospecting programme indicate that clay reserves in the area are economically viable to mine, an application for a Mining Right subject to a separate Environmental Authorisation process will be required at which time it would be necessary to conduct a |

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| | | e. The increase in uncontrolled traffic creates a big concern that crime, which already high in the area, can even escalate further. How will Matsopa address this concern?<br>f. Please supply a copy of the traffic study that was done?<br>g. How will the dust problem around the house steads be curtailed?<br>h. How will the sound problem around the area be addressed?<br>i. How will the movement of vehicles and people be managed? | Traffic Impact Assessment.<br>b) Existing farm roads and tracks will be utilised as far as possible, it will be necessary to traverse the cultivated fields / ploughed areas to access the drill holes. All routes will be discussed and agreed upon with the farm owners beforehand, in addition to this all routes must be walked through at least once by the Environmental Control Officer (ECO) prior to first location. The EMPr proposes that prospecting activities be undertaken in the drier months as far as practically possible to accommodate the maize production season. Compaction of soils by means of vehicle movement will need to be mitigated by means of ripping the soils.<br>c) The application relates to Prospecting. It is expected that one (1) drill rig, (1) tractor and two (2) light duty vehicles (4x4 bakkies) will be used on site, impacts to traffic will therefore be negligible.<br>• Should the results of the prospecting programme indicate that clay reserves in the area are economically viable to mine, an application for a Mining Right subject to a separate Environmental Authorisation process will be required at which time it would be necessary to conduct a |

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| | | | Traffic Impact Assessment.<br>d) We reiterate that the application relates to Prospecting therefore no increase in uncontrolled traffic is expected.<br>• It is anticipated that 7 - 9 persons will be on site for the duration of prospecting, this includes drilling supervisors (2), Drill rig operator (1), drilling assistants (2), Driver (1), Geologist (1), General Manager (1), Safety Officer/ECO (1) and Mine Manager (1). The Geologist and General manger will be on site on occasional basis All site personnel will be introduced to the landowners beforehand and will be required to carry company identification. Site personnel will be instructed to keep farm gates closed at all times, and regular inspections will be undertaken by the Site Manager. Any employee found guilty of theft or misconduct will be dealt with accordingly.<br>e) As stated above, the application relates to Prospecting. It is expected that one (1) drill rig, (1) tractor drill rig and two (2) light duty vehicles (4x4 bakkies) will be used on site, impacts to |

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| | | | traffic will therefore be negligible and no traffic study is deemed necessary at this stage.<br>f) Mitigation measures for dust are proposed in the EMPr, these include:<br>g) Establishment of speed limits that will effectively reduce dust generation on the roads; and<br>h) Managing dust through water carts and wetting the area of activity.<br>g) Mitigation measures for noise are proposed in the EMPr, these include:<br>- Limiting activities to daylight hours (07:00am – 17:00pm);<br>- Communicate the work schedule to the landowner, so they will be aware that noise will be generated and over what period this may affect them; and<br>- Machinery and equipment to be regularly serviced.<br>Please refer to above responses (Points a – d). |
| | | I. At the moment the mining area are made up of farms adjacent to each other to form one big area. In the future this might change with mining areas located outside this big area (and working farms and home steads between mining areas and main area with drying plant). This create a lot of traveling on roads and a lot of movement of vehicles and people. What is the long term plan with regards to this? How will this plan be managed? Surely a | The purpose of the proposed prospecting programme is to determine whether there is or is not a viable reserve for future mining applications. As previously mentioned, a Life of Mine Plan indicating any mine areas can only be compiled once the feasibility studies have been completed and the results of the prospecting programme are available.<br>Should the results of the prospecting programme indicate that clay reserves in the area are economically viable to mine, an |

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| | | logistics plan (to move soil to the drying plant) must form part of any application process and not be treated as an after effect as it seem the case is with the Lengana Health project. Please supply such a plan. | application for a Mining Right subject to a separate Environmental Authorisation process will be required at which time it would be necessary to conduct a Traffic Impact Assessment, this Traffic Impact Assessment would include a logistics plan.<br>• We reiterate that a Prospecting Right does give the holder permission to mine or process the mineral, only to survey, sample and test. Therefore no clay or soil will be trucked to the drying plant. |
| | | 5. <u>Bird life and wildlife and Heritage</u><br>There is an abundance of bird life around in this area. Examples: Owl, Secretary bird, Blue Crane, Fish Eagle, Woodpecker to name a few. In a small area on the farm Smaldeel I have counted 10 Owls late one afternoon. On the Farm Verdeel a Secretary bird was building a nest a few week ago.<br>There is also a lot of small specie buck around in this area i.e.Duiker, Steenbuck and Blesbuck. There is also the following endangered species around in the area - Brown Hyena (seen 3 months ago on Hoogebult), Aardwolf, Aardvark.<br>Questions:<br>a. Was an impact study on birdlife and wildlife done?<br>b. Please supply copy of impact study?<br>c. How will mining activities impact the activities of a birdlife and wildlife?<br>d. How will Matsopa mitigate this impact? | The National Environmental Management Screening Tool indicated contrasting set of habitats and sensitivity within and surrounding the proposed prospecting area. The specialist terrestrial biodiversity study undertaken on the farms Geluk 237 and Goudlaagte 238 confirmed this. The intact grassland were confirmed as having a high to very high sensitivity whilst the transformed areas under cultivation and the degraded grassland habitats were confirmed as having a low sensitivity and are likely to face minimal further impacts from any low to medium impact prospecting activities. As such the proposed activities may only proceed within these areas.<br>a) A Terrestrial Biodiversity Study was undertaken and was included in the BAR and EMPr made available for public review and comment (Annexure 8). |

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| | | e. Up to today we never saw any impact study of any kind nor did we see people around doing an impact study. How is this possible?<br>f. Was any Heritage impact studies done?<br>g. Was the impact on the Vredefort Koepel Heritage site considered in any studies?<br>•<br>m. | b) A copy of the BAR/EMPr and its Annexures are available online at www.cabangaenvironmental.co.za, as well as at the Koppies Mine Office as detailed in the background information document (Goudlaagte and Geluk Prospecting Right Application) given to yourself by Mrs L Claassen.<br>c) This application relates to Prospecting and not mining. The impacts associated with the proposed prospecting programme are detailed in the BAR, which is available for review online at www.cabangaenvironmental.co.za, as well as at the Koppies Mine Office.<br>d) The layout of the prospecting programme has been adjusted to exclude all areas of High to Very High Sensitivity. Drilling activities will be limited to areas that have been transformed by agricultural activities or those which have a low sensitivity. Please refer to the EMPr for more detailed mitigation.<br>e) In the introduction of your letter you refer to the Background Information Document and Advertisement, both of which contained the details of where the impact study was available for review and comment.<br>f) A Heritage Impact Assessment was undertaken and is included as Annexure 10 of the BAR and EMPr. A |

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| | | | copy of the BAR and specialist studies was also submitted to the South African Heritage Resources Agency (SAHRA) for review and comment.<br>The Vredefort Dome is located approximately 17 km from the proposed Prospecting Area. The impacts associated with prospecting (drilling activities) are localised and no direct or indirect impacts on the Vredefort Dome will occur, thus no studies are deemed necessary. |
| | | 6. <u>Prospecting Right FS 10358 PR</u><br>We wasn't involve in the application process for prospecting right FS 10358 PR. Our lives was turned on its head when the prospecting process started with a call from the manager.<br>n. | The application for the aforementioned Prospecting Right (Reference: FS30/5/1/1/2/10358PR) and associated environmental authorisation was undertaken in June 2015 at which time written notification was hand delivered to all landowners / users. Notices were also placed at a number of public locations and advertisements placed in the local Newspaper (Kroonnuus). Please refer to Annexure A for a copy of the Public Participation Report outlining the process undertaken to notify and consult with the relevant stakeholders, landowners and Interested and Affected Parties (I&APs).<br>The environmental authorisation was approved in terms of the National Environmental Management Act, Act 107 of 1998 (NEMA) on 01 March 2017 subject to the approval of the Prospecting Right. The Prospecting Right was approved on 10 December 2018 (the effective date) however it is understood that the Prospecting Right was only executed two years later, in April 2019, following the outcome of an |

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| | | | appeal[6]. The Prospecting Right was issued for a period of three (3) years from the effective date, and renewed for an additional three (3) years. No further renewals are permitted. |
| | | No Agreement was signed. No compensation offered – this question was answered with "we don't pay any compensation". We however came to an agreement that Matsopa will repair some of our roads. This agreement wasn't honoured by Matsopa up till now.<br>o. Finally our experience with Matsopa was not one of comforting us that farmers who own the land will be cared for in this process. | It is understood that the current practice is that no compensation is paid during prospecting, but that the mine offers services of grading and fixing portions of roads which are damaged or require repairs. The mine has indicated that they have engaged with you on a few occasions with regards to repairing the road and have confirmed that the offer is still on the table. In February 2022, the mine assisted the local farming community in repairing the main dirt road (R723) which runs from the R82 to the N1.<br>In the event that the prospecting programme indicates a viable reserve and Matsopa Minerals decides to advance to a Mining Right application over your property possible compensation, lease agreements and/or land swops will be negotiated.<br>Matsopa Minerals has indicated that they have met with you on two occasions, and with your consultant on a separate occasion to discuss the above. |

[6] The appeal was lodged by Matsopa Minerals against the Department's decision to exclude certain properties from the Prospecting Right. It is understood that these properties were excluded by the Department on the basis that Lengana Health SA (Pty) Ltd had already been issued with a Mining Right for the same mineral over these properties.

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| | | 7. Conclusion<br>Matsopa and other mining companies in this area must prove that all affected stakeholders:<br>a. Approve of their proposal(s) to prospect and mine.<br>Will benefit from such a prospecting or mining process, not just the mine and its stakeholders. | In terms of the NEMA and the Environmental Impact Assessment (EIA) Regulations, 2014 (as amended), Public Participation must be undertaken for an application for Environmental Authorisation. There is currently no requirement for all affected stakeholders to approve of a proposal for prospecting, although Matsopa Minerals endeavors to work with the landowners to find suitable mitigation measures and alternatives as far as possible.<br>The ownership of minerals that vested with the landowner was abolished in 2004 and all mineral rights reverted to the State. Any person who wishes to prospect or mine a mineral must first apply to the DMRE for authorisation. The holder of a Mining Right must pay royalties to the State in respect of any minerals removed and disposed of. As is the case with all other taxes, duties and levies the royalties are collected by SARS and paid to the National Revenue Fund which benefits the country as a whole.<br>In addition to this, any person applying for a Mining Right must compile and submit a Social and Labour Plan (S&LP) to the DMRE for approval. This S&LP is aligned with the Mining Charter and requires that the applicant for a Mining Right to develop comprehensive Human Resources Development Programmes, Mine Community Development Plan, Housing and Living Conditions Plan, Employment Equity, Procurement Policies etc. The objectives of a S&LP is to ensure that holder of a Mining Right |

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| | | | contributes towards the socio-economic development of the areas in which they operate as well as the areas which the majority of the workforce is sourced.<br>It is however reiterated that this application relates to a Prospecting Right, and only IF the results of the prospecting programme and feasibility studies indicate that the reserve is viable will Matsopa Minerals proceed to a Mining Right application.<br>Meaningful public participation is an important component of any development, your comments have been included in the final BAR for submission to the DMRE and we will keep you informed of any progress in the application going forward.<br>Please note that a complaints register is also available at the existing Koppies Mine should you wish to raise any concerns on a day-to-day basis with regards to the existing mining activities. The complaints register and actions/responses thereto are inspected during the annual compliance audits, and submitted to the DMRE. Alternatively the Safety Officer/ECO (Andries Phoheli) and/or the Mine Manager (Johan Daffue) can be contacted on (056) 777 2291 (office number). |
| PW Loggenberg | 19/04/2022<br>E-mail | Firstly, from my experience with previous mining activities adjacent to my farm, I am worried that my underground water supply would be cut off. In 2014 a strong supplying borehole (approx. 20 m deep), just west of the Bentonite mine (around 3 km away) dried up. Afterwards I drilled for two | Please could you confirm the location of the borehole, so that we can investigate further?<br>Due to the nature of bentonite clay mining is only undertaken in the dry season. The pits are allowed to flood during the wetter, summer months and the water is discharged at the start |

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
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| | | more holes close by but was unsuccessful. This happened during winter when there was no rainfall in the area. However, a large stream of water emerged from the mine's direction due to their pumping of excess water. The flow was so strong that the water flowed in the existing riverbed right through my farm-without any rain in the area during that time.<br>These happenings evidently indicate that they most likely excavated through the water vein running under my farm and pumped that water, seen as excess, out and into the existing river running through the other side of my farm. The loss of that borehole not only cost me money but it created major logistic complications with regard to the grazing of my livestock and the upkeep of my natural veld grass diversity due so restrictions now placed on my grazing practices.<br>p. If I wanted to graze that area I had to supply the animals with water by truck - this is however impossible during the summer raining season as the roads become inaccessible with such a heavy loads. This therefore resulted in the reduced use of that veld area in my grazing program and adversely affected the total income and efficiency of the livestock component of my farm, it is something I am not happy with. In June 2020 I drilled three more holes, only one had water, and that at a dept of 45 m. This accounted to a total cost of R 50 700 to my personal account. | of the dry season to allow for mining activities to commence. The Koppies Mine holds a water use license to discharge this water into the Spruit.<br>Matsopa Minerals undertakes water monitoring and submits the results to the Department of Water and Sanitation (DWS) on an annual basis. Limits for the water quality, including discharge, are outlined in the water use license.<br>Possible impacts to the water resources associated with the prospecting application are largely limited to siltation of downstream water resources and the potential for contamination as a result of hydrocarbon spills and/leaks from vehicles and equipment. |
| | | Secondly, farmers in our area are pestered by | The application at hand relates to a Prospecting |

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
|---|---|---|---|
| | | livestock theft. Thousands of rands worth of livestock are stolen annually. This is rather under control at the moment and I am concerned that the increased amount of movement by people associated with new mining activities will cause a rise in these numbers once again. I say this for the simples reason that access is not restricted around the mines, movement is easy and anyone who feel that they can and want will move around the area and its adjacent farms. This is unfortunately the reality. Even if these people do not steal livestock, they do observe general farming activities and can easily instigate or assist in such criminal activities if asked, threatened or bribed. This is a major concern of mine as farmers are left to look out for themselves in this regard. At the moment there are no movement of unauthorised persons after 5pm since all staff and farm workers stay in town. We wish to keep it this way. | Right. A Prospecting Right allows the holder to survey or investigate an area of land for the purpose of identifying a probable mineral deposit. The Right gives the holder permission to take samples for testing but does not permit the holder to exploit or mine the said mineral. Activities will thus be limited to drilling.<br>It is anticipated that 7 - 9 persons will be on site for the duration of prospecting, this includes drilling supervisors (2), Drill rig operator (1), drilling assistants (2), Driver (1), Geologist (1), General Manager (1), Safety Officer/ECO (1) and Mine Manager (1). The Geologist and General manger will be on site on occasional basis All site personnel will be introduced to the landowners beforehand and will be required to carry company identification. Site personnel will be instructed to keep farm gates closed at all times, and regular inspections will be undertaken by the Site Manager. Any employee found guilty of theft or misconduct will be dealt with accordingly.<br>All site personnel will be required to undertake induction, proof of induction must be kept on file. Furthermore, drilling activities will be restricted to normal working hours 07:00AM – 17:00PM. |
| | | Thirdly, the use of access roads to and from the mining area running through and around farms. At the moment, the general upkeep and maintenance of the access roads in this area is done by the farmers. It is indeed a full-time job and rather expensive as farmers carry all associated | As mentioned above, this application relates to prospecting and not mining. It is expected that one (1) drill rig, (1) tractor and two (2) light duty vehicles (4x4 bakkies) will be used on site, impacts to traffic are therefore expected to be negligible. |

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
|---|---|---|---|
| | | costs themselves. This is especially a pressing matter during the summer raining season as the roads are often flooded and impossible to drive on. With the start and continuation of mining activities I am worried that the increased traffic on our roads will serve to destroy them. It will be impossible for farmers to keep these roads in a useable from if used by large trucks etc. specially during the peak planting season. | Should the results of the prospecting programme indicate that clay reserves in the area are economically viable to mine, an application for a Mining Right subject to a separate Environmental Authorisation process will be required at which time it would be necessary to conduct a Traffic Impact Assessment to determine the impact on the roads and the users.<br>Matsopa Minerals has confirmed that they will provide assistance with road maintenance to landowners in lieu of compensation for drilling. In February 2022, the mine assisted the local farming community in repairing the main dirt road (R723) which runs from the R82 to the N1. |
| | | Also, my family and I are very much concerned about our own health and the health of our soil and livestock. We are committed to living health lives and we chose a certain lifestyle to ensure this. We do not want to live close to a polluted area and we definitely do not want to be exposed to any form of harmful substance or toxicants more than we already are in our general lives. This includes excess dust, heavy metals or any by-product of mining activities. We often test to insure that the soil and water on, beneath and around our farm is free of any elements or metals in too high concentrations and we will continue to do so. | Cabanga appointed a third party, Shangoni Aquiscience to define the current groundwater regime and highlight risks to the surface and groundwater environment. This report was attached as Annexure 6 to the Basic Assessment Report (BAR). Water samples were taken by Shangoni Aquiscience at a total of 33 points, these included the existing mine pit, upstream and downstream of the existing mining operations as well as various farm and monitoring boreholes. The results show that the mine water contains slightly raised levels of Chlorine (Cl), Magnesium (Mg), Sodium (Na) and Sulphate ($SO_4$) but all remain well within the drinking water and livestock water standards. Trace metals including Iron (Fe), Manganese (Mn), Lead (Pb) and Bromide (Br) together with the nutrients, Nitrate ($NO^3$), Ammonia ($NH^4$) and |

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
|---|---|---|---|
| | | | Orthophosphate ($PO^4$) were recorded in relatively low concentration. All parameters, except for $NH_4$ at H/BH05, recorded below the relevant standards and pose little contamination concern.<br>Water quality is subject to seasonal variation and thus it is recommended that regular water quality monitoring be undertaken at the mine pits, upstream and downstream relative to the mine and its discharge points.<br>The proposed prospecting activities at Geluk 237 and Goudlaagte 238 will be undertaken over a period of five (5) years, and will be limited to drilling (no trenching or bulk sampling will be undertaken). An environmental footprint of approximately $10m^2$ per borehole will be impacted by the drilling activities, drill sites must be decommissioned and rehabilitated on completion of each hole before moving onto the next. Thus at any one time only 10 $m^2$ will be disturbed by the prospecting activities.<br>Possible impacts to the water resources associated with the prospecting programme (drilling) are largely limited to siltation of downstream water resources and the potential for contamination as a result of hydrocarbon spills and/leaks from vehicles and equipment.<br>Possible impacts relating to dust generation, soil compaction and contamination from the drilling activities have been assessed in the BAR and mitigation measures proposed. With mitigation these impacts are expected to be short term and of low significance. |

| Interested and Affected Parties | Dates Comments Received | Issues/Questions Raised | Response |
|---|---|---|---|
| | | | Should the prospecting programme indicate that the reserves are feasible for mining, and Matsopa Minerals decide to apply for a Mining Right this will be subject to a separate application for environmental authorization and a full range of specialist studies will be required.<br>Meaningful public participation is an important component of any development, your comments have been included in the final BAR for submission to the DMRE and we will keep you informed of any progress in the application going forward.<br>Please note that a complaints register is also available at the existing Koppies Mine should you wish to raise any concerns on a day-to-day basis with regards to the existing mining activities. The complaints register and actions/responses thereto are inspected during the annual compliance audits, and submitted to the DMRE. Alternatively the Safety Officer/ECO (Andries Phoheli) and/or the Mine Manager (Johan Daffue) can be contacted on (056) 777 2291 (office number). |

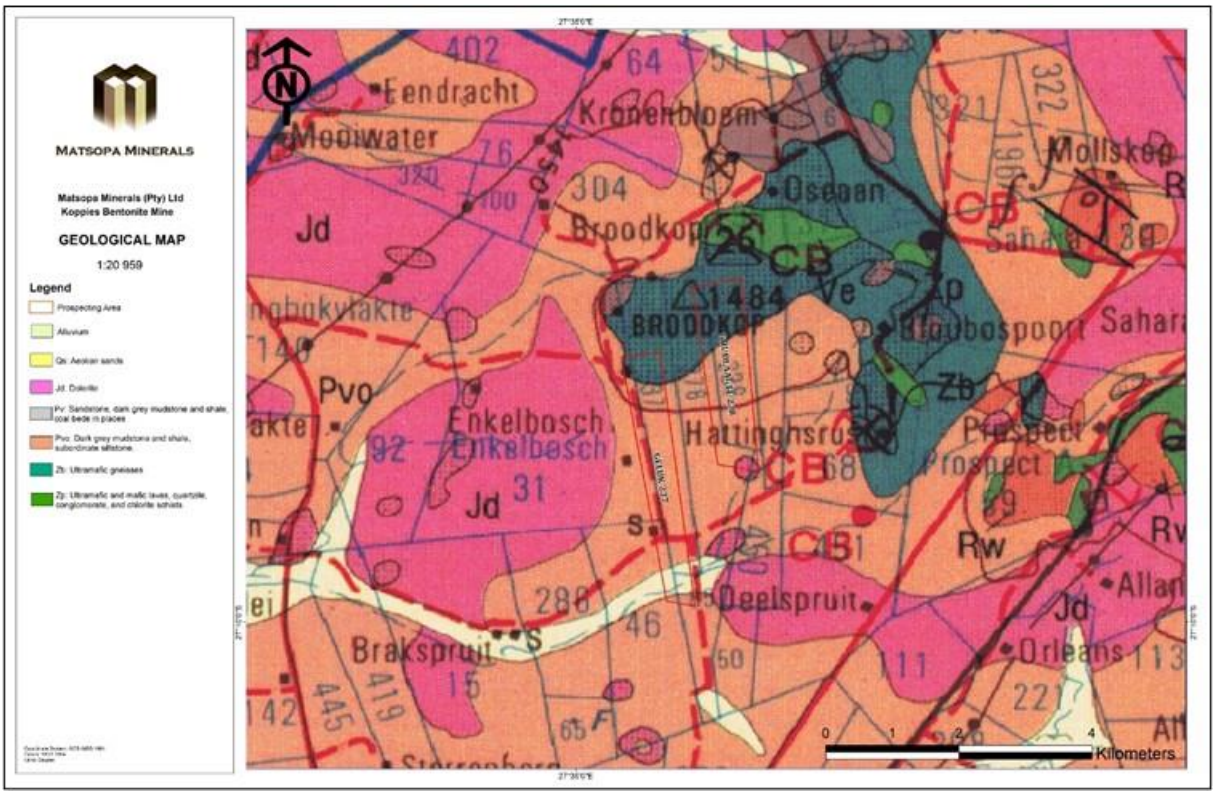
# 9 THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE SITES

## 9.1 Baseline Environment

### 9.1.1 Geology

The PRA is underlain predominantly by the sediments of the Volksrust Formation of the Ecca Group of the Karoo Supergroup as well as quartzites from the Witwatersrand System, diabase sills and pre-Karoo gabbro and epidiorite. Bentonite is known to occur within the Volksrust Formation as demonstrated on the current mining properties in the surrounding area, including those at the neighbouring Koppies Mine owned and operated by Matsopa Minerals (Hlungwani, 2021).

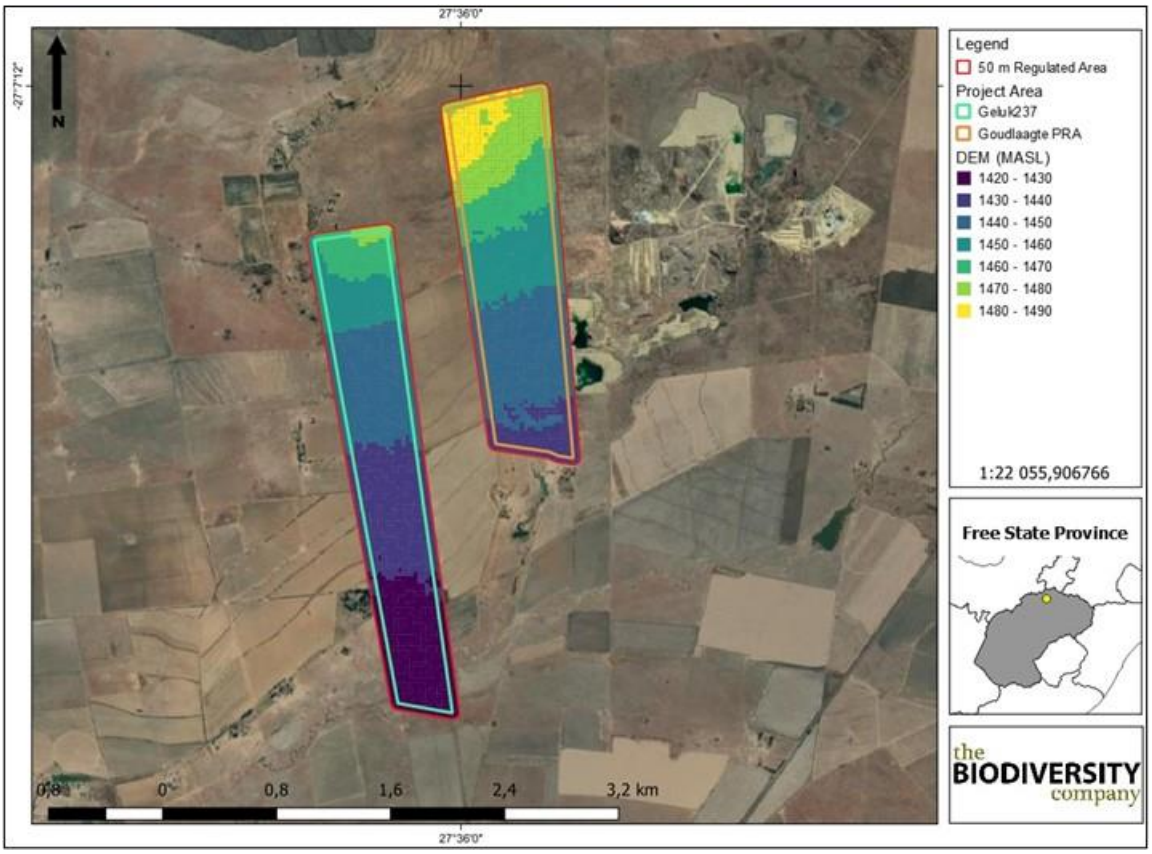
At the Koppies Mine, the bentonite is situated within embayment's on Blaauwboschpoort 13 and Oceaan 99 around the Greenstone Formation. Referred to collectively as the Koppies Bentonite deposits, the orebodies resemble a localised minor scale coal style of mineralisation in that the seams of bentonite are flat lying to lenticular/tabular shaped. The contact between the overlying and underlying shales and bentonite seam is a sharp one with a defined visual contrast and the underlying and overlying units are typical Volksrust shales and mudstones with no silicification present (Hlungwani, 2021).




**Plan 4: Geological Map (Hlungwani, 2021)**

### 9.1.2 Landscape Characteristics

The project area can be considered as gently undulating, with gentle to steep slopes being present. The Digital Elevation Model of the project area (Plan 5) indicates an elevation of 1 420 to 1 490 metres above mean sea level (mamsl).




**Plan 5: Digital Elevation Model (Baker, 2022)**

### 9.1.3 Climate

The area falls within the Highveld Climatic Region. The rainfall occurs almost exclusively as showers and thunderstorms that fall mainly in summer, from October to March. Annual average precipitation for the region ranges from 900mm on its eastern border to 650mm in the west (Wessels, 2012).

The average daily maximum temperatures for the Highveld Climatic Region is 27°C in January and 17°C in July. Average daily minimum temperatures range from 13°C in January to 0°C in July. Frost is likely to form for about 120 days from May to September. Winds are mostly light, except for short periods of intense winds during thunderstorms. Very occasionally, tornadoes do occur (Wessels, 2012).

The figures overleaf show modelled climate data for the nearest town, being Koppies. The average wind speeds range between 5 - 38 km/hr, with the windiest month of the year being September. The predominant wind direction is from east-north-east (Figure 5).

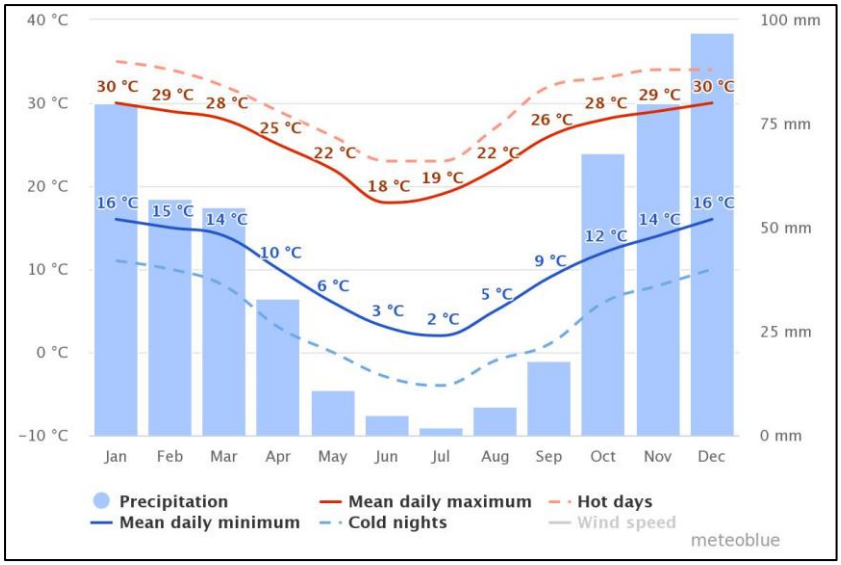



**Figure 4: (Simulated historical climate & weather data for Koppies, Free State, South Africa, 2022)**

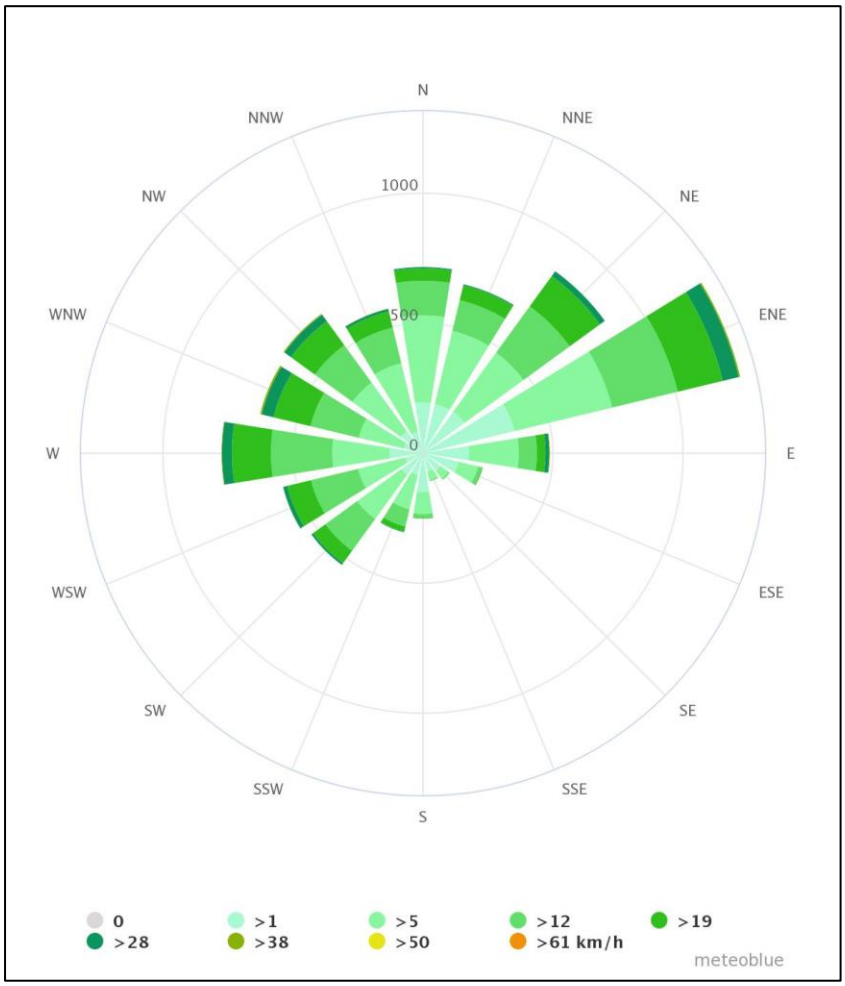



**Figure 5: Wind Rose for Koppies showing how many hours per year the wind blows from the indicated direction (Simulated historical climate & weather data for Koppies, Free State, South Africa, 2022)**

### 9.1.4 Hydrology

The project area is located in the Vaal Water Management Area (WMA 5) and in the C70E quaternary catchment (Plan 6). Additional information pertaining to the quaternary catchment is summarised in Table 8 below.

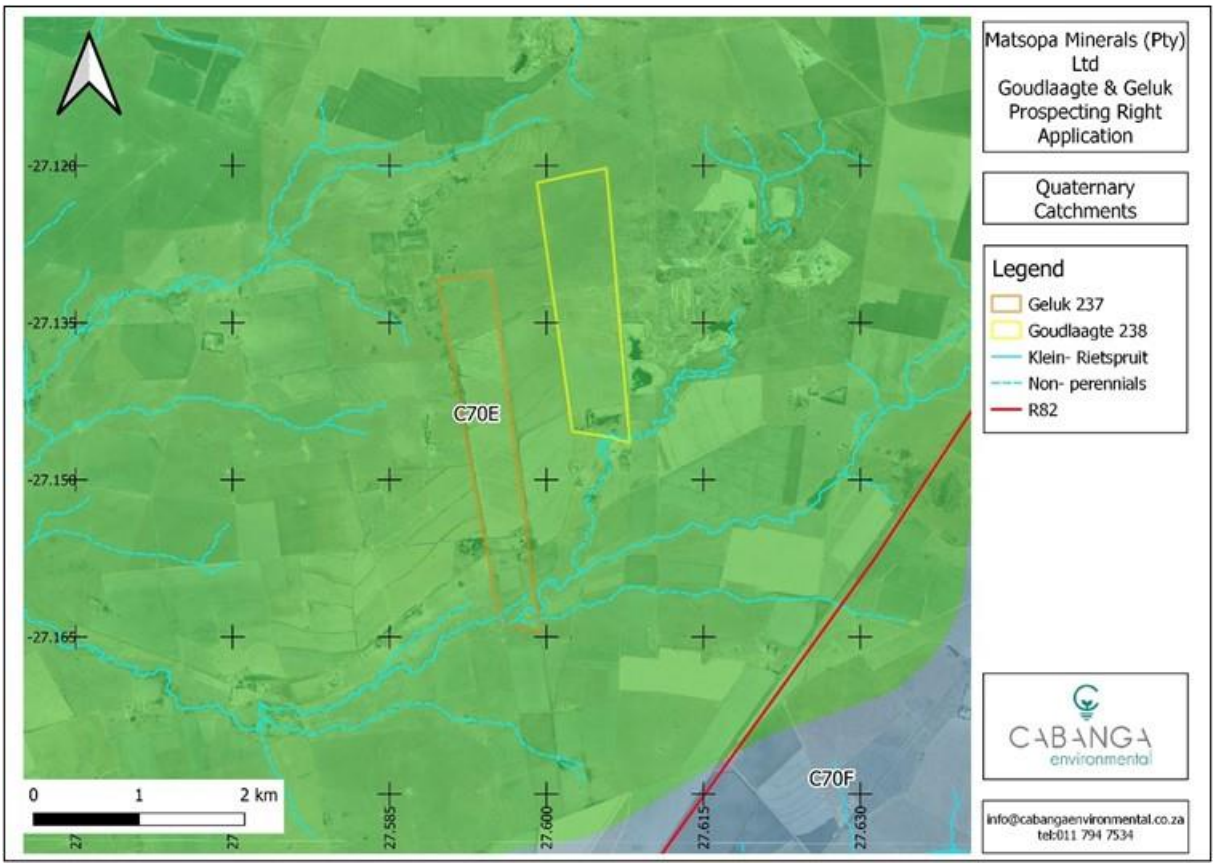
The Klein-Rietspruit and its tributaries traverse the southern extremities of the project area, the river flows from east to west and confluences with the Rietspruit in approximately 20 km to the west. The Rietspruit flows into the Rhenoster River - a major tributary to the Vaal (O.Scholtz, 2022).

The drainage systems form part of the Middle Vaal WMA. The Middle Vaal WMA is located downstream of the confluence of the Vaal and Rietspruit Rivers and upstream of the Bloemhof Dam. It extends to the headwater of the Schoonspruit River in the north and the Vet River in the south, covered a catchment area of 52 563 km$^2$ (O.Scholtz, 2022).

The major water uses in the Vaal WMA include industrial, mining sectors, power generation, agriculture, nature conservation, as well as human settlements. Water transfer schemes, both in and out, are associated with the Vaal WMA.

**Table 8: C70E Quaternary Catchment Information (O.Scholtz, 2022)**

| **Attribute/Catchment** | **C70E** |
|---|---|
| Quaternary catchment area (km$^2$) | 629 |
| Rainfall Zone | C7B |
| Mean Annual Rainfall (mm/a) | 578 |
| Mean Annual Runoff (mm/a) | 32 |
| Baseflow (mm/a) | 3 |
| Mean S-Pan annual evaporation (mm/a) | 1630 |
| Total groundwater use (Mm$^3$/a) | 7.83 |
| Ecoregion | Highveld |
| Present Eco Status Category | B (largely natural with few modifications) |
| Recharge (mm/a) | 28 |
| Exploitation potential (Mm$^3$/a) | 6 |
| Groundwater General Authorisation m$^3$/ha/a | 75 |




**Plan 6: Quaternary Catchments**

A hydrocensus was undertaken in February 2022 (Annexure 4), four water samples were taken from the mine pits and dams located within the existing Koppies Mine, and four samples were taken from farm dams located on privately owned land (upstream and downstream of the proposed PRA). The results indicate that:

- The surface water is circum-neutral, non-saline and moderately soft to very hard with generally low levels of nutrients.
- Orthophosphate ($PO_4$) and ammonium ($NH_4$) were recorded as slightly raised in SW01 and SW15 (mining pits located at the Koppies Mine). However, none of the mine water sources recorded exceeded the relevant guidelines.
- $PO_4$ is slightly raised in the farm dams, and ammonium $NH_4$ was slightly raised in SW06. Bromide (Br) is slightly raised in SW08 and SW09. All parameters are within the South African standard/guideline for drinking water and livestock watering[7] **(O.Scholtz, 2022)**.

### 9.1.5 Geohydrology

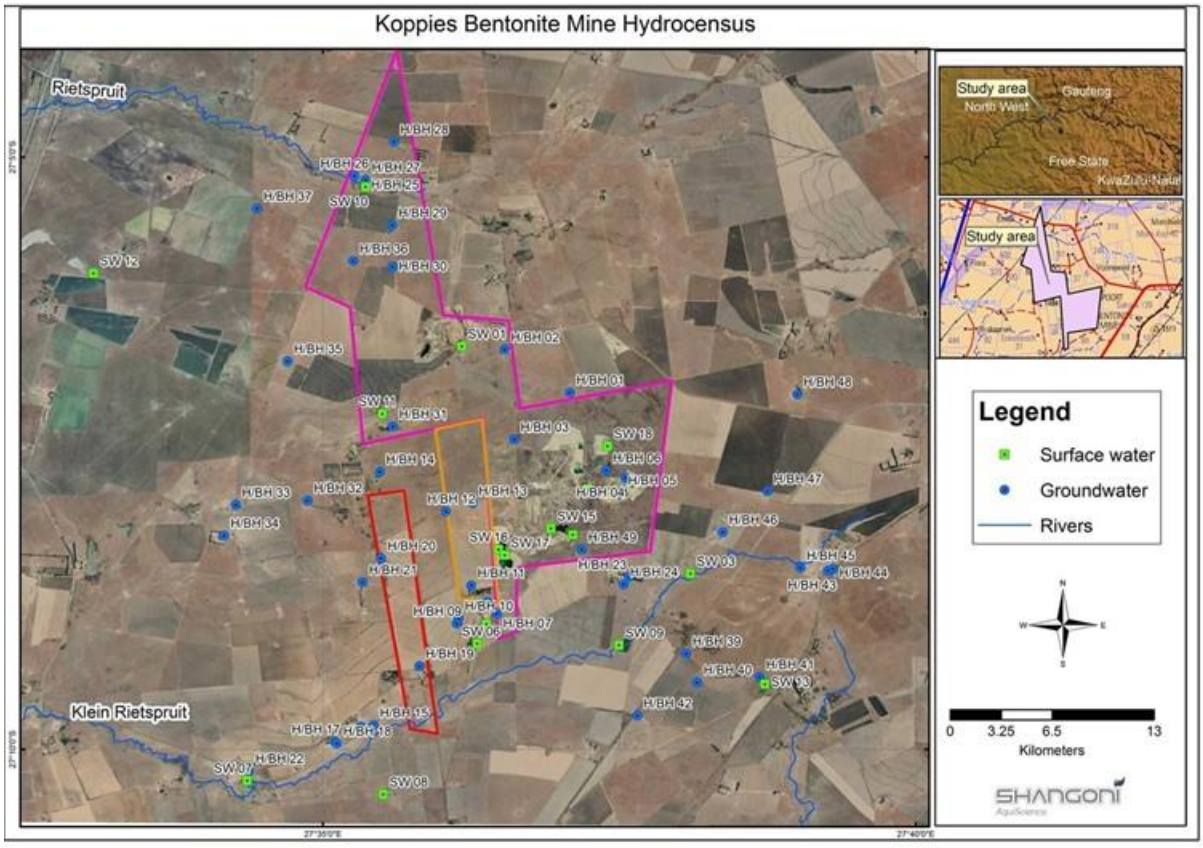
The study area is predominantly located in a d2 aquifer class region. The groundwater yield potential is classed as low on the basis that most of the boreholes on record in vicinity of the

[7] Note: No South African standards/guidelines are available for Br, where relevant the World Health's Organisation (WHO) was used.

study area produce between 0.1 and 0.5 l/s. Higher yields do, however, occur where groundwater is held in good water yielding fractures but these seem to be largely absent in the immediate vicinity. The Volksrust aquifer has been identified as a rather impermeable and minor aquifer with fair groundwater quality, a medium vulnerability and a medium susceptibility towards contamination **(O.Scholtz, 2022)**.

A hydrocensus was undertaken in February 2022 by Shangoni Aquiscience, during the hydrocensus, selected samples were taken from surveyed groundwater localities and analysed for hydrochemistry. Groundwater samples taken include boreholes located on within the Koppies Mine, while others were taken from privately owned groundwater users in and around the proposed PRA (Plan 7). The results are briefly discussed below, please refer to Annexure 4 for a copy of the report and lab certificates:

- The data is indicative of circum-neutral, non-saline and slightly hard to very hard water with generally low trace metals but low to high Nitrate ($NO_{3)}$ levels. $NO_3$ exceeding the SANS drinking water standards was recorded in boreholes H/BH07, H/BH08 and H/BH10 located on the farms Vrede and Verdeel.
- H/BH04 and H/BH05 are used for monitoring purposes and are not equipped while H/BH06 is equipped and in use on the mine.
    - Other than $NH_4$ exceeding domestic standards in borehole H/BH05, all other parameters recorded for the on-mine boreholes recorded well within the SANS standards.
    - Stiff diagrams and the Expanded Durov show groundwater profiles generally of Mg(Ca)-$HCO_3$ types indicative fresh, clean, relatively young groundwater that has started to undergo magnesium (Mg) ion exchange, or sodium (Na) in the case of borehole H/BH11. It is important to note that the three mine boreholes, H/BH04, H/BH05 and H/BH06 plot in Field 2 of the Expanded Durov diagram typical of fresh, clean and unimpacted water.
- The remaining groundwater samples were taken from selected farm localities surveyed during the hydrocensus.
    - Data from these samples indicate fairly similar groundwater quality with sporadic raised $NO_3$ and iron (Fe) levels. The general quality can be described as circum-neutral, non-saline and hard to very hard. Nitrate ($NO_3$) levels recorded in relatively raised to high concentrations in a number of boreholes with the SANS standard of ≤ 11 mg N/l being exceeded. Fe was also recorded as raised in the majority of boreholes but only exceed the standards in two boreholes, H/BH17 and H/BH27. Fluoride (F) recorded an elevated concentration in borehole H/BH27 with a concentration of 4.58 mg/l, exceeding the SANS standard of ≤ 1.5 mg/l.




**Plan 7: Hydrocensus Points (O.Scholtz, 2022)**

### 9.1.6 Soils, Land Use and Land Capability

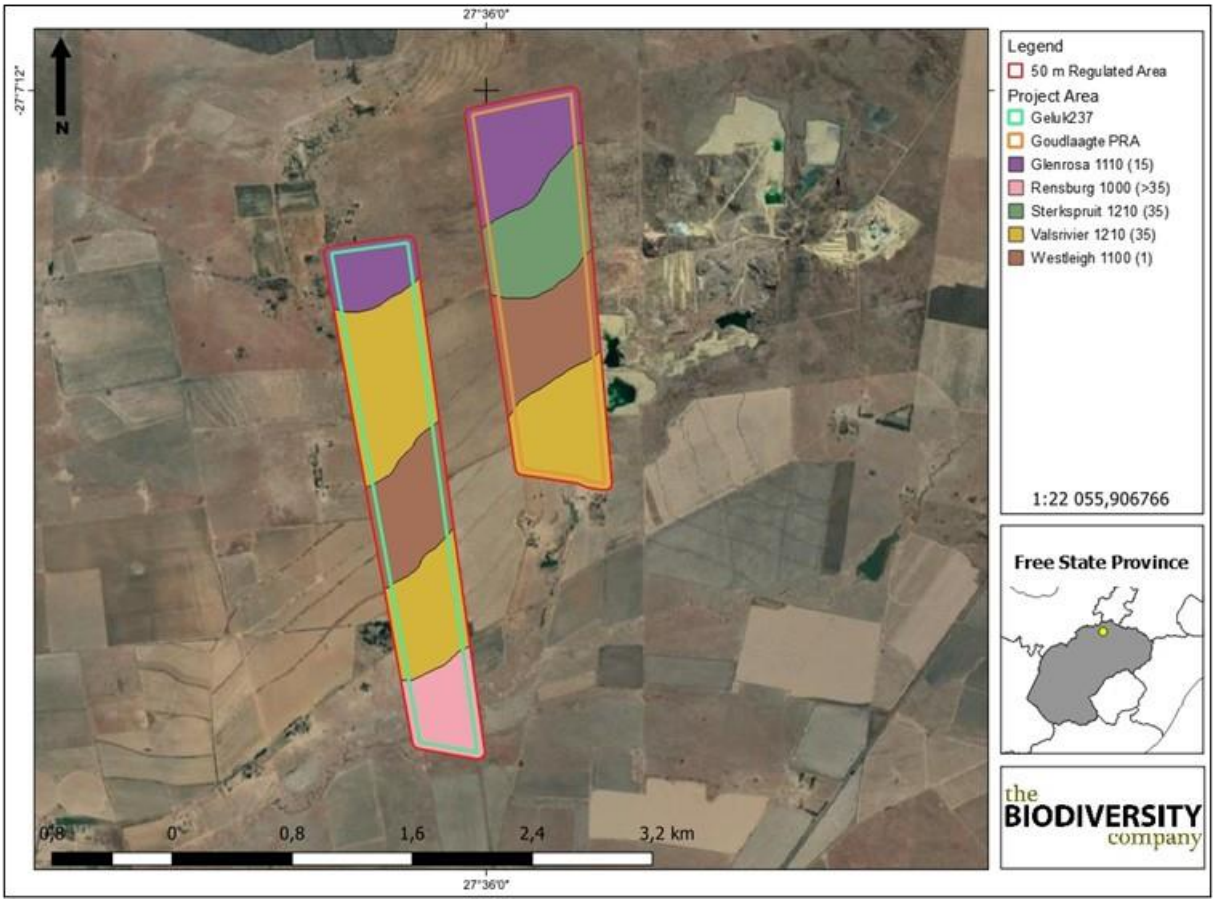
The area surrounding the proposed PRA is classified as rural in nature, the predominant land use is agriculture with some mining. Large areas of the farms Geluk 237 and Goudlaagte 238 are currently under cultivation.

A site inspection and desktop study was undertaken by The Biodiversity Company, culminating in a Compliance Statement as required by the recently published Government Notice 320 in terms of NEMA dated 20 March 2020: "Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation". The Compliance Statement.

The Adelaide Subgroup's Sandstone and Sedimentary mudstone are found in the extreme northern section of the Central Free State Grasslands together with that of the Ecca Group. This geology gives rise to Melanic, Vertic and red soils typically from the Dc land type (Mucina and Rutherford, 2006).

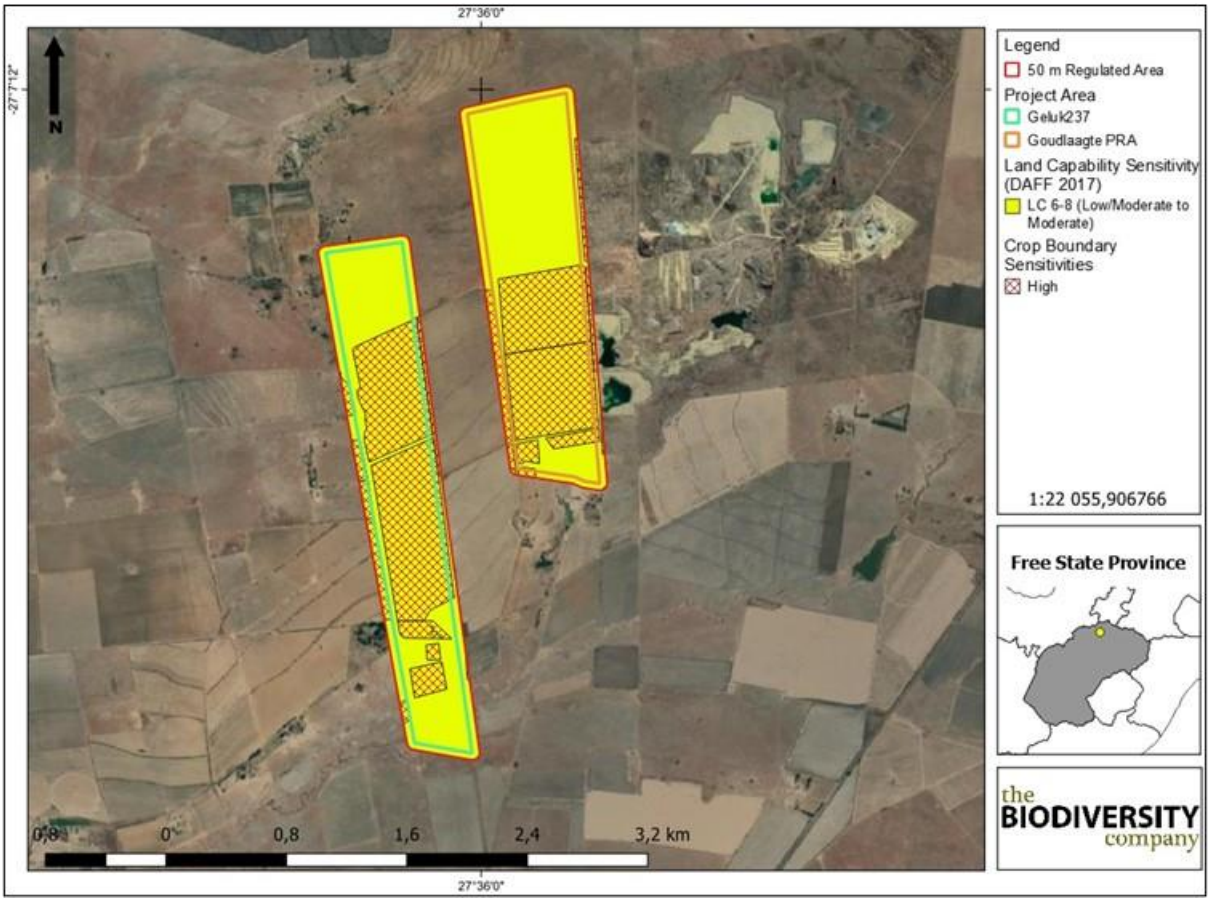
According to the land type database (Land Type Survey Staff, 1972 - 2006) the proposed PRA is located within the Dc 7 land type. The Dc land type consists of prismacutanic and/or pedocutanic diagnostic horizons with the addition of one or more of the following; Vertic, melanic and red structured diagnostic horizons (Baker, 2022).

The following soil forms were identified within the project area by The Biodiversity Company during the site inspection: Glenrosa, Rensburg, Valsrivier, Sterkspruit and Westleigh (Plan 8). Of these soil forms, the Valsrivier and Sterkspruit soil forms are most sensitive (Baker, 2022).




**Plan 8: Delineated Soil Forms (Baker, 2022)**

The land capability of the Sterkspruit and Valsrivier soils have been determined be class "III" with a climate capability level 8 given the low Mean Annual Precipitation and the high evaporation rates. The combination between the determined land capabilities and climate capabilities results in a land potential "L6" which is regarded to have very restricted potential. Regular and/or severe limitations due to soil, slope, temperatures or rainfall. Non-arable (Baker, 2022).




**Plan 9: Land Capability Sensitivities (Baker, 2022)**

### 9.1.7 Fauna and Flora

The sections below are largely extracted from The Terrestrial Biodiversity Assessment, completed in January 2022 (refer to Annexure 6).

<u>Ecological Desktop Assessment:</u>

The Free State Province Biodiversity Plan classifies areas on the basis of their contributions to reaching the conservation targets within the province. These areas are primarily classified as either Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs).

- Critical Biodiversity Areas (CBAs) are terrestrial areas of the landscape that need to be maintained in a natural or near-natural state to ensure the continued existence and healthy functioning of important species and ecosystems and the delivery of ecosystem services. Thus, if these areas are not maintained in a natural or near natural state then biodiversity targets cannot be met (SANBI, 2017).
- Ecological Support Areas (ESAs) are areas that are not essential for meeting biodiversity representation targets but play an important role in supporting the ecological functioning of ecosystems as well as adjacent Critical Biodiversity Areas, and/or in delivering ecosystem services that support socio-economic development (SANBI, 2017).

As depicted in Plan 10, the majority of the PRA falls within an ESA2 area, with certain portions

towards the north and south overlapping with ESA1 area[8] (Schrenk, 2022).


**Plan 10: Critical Biodiversity Areas as per the Free State Biodiversity Plan, 2015**

## Flora & Vegetation:

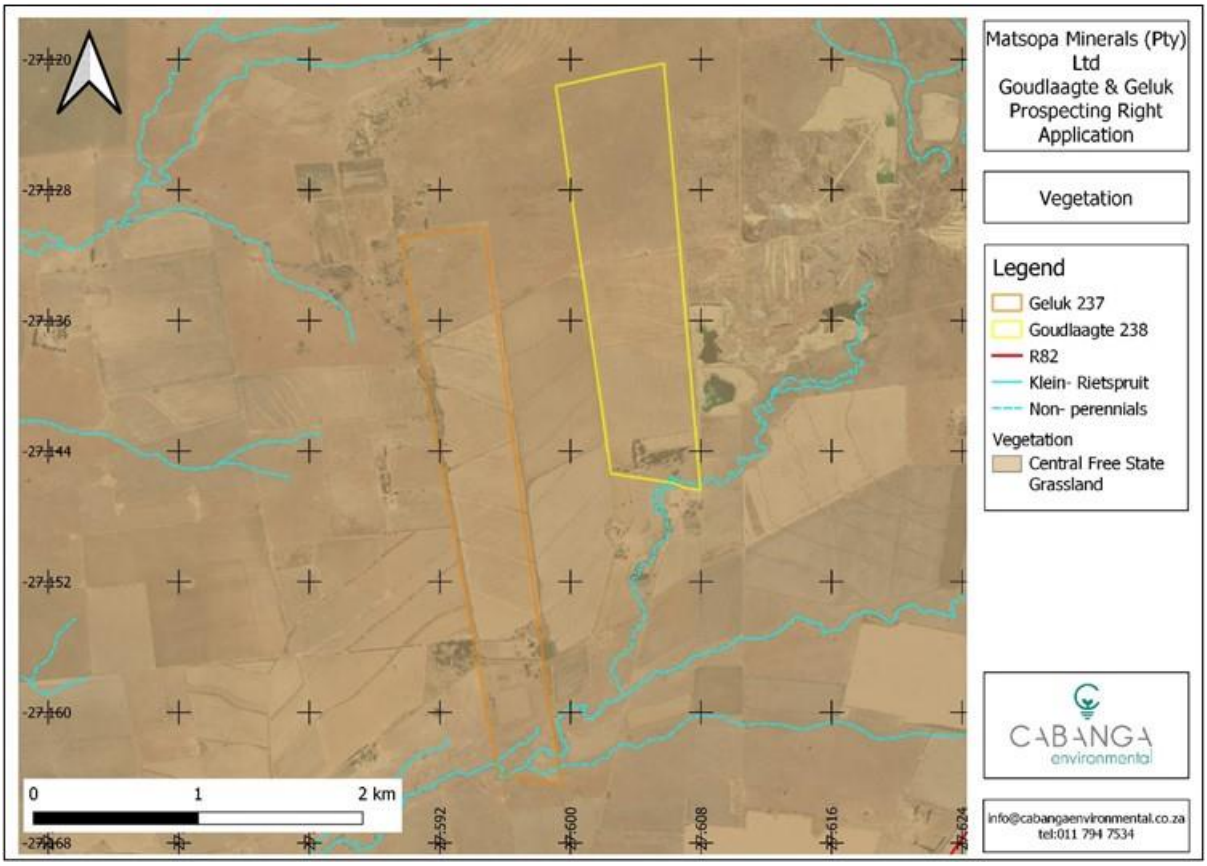
The project area is situated within the Grassland Biome (Ecosystem Threat Status: Least Concern). The Grassland Biome is comprised of four (4) parent bioregions and a total of 72 different vegetation types. The project area is situated within the Central Free State Grassland of the Dry Highveld Grassland Bioregion (Schrenk, 2022).

This vegetation type is characterised by undulating plains supporting short grassland, in natural condition dominated by *Themeda triandra* while *Eragrostis curvula* and *E. chloromelas* become dominant in degraded habitats. Dwarf karoo bushes establish in severely degraded clayey bottomlands. Overgrazed and trampled low-lying areas with heavy clayey soils are prone to *Vachellia karroo* encroachment (Mucina & Rutherford, 2006).

The conservation status of this vegetation community was listed by Mucina and Rutherford, 2006 as Vulnerable. The national conservation target is 24%, but only small portions are protected within public and private Nature Reserves. Almost a quarter of the area has been transformed for either cultivation or the building of dams, however no serious infestation by

[8] ESA1 area is a portion of land currently either in a good or fair ecological condition and the objective is to maintain it in at least a fair ecological condition; while an ESA2 area is in a severely modified condition where the objective is to avoid further deterioration in ecological condition.

alien flora has been observed (Schrenk, 2022).




**Plan 11: Vegetation Type**

Based on the Plants of Southern Africa database, 516 plant species have the potential to occur in the project area and its surroundings. Of these 516 plant species, 1 species is listed as being a Species of Conservation Concern (SCC) and 23 are listed as provincially protected (see Annexure 6 for details).

The survey conducted by The Biodiversity Company in January 2022 showed that little to no indigenous flora occurs in the central to southern portions of the project area due to the fact these are currently, and have historically been, used for agriculture. The northern sections of the project area (as well as the southern section of the farm Geluk) were found to contain a diversity of indigenous graminoides (grasses), including *Cymbopogon caesius, Themeda triandra, Digitaria eriantha,* and *Setaria sphacelata var. sericea*. These grasses are mostly climax and decreaser grasses, characteristically found in well-established ecosystems that have not been recently disturbed or overgrazed. These areas were also well populated by a diverse community of indigenous herbaceous plants.

Minor ingress of the invasive *Solanum campylacanthum* was recorded, as well as the presence of numerous indigenous *Berkheya* weeds (Schrenk, 2022).

The southernmost portion of the farm Geluk contained more wetland-type grasses such as the *Setaria sphacelata var. sericea* as well as *Cyperus* spp. and large areas of this section were dominated by *Berkheya* weeds and some exotic herbaceous plants such as the *Mirabilis* spp. Smaller portions of the project area contained minor seeps and depressions which also supported hydrophilic vegetation (Schrenk, 2022).

One protected plant was identified in large quantities throughout the northern sections of the project area, namely *Boophone disticha*.

Fauna:

Desktop investigations identified 17 mammal species that have the potential to occur in the project area, three (3) of which are SCC; one hundred and sixty two (162) avifauna species of which five (5) are SCC; and twenty (20) herpetofauna species of which only one (1) is of SCC. These numbers exclude any animals that only occur within nature reserves and private reserves.

- Of the five avifaunal SCC, four have a moderate to high likelihood of project area occurrence, *Circus maurus* (Black Harrier), *Glareola nordmanni* (Black-winged Pratincole), *Sagittarius serpentarius* (Secretarybird) and *Tyto capensis* (African Grass Owl). The other SCC, the Curlew Sandpiper, is unlikely to occur within the project area due to a lack of suitable habitat.
- Of the four total mammal and herpetofaunal (reptiles and amphibians) SCC listed, all four have a moderate to high likelihood of occurring in the project area. These are *Atelerix frontalis* (South Africa Hedgehog), *Leptailurus serval* (Serval), *Otomys auratus* (Southern African Vlei Rat, Grassland type) and *Smaug giganteus* (Sungazer Lizard).

Due to the large project area as well as the relatively undisturbed state of the northern and southern sections, numerous observations of locally common avifaunal species were recorded, however no avifaunal SCC were identified.

Mammal species directly observed included the Cape ground squirrel and the Cape porcupine. A single mongoose skull and a shed puff adder skin was also noted during the site survey. No mammal SCC were recorded however the landowner reported sightings of the protected and red-listed Atelerix frontalis (South Africa Hedgehog).

Reptile and amphibian activity was low and although no herpetofaunal SCC were directly observed, several burrows were recorded within the PRA which are highly characteristic of the red listed and sensitive Smaug giganteus (Sungazer lizard). Interviews with the landowner confirmed previous sightings of the Sungazer in the northern portion of the farm Geluk. The Sungazer is listed as vulnerable on both a regional and international scale and it is also a Free State protected species according to the Free State Nature Conservation Ordinance 8 of 1969 (Schrenk, 2022).

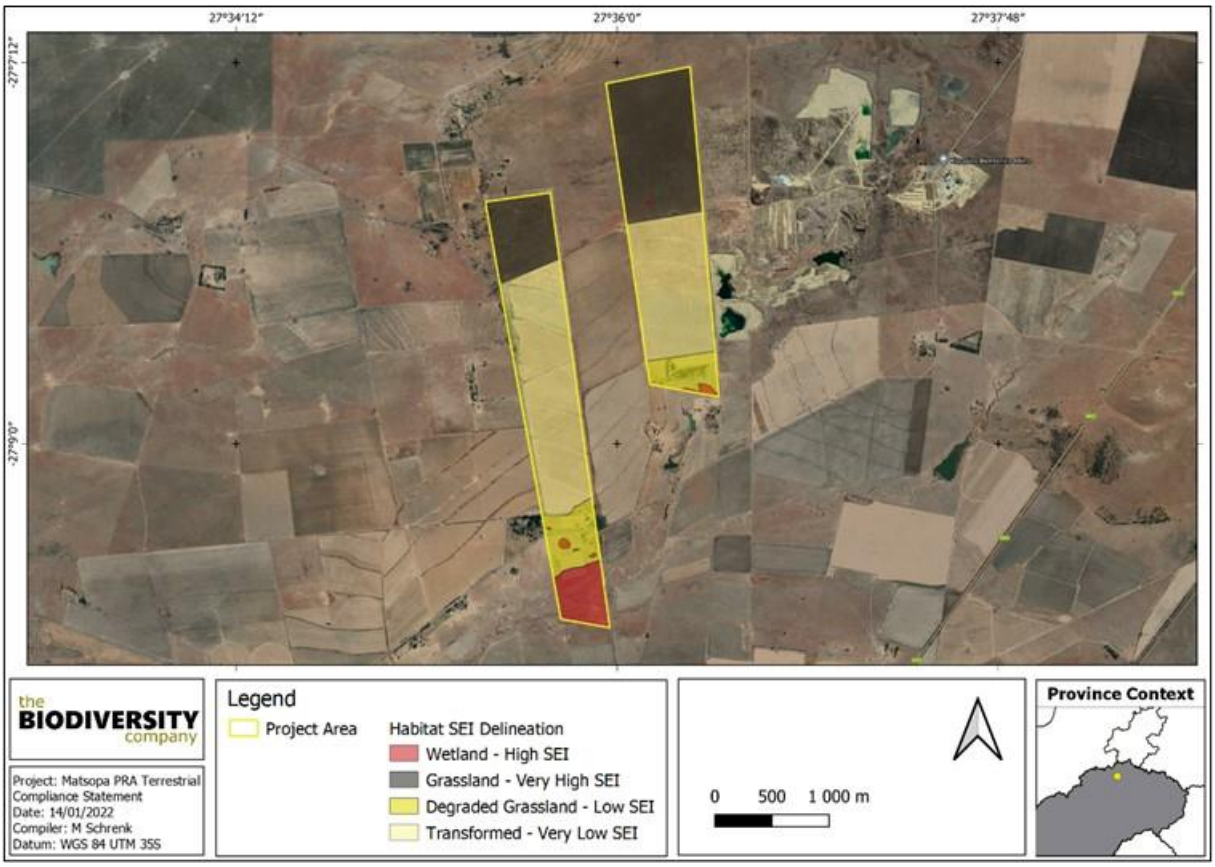
Habitat Assessment:

The main habitat types identified across the project area were initially identified and pre-delineated based on aerial imagery, this was refined based on the site survey conducted in January 2022. Four habitat units are delineated for the project area: transformed habitat, degraded grassland, grassland, and wetland (Plan 12):

- The transformed habitat unit represents areas that have been completely cleared of any remaining healthy and functioning natural vegetation, these are the portions of the project area that have been historically utilised for agriculture and are correctly classified by the Free State Biodiversity Plan as critically modified ESA2 vegetation.
- Degraded grassland is a relatively small, delineated portion of habitat for the project area and contains a mix of overgrazed or previously harvested agricultural land or

pasture, in addition to alien invasive species and pioneer grasses and shrubs such as Asparagus.

- The grassland habitat covers only the northern sections of the project area and represents the most in-tact and functioning ecosystem of the project area, due to the high diversity of established climax grasses, indigenous herbaceous plants, and a healthy community of indigenous wild mammals. The presence of numerous protected Boophone disticha as well as the possible presence of the Sungazer lizard adds to this habitat's importance.
- The wetland habitat, largely occurs across the southernmost portion of the farm Geluk, with minor seeps, dams and depressions scattered across the rest of the project area. These areas support a rich diversity of hydrophilic grasses and sedges and are likely to attract diverse avifaunal and mammal species throughout the year due to the presence of water and unique foraging/nesting medium (Schrenk, 2022).



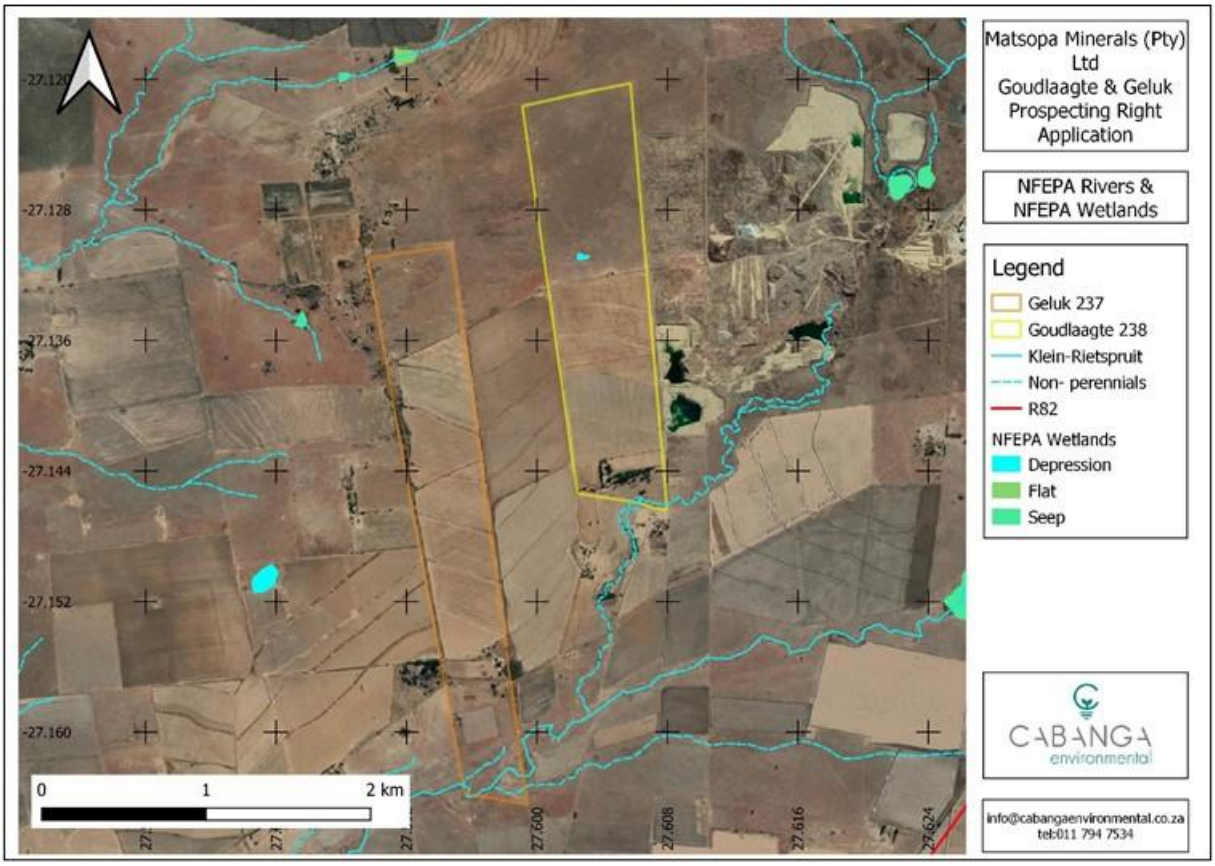

**Plan 12: Biodiversity SEI delineation relevant to the PRA (Schrenk, 2022)[9]**

[9] Site Ecological Importance (SEI) is a function of the Biodiversity Importance (BI) of the receptor (e.g., SCC, the vegetation/fauna community or habitat type present on the site) and Receptor Resilience (RR) (its resilience to impacts).

### 9.1.8 Wetlands

National Wetland Map 5 (NWM 5) includes inland wetlands and estuaries, associated with river line data and many other data sets within the South African Inventory of Inland Aquatic Ecosystems (SAIIAE, 2018). According to NWM 5 a single depression wetland is located within the PRA.

Further to this, the Freshwater Ecosystem Priority Areas (FEPA) database was consulted. According to the FEPA database a single depression wetland is located within the PRA (corresponding with NWM 5). Two additional wetland types were identified within the 500 m regulated area (Plan 13).




**Plan 13: NFEPA Wetlands and Rivers**

The wetland site visit was undertaken on 6 January 2022 to ground-truth the above desktop findings and complete the ecological assessments. The wetland areas were then delineated by The Biodiversity Company in accordance with the DWAF (2005) guidelines. Please refer to Annexure 7 for a copy of the Wetland Assessment Report.

Two (2) primary wetland types were identified for the project area, namely the expansive Klein-Rietspruit floodplain system and numerous depressions (or pans). The wetland classification as per SANBI guidelines is presented in Table 9.

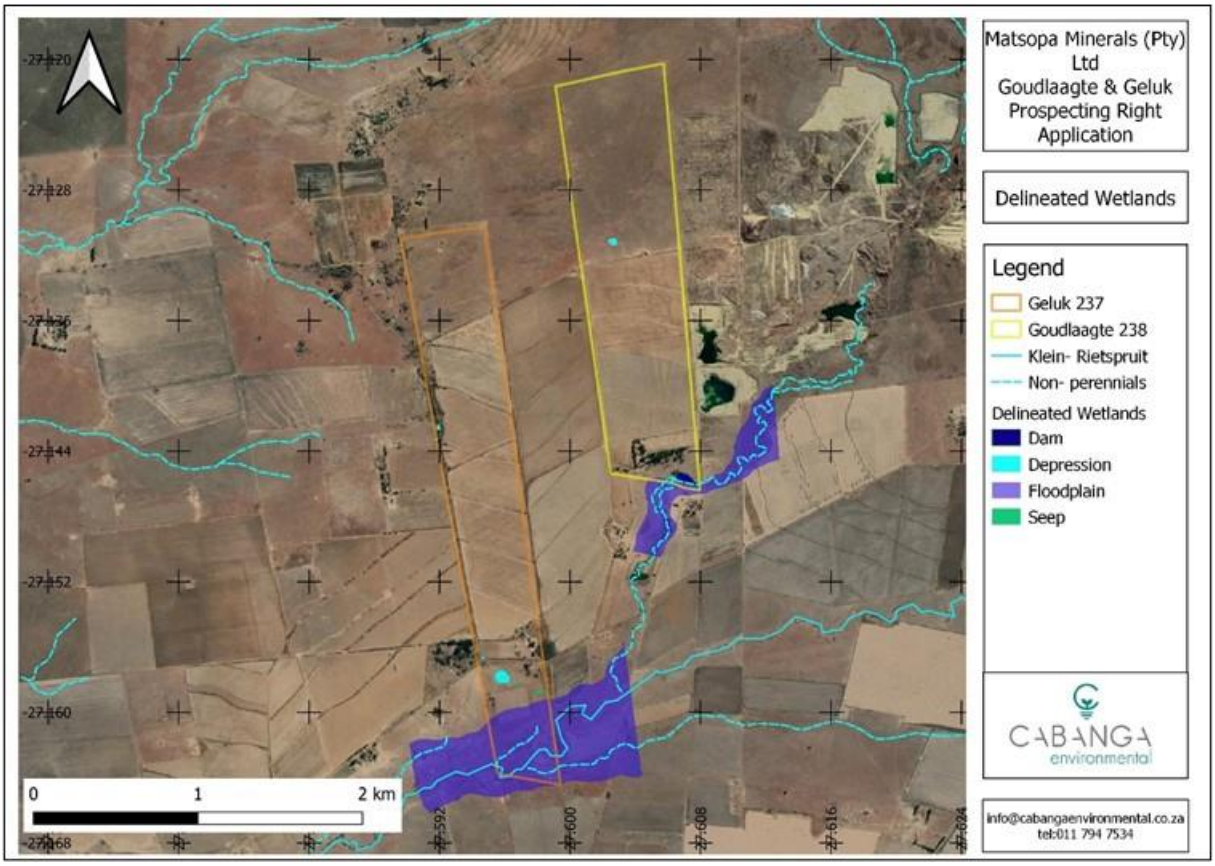
A total of five (5) depressions and a floodplain system were identified, representing two HGM types (Plan 14). A general description of the wetland HGM types is provided below:

- The floodplain flow path remains in a relatively intact state. The system is large, well

developed and relatively intact which displays typical floodplain features. These include a highly sinuous stream channel, large floodplain depressions and an abundance of well vegetated backwaters and meander cut-offs. These systems are distinctly "U" shaped, well vegetated and are perennially inundated with a large proportion of the flow paths occupied by permanent and seasonal zone vegetation. The system is largely natural but is, in places, heavily encroached by alien and invasive plant species. Floodplains are, by definition, depositional environments formed by the accumulation of alluvial deposits carried downstream by rivers. Another characteristic of floodplains is that they are typically inundated on average, several times per year, during high flows. The floodplain features occur mainly in the more natural grassland areas.

- The depression systems are located on the "bench" landscape unit. Depressions are inward draining basins with an enclosing topography which allows for water to accumulate within the system. Depressions, in some cases, are also fed by lateral sub-surface flows in cases where the dominant geology allows for these types of flows.

The average ecosystem service scores for the two HGM types were rated as "Intermediate". Ecosystem services contributing to these scores include flood attenuation, streamflow regulation, sediment trapping, phosphate assimilation, nitrate assimilation, toxicant assimilation, erosion control and biodiversity maintenance. The overall present ecological state for the HGM types was determined to be "Moderately Modified" (Class C). The ecological importance and sensitivity of the floodplain and depressions was determined to be "High" and "Moderate" respectively (Husted, 2022).




**Plan 14: Delineated Wetlands**

**Table 9: Wetland Classification (Husted, 2022)**

| Wetland System | Level 1 | Level 2 | | Level 3 | Level 4 | | |
|---|---|---|---|---|---|---|---|
| | System | DWS Ecoregion/s | NFEPA Wet Veg Group/s | Landscape Unit | 4A (HGM) | 4B | 4C |
| **HGM 1** | Inland | Highveld | Dry Highveld Grassland Group 4 | Valley Floor | Unchanneled Valley Bottom | N/A | N/A |
| **HGM 2** | Inland | Highveld | Dry Highveld Grassland Group 4 | Bench | Depression | Endoheric | Without channelled outflow |

### 9.1.9 Cultural Heritage

From a heritage perspective the PRA has been altered by cultivation from the 1960's to the present. Cumulatively these activities would have impacted on surface indicators of heritage resources if any ever occurred in these areas and the only features recorded during the Phase I Cultural and Heritage Impact Assessment included graveyards (Sites 1 - 3), the foundations of demolished structures (Site 4) and a shed (Site 5) possibly older than 60 years (Walt J. d., 2022). These are briefly discussed below, please refer to Annexure 8 for a copy of the Heritage Impact Assessment.

Site 1:

Site 1 is a cemetery on the farm Goudlaagte 238, with between 8 – 10 graves, of which:

- 3 were marked:
    - Maria Letsaba date of death 1956
    - Lapi Letsaba date of death 1959
    - Samson Nxamele date of death 16 August 1981
- 5 had collapsed and/or unreadable concrete markers / headstones; and
- 2 possible stoned packed graves, overgrown with weeds.

Site 2:

Site 2 is a cemetery on the farm Geluk 237, with a minimum of 7 graves, of which:

- 5 were marked:
    - Soloman Mohau Africa date of death 1981
    - Tsali Anna Maferka date of death 1996
    - Motlogeloa Stephan Molefe date of death 1995
    - Elizabeth Ntoba date of death 1983
    - Seboka Lucas Ntoba date of death 1981
- 2 were unmarked.

Site 3:

Site 3 is a cemetery on the farm Geluk 237, with a minimum of 12 grave, of which 11 were marked and 1 was unmarked:

- Mabuti Jacob Letsaba, Date of death: 12 March 1976
- Lapi Johannes Letsaba, Date of death: 12 April 1974
- Mojalefa Sello Letsaba, Date of death: 24 March 1972
- Joseph Moletsane
- Jacob Mabuti, Date of death: 07 June 1987
- Suzan Disebo, Date of death: 17 October 1986
- Samuel Tshpo Letsaba, Date of death: 22 April 1985
- P. Letshaba, Date of death: 1963
- Makhotla Sekhosana, Date of death: 10 February 1997
- Eliza Skosana, Date of death 24 July 1973
- Mmabatho Selina Sekhosana, Date of death: 1994

Site 4:

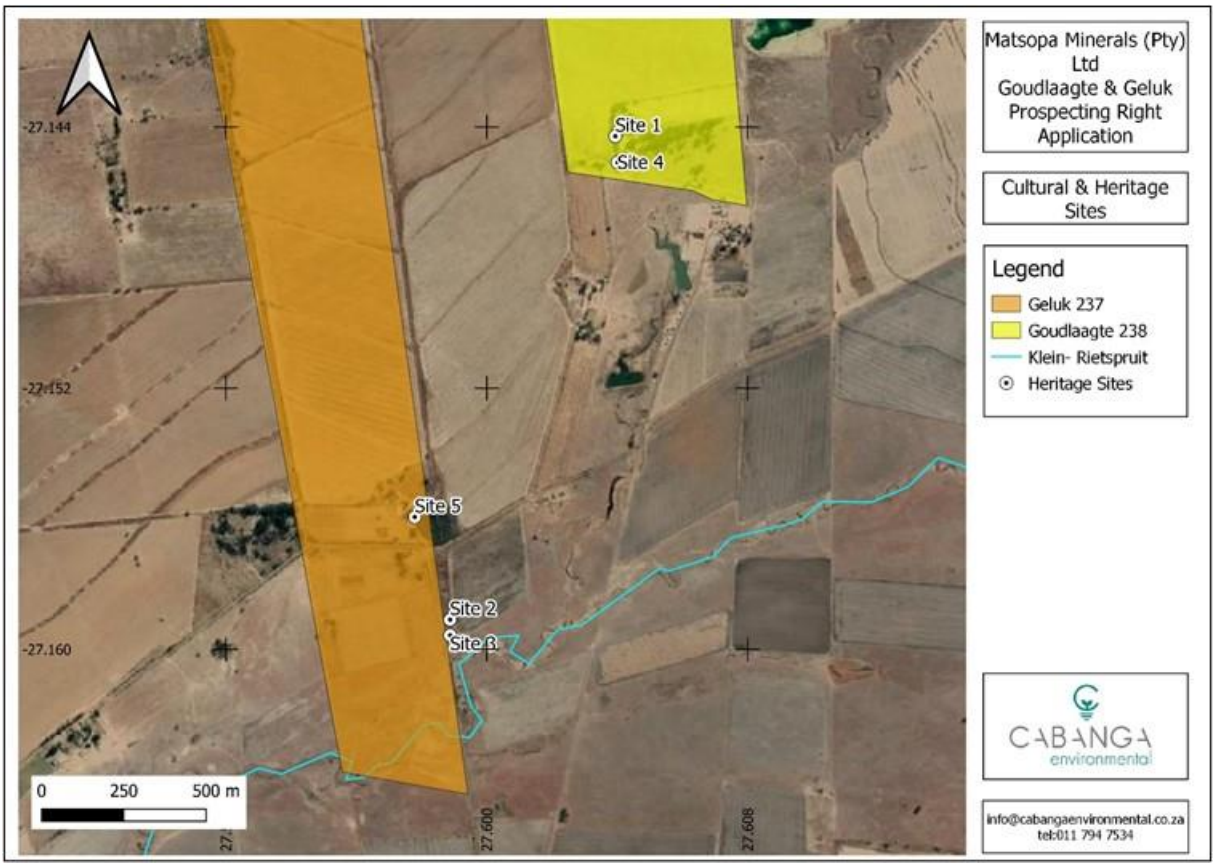
Site 4 is associated with the foundations of demolished structures on the farm Goudlaagte 238.

Stone packed features that are extremely degraded and partially buried and overgrown. The features include several square packed stone foundations with a packed stone water reservoir in the larger area relating to agricultural infrastructure. The features are scattered over an area of approximately 80 square metres. These features are degraded and in disuse (Walt J. d., 2022).

Site 5:

Large, corrugated iron shed situated on the edge of an existing maize field within a thicket of trees on the farm Geluk 237. The shed is still in a fair condition apart from the roof that seems to be collapsing in some sections.

The shed is overgrown and difficult to access due to the recent heavy rainfall and can only be seen from the road. This feature is likely older than 60 years (Walt J. d., 2022).

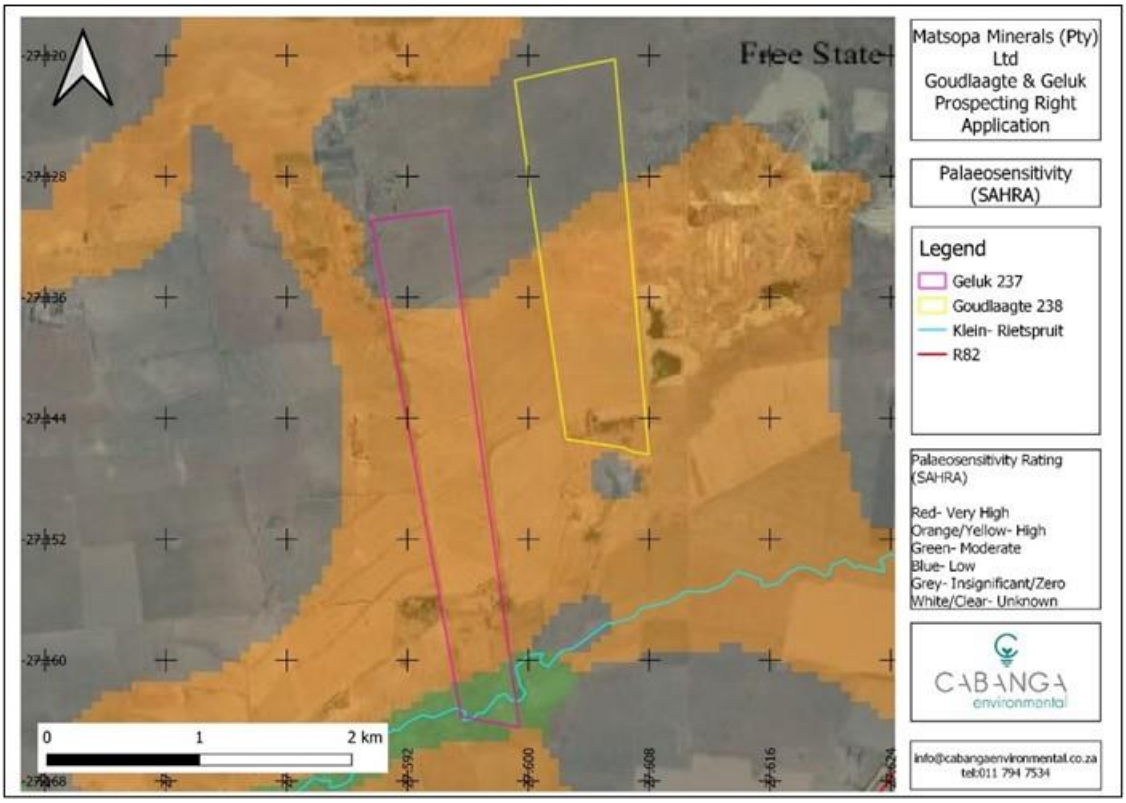



**Plan 15: Cultural and Heritage Sites**

### 9.1.10 Palaeontological Setting

According to the SAHRA Paleontological map the PRA is of both insignificant (grey) and high paleontological significance (orange) (Plan 16). As such, a desktop Paleontological Impact Assessment was completed by Prof. Bamford, attached as Annexure 9. The following has been extracted from the report:

- The Volksrust Formation is the upper part of the Ecca Group and is predominantly argillaceous and the grey to black silty shale with thin, usually with bioturbated siltstone or sandstone lenses and beds that occur mostly in the upper and lower boundaries. The very thick and fine-grained sediments represent an open shelf environment where muds were deposited from suspension with (Johnson et al., 2006) in a deep-water environment. It is not known if this was an inland sea or open marine setting but the discovery of the marine bivalve, *Megadesmus*, (albeit one instance) about 25km west southwest of Newcastle in Volksrust Formation shales, points to a marine influence for at least part of the sequence (Cairncross et al., 2005).
- The *Glossopteris* flora was present around the Karoo Basin during the time of the Volksrust Formation but as these are shallow to deepwater sediments, the terrestrial flora was very rarely incorporated into the sediments. Occasionally leaf fragments have been caught in mudflows (own obs.).
- Based on the geology of the area and the palaeontological record as we know it, it can be assumed that the formation and layout of the dolomites, sandstones, shales and sands are typical for the country and do not contain fossil plant, insect, invertebrate and vertebrate material. The overlying soils and sands of the Quaternary period would not preserve fossils. Archaean and Jurassic igneous rocks do not have any fossils (Bamford P. M., 2022).




**Plan 16: SAHRIS Palaeosensitivity**

### 9.1.11 Socio-economic

The Ngwathe Local Municipality is situated in the northern part of the Fezile Dabi District Municipality, in the northern part of the Free State Province. It is composed of 5 towns, namely: Parys, Vredefort, Heilbron, Koppies and Edenville, as well as the rural areas as demarcated by the Demarcation Board of South Africa (Statistics South Africa, 2022). The economy of the region is structured along agriculture, mining and tourism.

According to Census 2011, Ngwathe Local Municipality has a total population of 120 520 people, of which 86,5% are black African, 10,3% are white and the remaining 3,2% is made up of other population groups. The predominant spoken language is Sesotho, followed by Afrikaans and IsiXhosa.

There are 39 555 economically active (employed or unemployed but looking for work) people, and of these 35,2% are unemployed (Statistics South Africa, 2022).

The Vaal River forms the northern boundary of the municipality, separating the municipality from the North West province. Whilst the Vaal River and the Barrage separates the municipality from the Methsimaholo Local Municipality. The Rhenoster River drains through the region and is dammed up in the vicinity of Koppies in a series of dams, namely the Weltevrede, Rooipoort and Koppies Dams. The rivers, together with the respective dams, are prominent water sources for agriculture and tourism. According to the Spatial Development Framework (SDF) and Integrated Development Plan (IDP) for Ngwathe Local Municipality the town of Koppies is located in an area of agricultural significance and mainly provides services in this regard to the surrounding rural areas. The bentonite exploitation near Koppies and the initiative for coal mining in the vicinity of the town provide significant future growth potential. Koppies also has the potential to create future employment opportunities based on the tourism potential, specific reference is made to the R82 Battlefield Route that consists of several historical battlefields that are envisaged to be further developed, as well as the Koppies Dam Nature Reserve (Ngwathe Local Municipality, 2021/2022).

## 9.2 Description of the Current Land Use

The majority of both farms have historically been used for agriculture (cultivation), with smaller areas allocated to active grazing land. It is anticipated that the current land use can continue concurrent with the prospecting programme, and no change to the land use is currently proposed.

## 9.3 Description of Specific Environmental Features and Infrastructure on the site

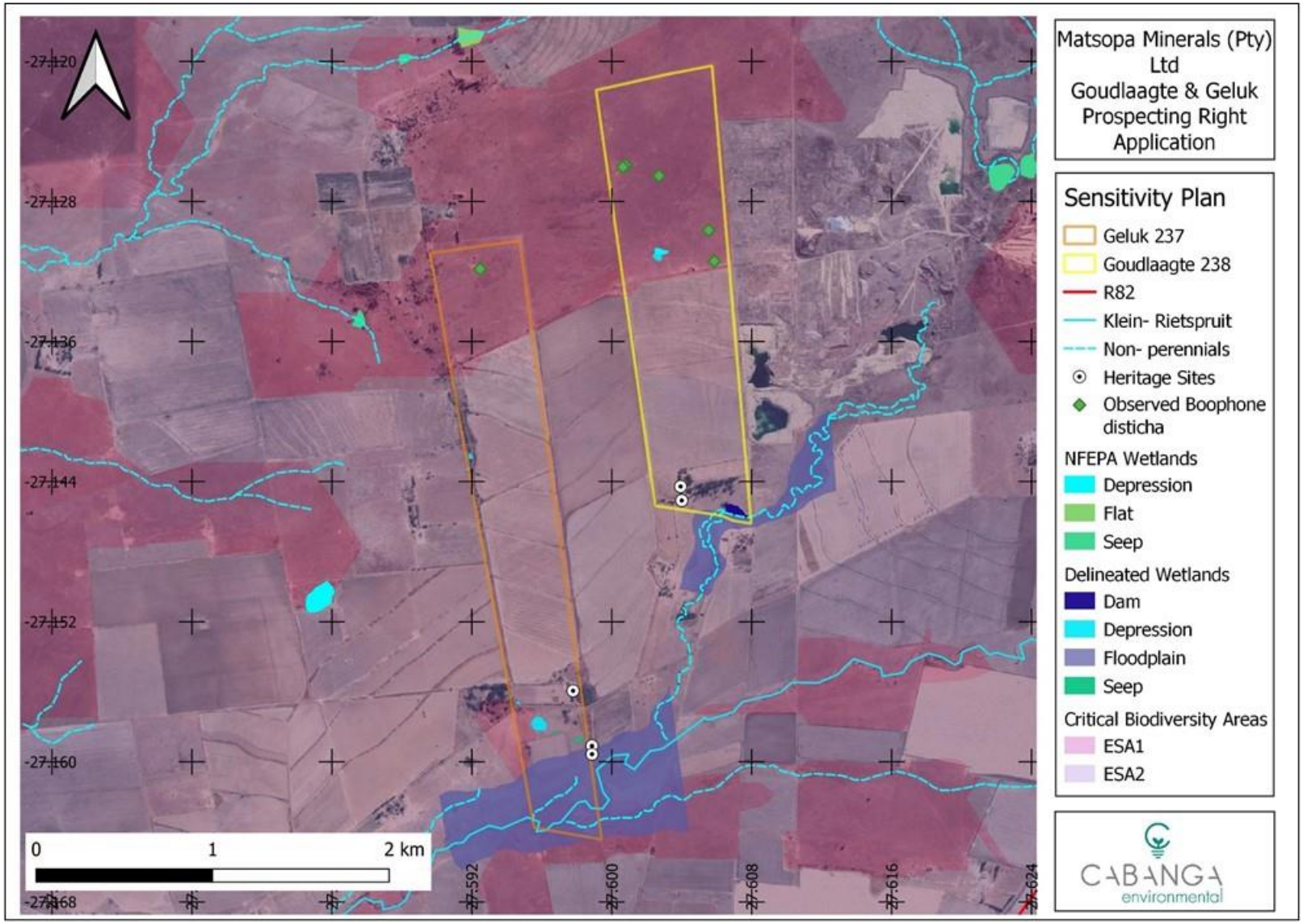
Specific environmental features identified on site (Plan 17), and as discussed in the preceding sections, include:

- The Klein Rietspruit and its tributaries traverse the site. The Klein Rietspruit (RivCon B – Largely Natural) is a FEPA catchment;
- 2 wetlands types were delineated within the PRA and regulated zone;
- The PRA overlaps Ecological Support Areas (ESA1 and ESA2);
- Intact grasslands with ‘High’ to ‘Very High’ habitat SEI are associated with the ESA1 in the northern portions of the PRA. SCC have been identified and/or reported in these

areas; and

- A number of graveyards and heritage Sites were identified.

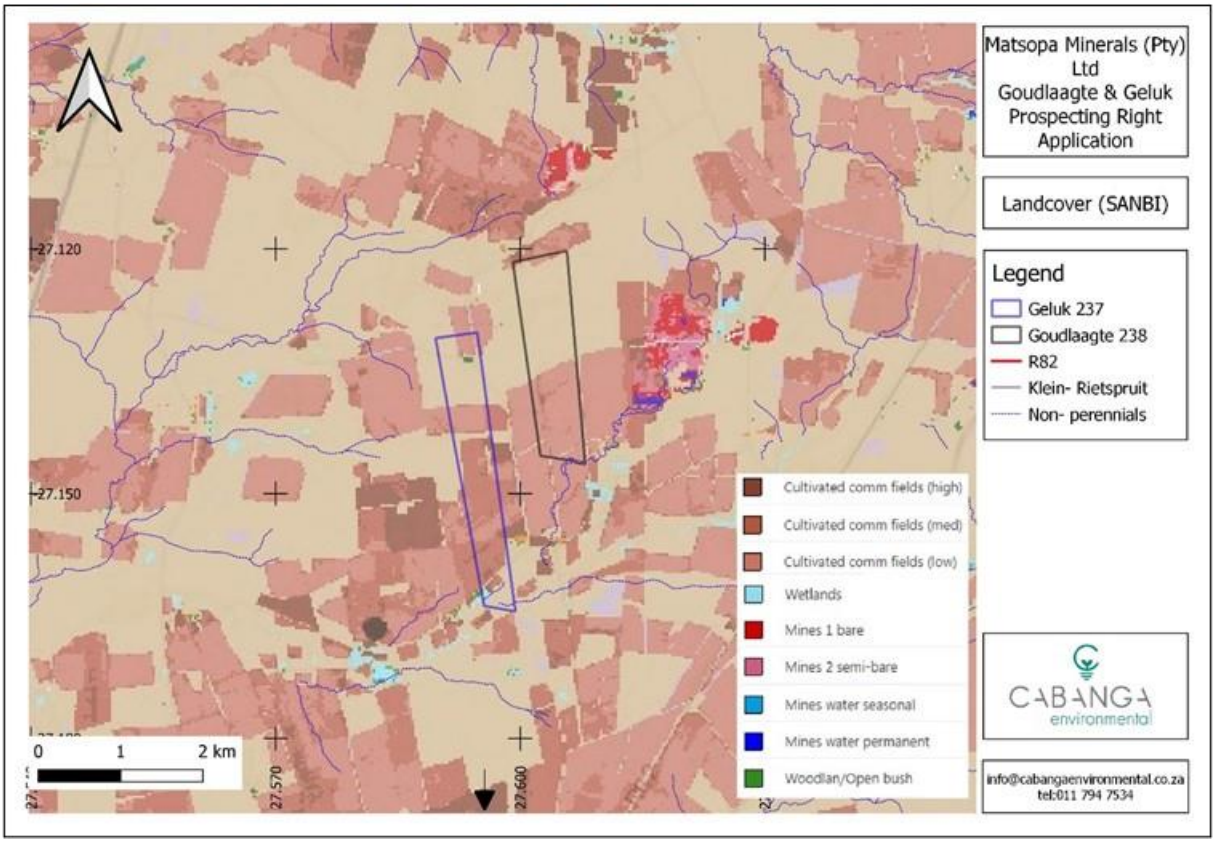
Infrastructure within the PRA includes overhead powerlines, access roads, farm infrastructure, windpumps and dams.




**Plan 17: Environmental Sensitivities**

## 9.4 Environmental and Current Land Use Map

The Land Use and Land Cover associated with the project area are depicted below.




**Plan 18: Land Cover**

## 9.5 Impacts and Risks Identified including the Nature, Significance, Consequence, Extent, Duration and Probability of the Impacts

Based on the Screening Tool, site surveys and specialist input the following potential impacts were identified:

- Compaction of soils as a result of vehicle and machinery movement.
- Disruption of land use activities.
- Vehicles and machinery on site will generate noise, increased dust and emissions.
- Clearance of vegetation and stripping of topsoil will lead to the increased potential for erosion, loss of soil fertility and increased dust generation.
- Destruction and/or disturbance of fauna and flora in the area.
- Encroachment of alien invasive species.
- Loss of habitat to species of conversation concern.
- Silt loading of downstream water resources.
- Impeding/diverting the flow of water.
- Water quality impairment.
- Contamination of soils and water resources as a result of potential hydrocarbon spills / leaks.

- Loss and degradation of wetlands.
- Noise pollution and damage of hearing to workers near loud machinery (vehicles and generators).
- Alteration of cultural, palaeontological and archaeological sites.
- Potential contamination through littering and leachate from litter.
- Increased risk for stock theft/loss as a result of increased traffic and/or farm gates being left open by contractors.
- Increased possibility of veld fires as a result of workers/contractors on site.

Please note that a detailed impact assessment matrix has been completed, and is included under Table 11 and details the nature, significance, consequence, extent, duration and probability of the impacts.

## 9.6 Methodology used in Determining and Ranking the Nature, Significance, Consequences, Extent, Duration and Probability of Potential Environmental Impacts and Risks;

Impact assessment methods were developed to: (1) identify the potential impacts of a proposed development on the social and natural environment; (2) predict the probability of these impacts and (3) evaluate the significance of the potential impacts. The methodology used by Cabanga is as follows:

**Impact Significance = Consequence x Likelihood**

**Likelihood** is a function of the probability that an impact will occur at some time throughout the project, and the frequency that the activity potentially leading to the impact is undertaken. For example, the mixing of cement on a construction site is generally speaking something that will be undertaken **daily** throughout a certain phase of construction. Based on previous assessment of construction sites, it is **highly likely** that the mixing of cement will result in soil and surface water pollution. Therefore, the likelihood is considered **Almost Certain**.

Conversely, refuelling of equipment from on-site diesel tanks is also an activity that is undertaken **daily**. Spillages during refuelling is **less likely** (due to the design of the facility and the cost implications to the developer of losing fuel). Such spillages are still possible, however, resulting in an over-all likelihood ranking of "**Likely**".

The Matrix which is proposed to determine Likelihood is as follows:

| | | |
|---|---|---|
| **Likelihood** | Unlikely: Impact Could occur in extreme events. Less than 15% chance of the impact ever occurring. | 1 |
| | Possible: possibility of impact occurring is very low. 16% - 30% chance of the impact occurring. | 2 |
| | Probable There is a distinct possibility of the impact occurring. 31% to 60% chance. | 3 |
| | Highly Probable: The impact is expected to occur. Between 61% and 85 % chance. | 4 |
| | Definite: There are sound scientific reasons to expect that the impact will occur | 5 |

**Consequence** is calculated by considering the **duration**, spatial **scale** and **intensity** of an impact.

**Duration** relates to the time-frame that an aspect will be impacted upon. For example, any

impact to a heritage resource is considered permanent, while the impact of increased traffic related to a construction activity will only last as long as the construction phase. Duration is rated according to the following criteria:

| | | |
|---|---|---|
| **Duration** | Short term: Less than 1 year and is reversible. | 1 |
| | Short to medium term: 2 - 3 years | 2 |
| | Medium term - 3 to 10 years | 3 |
| | Long term: 11-20 years | 4 |
| | Permanent: in excess of 20 years | 5 |

Spatial **Scale** relates to the physical extent of the zone of influence of an impact. Where groundwater or air quality impacts, for example, can extend far beyond the footprint of the activity, it is not expected that the impact of vegetation removal should extend beyond the footprint of the activity of vegetation removal. Scale is rated according to the following criteria:

| | | |
|---|---|---|
| **Scale / Extent** | Isolated: Limited footprint within the site will be affected (less than 50% of the site) | 1 |
| | Site Specific: The Entire Site will be affected | 2 |
| | Local: Will affect the site and surrounding areas | 3 |
| | Regional: Will affect the entire region / catchment / province | 4 |
| | National: Will affect the country, and possibly beyond the borders of the country | 5 |

The **Intensity** of an impact is calculated by considering the **severity of the impact** (how it will change the aspect, will it be destroyed completely, or altered slightly?) and the **sensitivity of the aspect** (is the aspect sensitive to change, and is the aspect important to ecosystem processes or social dynamics?). For example, if the impact is anticipated to completely destroy a local plant population, but the plant population is commonly found and protected in nearby surroundings, the over-all intensity is lowered. If however the plant population in question is unique or protected, the intensity increases proportionately.

The Matrix which is proposed to determine Intensity is as follows:

| | | | | | |
|---|---|---|---|---|---|
| **Intensity** | 2 | Not significant | **Magnitude** | Slight: Little effect, negligible disturbance / benefit | 1 |
| | | | | Slight to Moderate: Effects are observable but natural process continue | 2 |
| | 3 | Slight | | Moderate: ecosystem processes / social dynamics are permanently altered, but functioning. | 3 |
| | 4 | Slight - Moderate | | Moderate - High: natural / social processes are altered to the point where function is limited | 4 |
| | 5 | Moderate | | High: The aspect is affected so that its functioning is compromised and this effect is irreversible | 5 |
| | 6 | Moderate - High | **Sen** | The aspect is not sensitive to change (No irreplaceable loss of resource) | 1 |

| | | | | | |
|---|---|---|---|---|---|
| | 7 | High | | The aspect is of not of significant value but is sensitive to change | 2 |
| | 8 | Very High | | The affected aspect is of moderate value and is slightly resilient to change | 3 |
| | 9 | Extremely High | | The affected aspect is of significant value and only slightly resilient to change | 4 |
| | 10 | Fatal Flaw | | The affected aspect is valued, irreplaceable and sensitive to change. Irreplaceable loss of significant resource | 5 |

Therefore, considering the formula:

***Significance = Consequence x Likelihood***

Where *Likelihood = Probability + Frequency*
and *Consequence = Duration + Scale + Intensity*
and *Intensity = Severity of the Impact + Sensitivity of the Aspect*

The over-all Significance rating can be calculated as a value between 8 and 200. The score is then categorised as follows:

- Less than 40 = Low Impact, no mitigation is required beyond standard best practice;
- From 40 to 80 = Moderate Impact, specific mitigation should be included in the EMP;
- From 80 to 120 = High Impact, specific mitigation with strict monitoring;
- From 120 to 160 = Very High Impact, mitigation should consider alteration of the design or process to reduce the impact significance;
- >Higher than 160 (200 max) = The Impact is so significant that it may present a fatal flaw to the project.

Impacts will be rated as per the abovementioned methodology without consideration of mitigation measures first, however there may be some mitigation already inherent in the design of the Project (i.e. by placing infrastructure outside of suspected wetland areas, incorporating existing roads into the project design).

Those impacts that are rated as having a moderate impact or above will be investigated further and management measures identified to attempt to reduce the Consequence or Likelihood of the impact. These impacts will then be rated again, while considering the mitigation measures that have been imposed.

## 9.7 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

Two alternatives have been assessed for the proposed project. Option 1 (initial site layout) as depicted in Plan 3; and Option 2 (Plan 19) being the final proposed layout with a reduced footprint.

**Table 10: Comparison of Alternative Layouts**

| Option 1 | | Option 2 | |
|---|---|---|---|
| **Advantages** | **Disadvantages** | **Advantages** | **Disadvantages** |
| Larger prospecting area means that the reserve determination and associated geological model will be compiled with a high level of confidence. | ESA1 area and intact grasslands directly impacted by the drilling programme. | ESA1 and intact grasslands are excluded from the drilling programme and will not be directly impacted. | Smaller prospecting area means that the reserve determination and associated geological model will be compiled with a moderate level of confidence. Interpolation of data will be required. |
| | SCC have been identified in the intact grasslands, associated with the ESA1 area. This habitat area has been assigned a sensitivity of 'High' to 'Very High'. | Drilling activities will be limited to areas assigned 'Low" to 'Very Low' sensitivity. These areas namely, the transformed and degraded grassland habitats, are likely to face minimal further impacts from any prospecting activities. | Disturbance to the existing land use (cultivation). |
| | Loss and destruction of wetlands, as some boreholes were proposed within delineated wetlands. | No boreholes located within the wetland areas or their 30 metre buffer. | |

## 9.8 The Possible Mitigation Measures that could be Applied and the Level of Risk

Impacts and risks have been identified both and pre- and post-mitigation. Refer to Table 11.

## 9.9 Motivation where No Alternative Sites were Considered

With regard to location, the prospecting activities are delimited by the properties available for prospecting (i.e. not held by another company) and the geology of the area.

## 9.10 Statement Motivating the Alternative Development Location within the Overall Site

It is expected that the contractor's camp will move as the prospecting programme progresses. Alternative locations for the temporary camp will be determined based on consultation with the landowner.

## 9.11 Full Description of the Process Undertaken to Identify, Assess and Rank the Impacts and Risks the Activity will Impose on the Preferred Site (In respect of the final site layout plan) through the life of the activity.

Physical, biological and social/cultural impacts were assessed for the proposed project. The steps undertaken to assess these impacts included:

- Project screening and desktop investigations;
- Landowner consultation;
- Site surveys and specialist input; and
- The assessment and compilation of information by the EAP project team.

Impact identification has therefore been a consolidated approach based on Cabanga's professional experience and specialist input.

Table 11 below details the impact assessment matrix for the project.

### 9.12 Assessment of Each Identified Potentially Significant Impact and Risk

**Table 11: Environmental Impact Assessment Matrix**

| Activity | Aspect | Impact / Risk Description | Probability | | Sensitivity of the Aspect | | Severity of the Impact (Magnitude) | | Duration | | Scale / Extent | | Significance (without Mitigation) | | Proposed Management Actions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Access to site, including overland movement of drill rig and equipment to drilling locations | Soils, Land Use & Capability | Potential compaction of soils. | 4 | Highly Probable | 3 | Sensitive | 1 | Slight | 2 | Short to Medium Term | 1 | Isolated | 28 | Low | All vehicles and personnel should make use of any existing roads and walking paths as far as possible.<br>Sign-off of off-road routes must be obtained from the ECO and landowner before off-road activities take place. |
| | | | | | | | | | | | | | | | Compacted soils are to be ripped. |
| | Fauna & Flora | Destruction and/or disturbance of fauna and flora species, and sensitive habitat areas. SCC have been identified within the PRA. | 4 | Highly Probable | 5 | Irreplaceable | 3 | Moderate | 2 | Short to Medium Term | 4 | Regional | 56 | Moderate | A qualified ECO must be on site when activities commence on site. |
| | | | | | | | | | | | | | | | High visibility flags must be placed near any protected or threatened plants (SCC) in order to avoid any damage or destruction. |
| | | | | | | | | | | | | | | | No plants of SCC may be damaged or relocated without the necessary permits. Preferably, the plants should be relocated to an area that will not be impacted on by future activities. |
| | | | | | | | | | | | | | | | All highly sensitive areas should be considered as "no-go areas". Any planned activities should be realigned to prioritise prospecting within low/medium sensitivity areas |
| | | | | | | | | | | | | | | | All activities must be restricted to within the low/medium sensitivity areas. No unnecessary loss of highly sensitivity areas should be permitted. |
| | | | | | | | | | | | | | | | It is recommended that areas to be disturbed be specifically demarcated so that during the activity phase, only the demarcated areas be impacted upon. |
| | | | | | | | | | | | | | | | All routes must be walked through at least once prior to first location of prospecting to ensure no faunal species remain in the habitat and get killed. Should animals not move out of the area on their own relevant specialists must be contacted to advise on how the species can be relocated. |
| | | | | | | | | | | | | | | | All motor vehicle operators should undergo induction and environmental awareness training that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings and erosion is limited. |
| | Surface water, wetlands & aquatic ecosystems | Loss and degradation of wetlands. | 4 | Highly Probable | 4 | Very sensitive | 3 | Moderate | 1 | Short Term | 2 | Site | 40 | Moderate | All wetlands and water courses should be considered as "no-go' areas. |
| | | | | | | | | | | | | | | | 30 metre buffer zone to be implemented around all wetlands. |
| | | | | | | | | | | | | | | | Use wetland spatial data, load it onto a GPS and use it to mark out the prescribed 30 m buffer on the boundary of a wetland. |
| | | | | | | | | | | | | | | | All vehicles and equipment must be well maintained to ensure that there are no oil or fuel leakages. |
| | Air Quality & Noise | Vehicle traffic will generate increased emissions, dust and noise. | 3 | Probable | 3 | Sensitive | 3 | Moderate | 2 | Short to Medium Term | 3 | Local | 33 | Low | Machinery and equipment will be regularly serviced. |
| | | | | | | | | | | | | | | | Communicate with landowners to ensure work schedules are communicated to them and that they are aware that noise will be generated and over what period this may affect them. |
| | | | | | | | | | | | | | | | Limit activities to daylight hours. 07:00am - 17:00pm. |

| Activity | Aspect | Impact / Risk Description | Probability | | Sensitivity of the Aspect | | Severity of the Impact (Magnitude) | | Duration | | Scale / Extent | | Significance (without Mitigation) | | Proposed Management Actions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | Establish speed limits that will effectively reduce dust generation on roads. |
| | | | | | | | | | | | | | | | Manage dust through water carts and wetting the area of activity if and when required. |
| | Heritage | Inadvertent damage to subsurface graves, heritage sites, archaeological finds and fossils. | 2 | Possible | 5 | Irreplaceable | 4 | Moderate to High | 5 | Permanent | 2 | Site | 32 | Low | High visibility flags must be placed near any graves that fall within close proximity of the activities. 30 metre buffer zone to be implemented. |
| | | | | | | | | | | | | | | | All vehicles and personnel should make use of any existing roads and walking paths as far as possible. Sign-off of off-road routes must be obtained from the ECO and landowner before off-road activities take place. |
| | | | | | | | | | | | | | | | All routes must be walked through at least once prior to first location of prospecting to ensure no unmarked graves were missed in the Heritage Impact Assessment. |
| | | | | | | | | | | | | | | | Stop work immediately. Chance find protocol to be implemented. Refer to Section 17.1.2 for details. |
| | | | | | | | | | | | | | | | All contractors and site personnel must undergo induction and environmental awareness training, which must include details of the Chance Find Protocol. Proof of induction to be kept on file. |
| | Socio-Economic | Increased risk of unfamiliar people may result in a risk of safety and security to the landowner/user. Increased risk of stock theft / loss. | 3 | Probable | 4 | Very sensitive | 3 | Moderate | 2 | Short to Medium Term | 3 | Local | 36 | Low | All contractors and site personnel must undergo induction and environmental awareness training. Proof of induction to be kept on file. |
| | | | | | | | | | | | | | | | All farm gates must be kept closed. |
| | | | | | | | | | | | | | | | Contractors and site personnel must carry company identification. |
| | | | | | | | | | | | | | | | Any employee or contractor found guilty of stock theft and/or misconduct will be dealt with according to Matsopa's disciplinary procedures. |
| | | | | | | | | | | | | | | | No trapping, killing, or poisoning of any wildlife is to be allowed. Signs must be put up to enforce this. |
| Establish working area: Clearing of vegetation Stripping & stockpiling of topsoil | Soils, Land Use & Capability | Loss of topsoil and fertility. | 4 | Highly Probable | 3 | Sensitive | 2 | Slight to Moderate | 2 | Short to Medium Term | 1 | Isolated | 32 | Low | Strip and stockpile topsoil appropriately. This can be used for rehabilitation of the drill site. |
| | | Increased risk for erosion. | 4 | Highly Probable | 3 | Sensitive | 2 | Slight to Moderate | 2 | Short to Medium Term | 1 | Isolated | 32 | Low | Restrict all activities to within the designated footprint area. |
| | | | | | | | | | | | | | | | Minimise unnecessary clearing of vegetation. Retain as much vegetation cover as possible for all selected routes and working areas. Removed vegetation should be preserved and replaced for rehabilitation of the drill sites. |
| | | | | | | | | | | | | | | | Landscape and re-vegetate denuded areas as soon as possible |
| | Fauna & Flora | Encroachment of alien invasive species | 4 | Highly Probable | 3 | Sensitive | 4 | Moderate to High | 3 | Medium Term | 3 | Local | 52 | Moderate | Prior to entering the site, all heavy machinery must be thoroughly cleaned and checked to avoid introduction of soil and seeds. |
| | | | | | | | | | | | | | | | The use of herbicides is not recommended in or near wetlands (opt for mechanical removal). |
| | | | | | | | | | | | | | | | Promptly remove all alien and invasive plant species that may emerge during drilling and related activities (i.e. weedy annuals and other alien forbs). |
| | | Destruction and/or disturbance of | 4 | Highly Probable | 5 | Irreplaceable | 3 | Moderate | 3 | Medium Term | 4 | Regional | 60 | High | A qualified ECO must be on site when activities commence on site. |

| Activity | Aspect | Impact / Risk Description | Probability | | Sensitivity of the Aspect | | Severity of the Impact (Magnitude) | | Duration | | Scale / Extent | | Significance (without Mitigation) | | Proposed Management Actions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | fauna and flora species, and sensitive habitat areas. SCC have been identified within the PRA. | | | | | | | | | | | | | High visibility flags must be placed near any protected or threatened plants (SCC) in order to avoid any damage or destruction. |
| | | | | | | | | | | | | | | | No plants of SCC may be damaged or relocated without the necessary permits. Preferably, the plants should be relocated to an area that will not be impacted on by future activities. |
| | | | | | | | | | | | | | | | All highly sensitive areas should be considered as "no-go areas". Any planned activities should be realigned to prioritise prospecting within low/medium sensitivity areas |
| | | | | | | | | | | | | | | | All activities must be restricted to within the low/medium sensitivity areas. No unnecessary loss of highly sensitivity areas should be permitted. |
| | | | | | | | | | | | | | | | It is recommended that areas to be disturbed be specifically demarcated so that during the activity phase, only the demarcated areas be impacted upon. |
| | | | | | | | | | | | | | | | Activities (incl. the drilling of boreholes) must be done in a progressive manner in order to allow burrowing animals time to move off and to prevent trapping. Should any holes remain open overnight they must be covered temporarily to ensure no fauna species fall in. |
| | | | | | | | | | | | | | | | All areas earmarked for disturbance must be walked through at least once prior to first location of prospecting to ensure no faunal species remain in the habitat and get killed. Should animals not move out of the area on their own relevant specialists must be contacted to advise on how the species can be relocated. |
| | | | | | | | | | | | | | | | Should any SCC fauna be observed on site before or during activities, all activities must cease immediately, and a relevant specialist must be consulted in order to facilitate the capture or removal of the animal. |
| | | | | | | | | | | | | | | | Minimise unnecessary clearing of vegetation. Retain as much vegetation cover as possible for all selected routes and working areas. Removed vegetation should be preserved and replaced for rehabilitation of the drill sites. |
| | | | | | | | | | | | | | | | All contractors and labour must undergo environmental awareness training, and be encouraged to maintain a "clean" working area, and report any (potential) risks to the environment as a result of the drilling programme. |
| | | | | | | | | | | | | | | | No trapping, killing, or poisoning of any wildlife is to be allowed. Signs must be put up to enforce this. |
| | Surface water, wetlands & aquatic ecosystems | Potential silt loading of downstream water resources. | 3 | Probable | 3 | Sensitive | 2 | Slight to Moderate | 2 | Short to Medium Term | 1 | Isolated | 24 | Low | Restrict all activities to within the designated footprint area. |
| | | | | | | | | | | | | | | | Minimise unnecessary clearing of vegetation. Retain as much vegetation cover as possible for all selected routes and working areas. Removed vegetation should be preserved and replaced for rehabilitation of the drill sites. |
| | | | | | | | | | | | | | | | Landscape and re-vegetate denuded areas as soon as possible |
| | | Impeding/diverting the flow of water. | 4 | Highly Probable | 4 | Very sensitive | 3 | Moderate | 1 | Short Term | 3 | Local | 44 | Moderate | All wetlands and water courses should be considered as "no-go' areas. |
| | | | | | | | | | | | | | | | 30 metre buffer zone to be implemented around all wetlands. |

| Activity | Aspect | Impact / Risk Description | Probability | | Sensitivity of the Aspect | | Severity of the Impact (Magnitude) | | Duration | | Scale / Extent | | Significance (without Mitigation) | | Proposed Management Actions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | 100 metre buffer zone to be implemented around all rivers and tributaries. |
| | | Loss and degradation of wetlands. | 4 | Highly Probable | 4 | Very sensitive | 3 | Moderate | 3 | Medium Term | 2 | Site | 48 | Moderate | All wetlands and water courses should be considered as "no-go' areas. |
| | | | | | | | | | | | | | | | 30 metre buffer zone to be implemented around all wetlands. |
| | | | | | | | | | | | | | | | Use wetland spatial data, load it onto a GPS and use it to mark out the prescribed 30 m buffer on the boundary of a wetland. |
| | | | | | | | | | | | | | | | Restrict all activities to within the designated footprint area. |
| | | | | | | | | | | | | | | | Minimise unnecessary clearing of vegetation. Retain as much vegetation cover as possible for all selected routes and working areas. Removed vegetation should be preserved and replaced for rehabilitation of the drill sites. |
| | | | | | | | | | | | | | | | Appropriately stockpile topsoil cleared from the project area. This can be used for rehabilitation of the drill site. |
| | | | | | | | | | | | | | | | Site establishment must be undertaken in an orderly manner and all amenities must be installed before the onset of drilling. |
| | | | | | | | | | | | | | | | All structures must be temporary in nature. |
| | Air Quality & Noise | Construction activities will generate increased emissions, dust and noise | 4 | Highly Probable | 3 | Sensitive | 3 | Moderate | 2 | Short to Medium Term | 3 | Local | 44 | Moderate | Machinery and equipment will be regularly serviced. |
| | | | | | | | | | | | | | | | Communicate with landowners to ensure work schedules are communicated to them and that they are aware that noise will be generated and over what period this may affect them. |
| | | | | | | | | | | | | | | | Limit activities to daylight hours. 07:00am - 17:00pm. |
| | | | | | | | | | | | | | | | Establish speed limits that will effectively reduce dust generation on roads. |
| | | | | | | | | | | | | | | | Manage dust through water carts and wetting the area of activity if and when required. |
| | Socio-Economic | Damage to crops and interference with current land use. | 3 | Probable | 3 | Sensitive | 2 | Slight to Moderate | 2 | Short to Medium Term | 1 | Isolated | 24 | Low | No change in land use is proposed. |
| | | | | | | | | | | | | | | | Prospecting and related activities will be undertaken in the drier months as far as practically possible so as to accommodate the maize production season. |
| | Heritage | Inadvertent damage to subsurface graves, heritage sites, archaeological finds and fossils. | 2 | Possible | 5 | Irreplaceable | 4 | Moderate to High | 5 | Permanent | 2 | Site | 32 | Low | High visibility flags must be placed near any graves that fall within close proximity of the activities. 30 metre buffer zone to be implemented. |
| | | | | | | | | | | | | | | | All working areas must be walked through at least once prior to first location of prospecting to ensure no unmarked graves were missed in the Heritage Impact Assessment. |
| | | | | | | | | | | | | | | | Stop work immediately. Chance find protocol to be implemented. Refer to Section 17.1.2 for details. |
| | | | | | | | | | | | | | | | All contractors and site personnel must undergo induction and environmental awareness training, which must include details of the Chance Find Protocol. Proof of induction to be kept on file. |

| Activity | Aspect | Impact / Risk Description | Probability | | Sensitivity of the Aspect | | Severity of the Impact (Magnitude) | | Duration | | Scale / Extent | | Significance (without Mitigation) | | Proposed Management Actions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Establishment and operation of contractor's camp | Soils, groundwater, surface water, wetlands & aquatic ecosystems | Contamination from sewage, sanitary waste and human excrement. | 3 | Probable | 3 | Sensitive | 4 | Moderate to High | 2 | Short to Medium Term | 3 | Local | 36 | Low | Portable, chemical toilets to be provided. Contractors and employees must be encouraged to make use of the ablution and under no circumstances shall indiscriminately excrete or urinate in areas other than the supplied facilities.<br>All laydown, chemical toilets etc. should be restricted to low/medium sensitivity areas.<br>At least 1 portable, chemical toilet to be provided for every 10 persons. Sanitary bins to be provided.<br>Toilets to be located outside of the 1:100 year flood line and/or 100m horizontal distance whichever is further.<br>Toilets to be emptied on a regular basis for treatment at a suitably licensed facility. Waste disposal certificates to be kept on file.<br>A method statement is required from the Contractor(s) that includes the layout of the drilling site, amenities and wastewater / water management during drilling. |
| | Soils, groundwater, surface water, wetlands & aquatic ecosystems | Potential hydrocarbon contamination from spills and leaks. | 3 | Probable | 3 | Sensitive | 4 | Moderate to High | 4 | Long Term | 3 | Local | 42 | Moderate | Machinery and equipment will be regularly serviced.<br>No storage of vehicles or equipment will be allowed outside of the designated project areas at any time.<br>Drip trays to be placed under vehicles and machinery when not in use.<br>No servicing of equipment on site unless absolutely necessary. Leaking equipment must be repaired immediately or be removed from site to facilitate repair.<br>No storage of vehicles or equipment will be allowed outside of the designated drilling site or contractor's camp area.<br>Spill kits must kept on site.<br>All contaminated soil shall be treated in situ or removed and be placed in containers for disposal at a licensed facility.<br>All contractors and site personnel must undergo induction and environmental awareness training. Which training must include the use of spill kits.<br>All hydrocarbons to be stored within portable bund facilities. Bund facilities must have a capacity equal to the storage plus 10%.<br>A method statement is required from the Contractor(s) that includes the layout of the drilling site, amenities and wastewater / water management during drilling. |
| | Soils, groundwater, surface water, wetlands & aquatic ecosystems | Leachates from littering and illegal dumping will leach into the soils and water resources. | 3 | Probable | 3 | Sensitive | 3 | Moderate | 3 | Medium Term | 3 | Local | 36 | Low | Sealable bins to be provided. These are to be emptied weekly for disposal at a licensed facility. Waste disposal certificates to be kept on file.<br>Separate bins to be provided for domestic/general waste and hazardous waste (oil rags, used hydrocarbons etc.).<br>All contractors and site personnel must undergo induction and environmental awareness training. Which training must include littering and waste management.<br>A method statement is required from the Contractor(s) that includes the layout of the drilling site, amenities and wastewater / water management during drilling. |

| Activity | Aspect | Impact / Risk Description | Probability | | Sensitivity of the Aspect | | Severity of the Impact (Magnitude) | | Duration | | Scale / Extent | | Significance (without Mitigation) | | Proposed Management Actions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Air Quality, Fauna & Flora, Health & Safety, Socio-Economic | Increased risk for veldt fire. | 2 | Possible | 3 | Sensitive | 3 | Moderate | 2 | Short to Medium Term | 2 | Site | 20 | Low | No open fires will be permitted on site.<br>Fire extinguishers will be provided.<br>All contractors and site personnel must undergo induction and environmental awareness training.<br>Matsopa will join the local fire protection association. In the event that there is no fire protection association Matsopa join local community groups to stay in contact with local landowners and users. |
| Drilling of boreholes | Air Quality & Noise | Operation of the drill rig will generate increased emissions, dust and noise. | 4 | Highly Probable | 3 | Sensitive | 2 | Slight to Moderate | 2 | Short to Medium Term | 3 | Local | 40 | Moderate | Machinery and equipment will be regularly serviced.<br>Limit activities during periods of high wind.<br>Communicate with landowners to ensure work schedules are communicated to them and that they are aware that noise will be generated and over what period this may affect them.<br>Limit activities to daylight hours. 07:00am - 17:00pm. |
| | | Damage of hearing to workers near loud machinery (drill rig and generators) | 2 | Possible | 4 | Very sensitive | 3 | Moderate | 2 | Short to Medium Term | 1 | Isolated | 20 | Low | Workers to wear PPE (ear plugs) when near loud machinery |
| | Soils, Land Use & Capability | Loss of topsoil and fertility. | 3 | Probable | 3 | Sensitive | 2 | Slight to Moderate | 2 | Short to Medium Term | 1 | Isolated | 24 | Low | An appropriate ground sheeting must be placed around expected borehole. During drilling, soil displaced will thus spill out onto the ground sheeting and not onto surrounding topsoils. |
| | Heritage | Inadvertent damage to fossils. | 1 | Unlikely | 5 | Irreplaceable | 5 | High | 5 | Permanent | 1 | Isolated | 16 | Insignificant | Stop work immediately. Chance find protocol to be implemented. Refer to Section 17.1.2 for details.<br>All contractors and site personnel must undergo induction and environmental awareness training, which must include details of the Chance Find Protocol. Proof of induction to be kept on file. |
| Rehabilitation of boreholes, Removal of structures, machinery & vehicles | Topography, Health & Safety (injury to livestock) | Localised dips in topography if boreholes collapse after material is replaced. | 3 | Probable | 2 | Somewhat sensitive | 4 | Moderate to High | 5 | Permanent | 1 | Isolated | 36 | Low | Rehabilitation should be completed for the closure of each hole, and not at the end of the drilling programme<br>The replaced material must be compacted into the hole. A small raised mound can be present to allow for settlement of material. To ensure this, the amount of samples taken must not exceed the likely bulking factor of 20% of the fully displaced material – i.e. a material shortage leaving a depression must be prevented. |
| | Soils, Land Use & Capability | Loss of topsoil and fertility. | 3 | Probable | 3 | Sensitive | 2 | Slight to Moderate | 2 | Short to Medium Term | 1 | Isolated | 24 | Low | Re-instate topsoil and lightly till disturbance footprint. |
| | | Increased risk for erosion. | 4 | Highly Probable | 3 | Sensitive | 2 | Slight to Moderate | 2 | Short to Medium Term | 1 | Isolated | 32 | Low | All disturbed and compacted footprint areas must be rehabilitated and landscaped after drilling is complete. These areas must either be rehabilitated to the original land use or an agreed upon land use.<br>Revegetation of the impacted areas may not be practical as a large portion of the proposed prospecting area is ploughed lands however, prevention of the establishment of alien invasive flora must be carried out. |

## 9.13 Summary of Specialist Reports

| LIST OF STUDIES UNDERTAKEN | RECOMMENDATIONS OF SPECIALIST REPORTS | SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable) | REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED. |
|---|---|---|---|
| Geohydrological Assessment | • Reasonable and sound groundwater protection measures are recommended to ensure that no cumulative pollution affects the aquifer, during short- and long-term. If any potential polluting risks exist, measures must be taken to limit the impact to the environment, which in this case is the protection of the underlying aquifer for future uses /generations.<br>• Regular water monitoring should be undertaken at the existing Koppies Mine (in-pit, upstream, downstream and at the mine discharge points). | X | The recommendations and associated mitigation measures have been included in the mitigation measures section of Table 11. |
| Soils/Agricultural Compliance Statement | • Considering the nature of the proposed activities and the low to moderate sensitivity soil resources, it is the specialist's opinion that no segregation of farming practices nor loss of land capability for periods longer than 7 days are expected. Borehole drilling together with rehabilitation back to the initial land | X | - |

| LIST OF STUDIES UNDERTAKEN | RECOMMENDATIONS OF SPECIALIST REPORTS | SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable) | REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED. |
|---|---|---|---|
| | capability will take place within 7 days which ensures the conservation of land potential resources. Therefore, it is recommended that the proposed activities proceed as have been planned. | | |
| Terrestrial Biodiversity Assessment | • It is recommended that a further specialist field survey be conducted in order to confirm or disprove the presence of the Sungazer lizard in the project area. Until this survey can be conducted and completed, the grassland habitat should be classified as a strict 'no-go' area.<br>• A large number of provincially protected Boophone disticha plant species were recorded across the grassland portions of the project area. ll species of this plant be avoided during the drilling activities. If this cannot be avoided, then the plants should be translocated to formally protected areas.<br>• The portions of land within the project area that are classified as having a | X | The grassland habitat has been classified as a no-go area and excluded from the prospecting programme. The final proposed layout is indicated in Plan 20.<br><br>The recommendations and associated mitigation measures have been included in the mitigation measures section of Table 11. |

| LIST OF STUDIES UNDERTAKEN | RECOMMENDATIONS OF SPECIALIST REPORTS | SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable) | REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED. |
|---|---|---|---|
| | sensitivity rating of 'Very Low' to 'Low", namely the transformed and degraded grassland habitats are likely to face minimal further impacts from any low to medium impact activities, and as such the proposed activities may only proceed within these areas. | | |
| Freshwater Ecology Assessment | • Wetland areas to be excluded from the drilling programme.<br>• A 30 m post-mitigation buffer zone has been calculated. It is recommended that all drill sites be located outside (or beyond) the 30 m buffer zone. Wetland spatial data to be used to mark out the prescribed buffer onsite.<br>• Drill sites must be decommissioned and rehabilitated on completion of drilling each hole, and not left to be rehabilitated on completion of the drilling programme; and<br>• Existing access routes should be prioritised for the programme, with all newly required features adhering to the 30m buffer zone.<br>• Additional mitigation measures are | X | The final proposed layout excludes all wetland areas (Plan 20).<br>The recommendations and associated mitigation measures have been included in the mitigation measures section of Table 11. |

| LIST OF STUDIES UNDERTAKEN | RECOMMENDATIONS OF SPECIALIST REPORTS | SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable) | REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED. |
|---|---|---|---|
| | prescribed in the specialist study should be incorporated into the EMP. | | |
| Heritage Impact Assessment (inc. Palaeontology) | • Based on the drill point locations no adverse impact to heritage resources is expected with the correct mitigation in place. It is recommended that the project can commence on the condition that the following recommendations are implemented as part of the EMP and based on approval from SAHRA.<br>• Recorded features should be indicated on development plans and avoided with a 30-metre buffer zone<br>• Existing access roads should be used.<br>• The features should be monitored by the ECO during prospecting to ensure that there is no indirect impact.<br>• Implementation of a chance find procedure for the project. Refer to Section 17.1.2 for details. | X | The recommendations have been included in the mitigation measures section of Table 9 . |

**The relevant Specialist Reports are attached as Annexure 4 - Annexure 8.**

## 9.14 Environmental impact statement

### 9.14.1 Summary of the key findings of the environmental impact assessment;

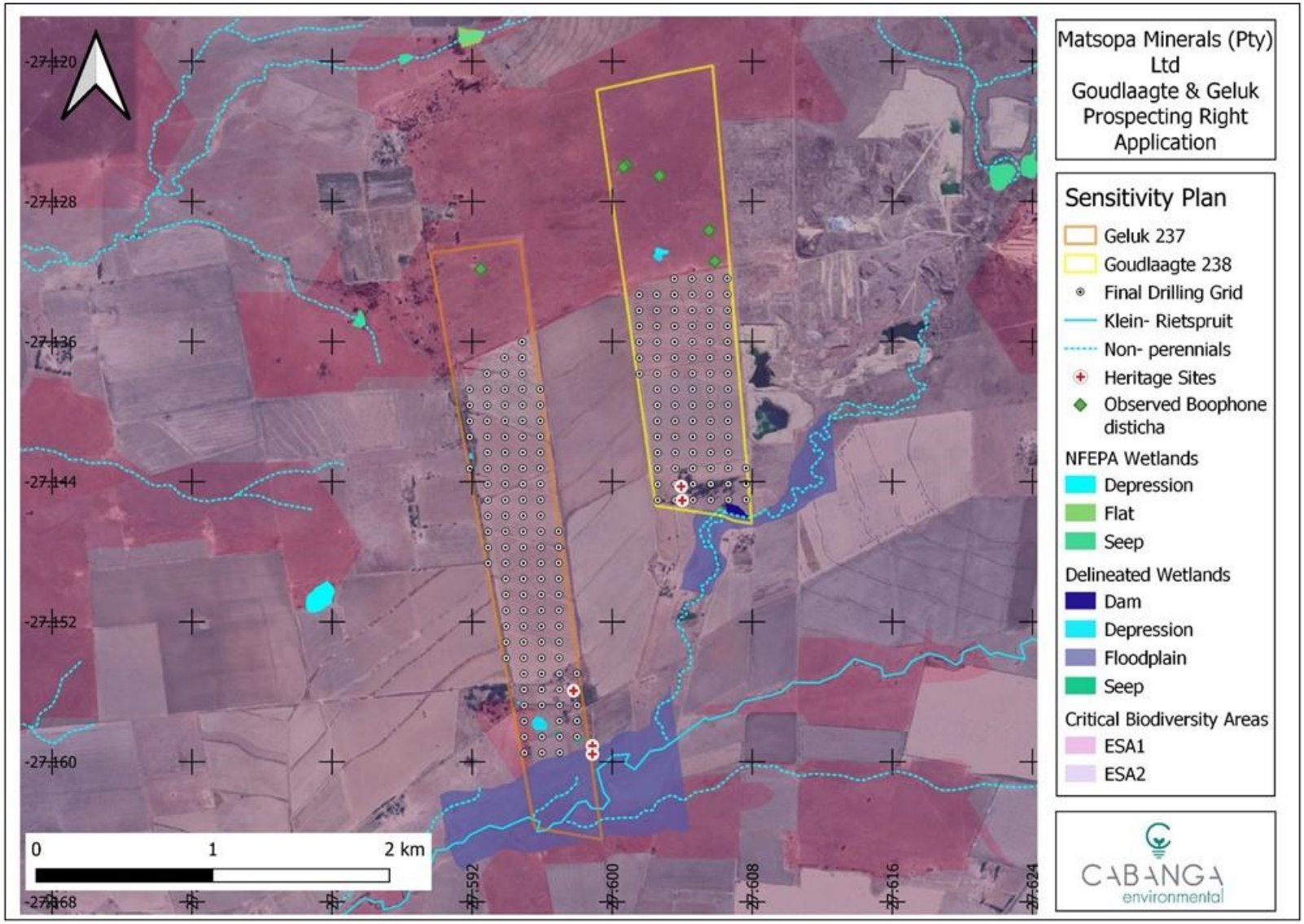
The final proposed layout excludes all areas with 'High' to 'Very High' Sensitivity.

It is noted that just over half of the project area is allocated a 'Low" to 'Very Low' sensitivity. These areas namely, the transformed and degraded grassland habitats, are likely to face minimal further impacts from prospecting activities.

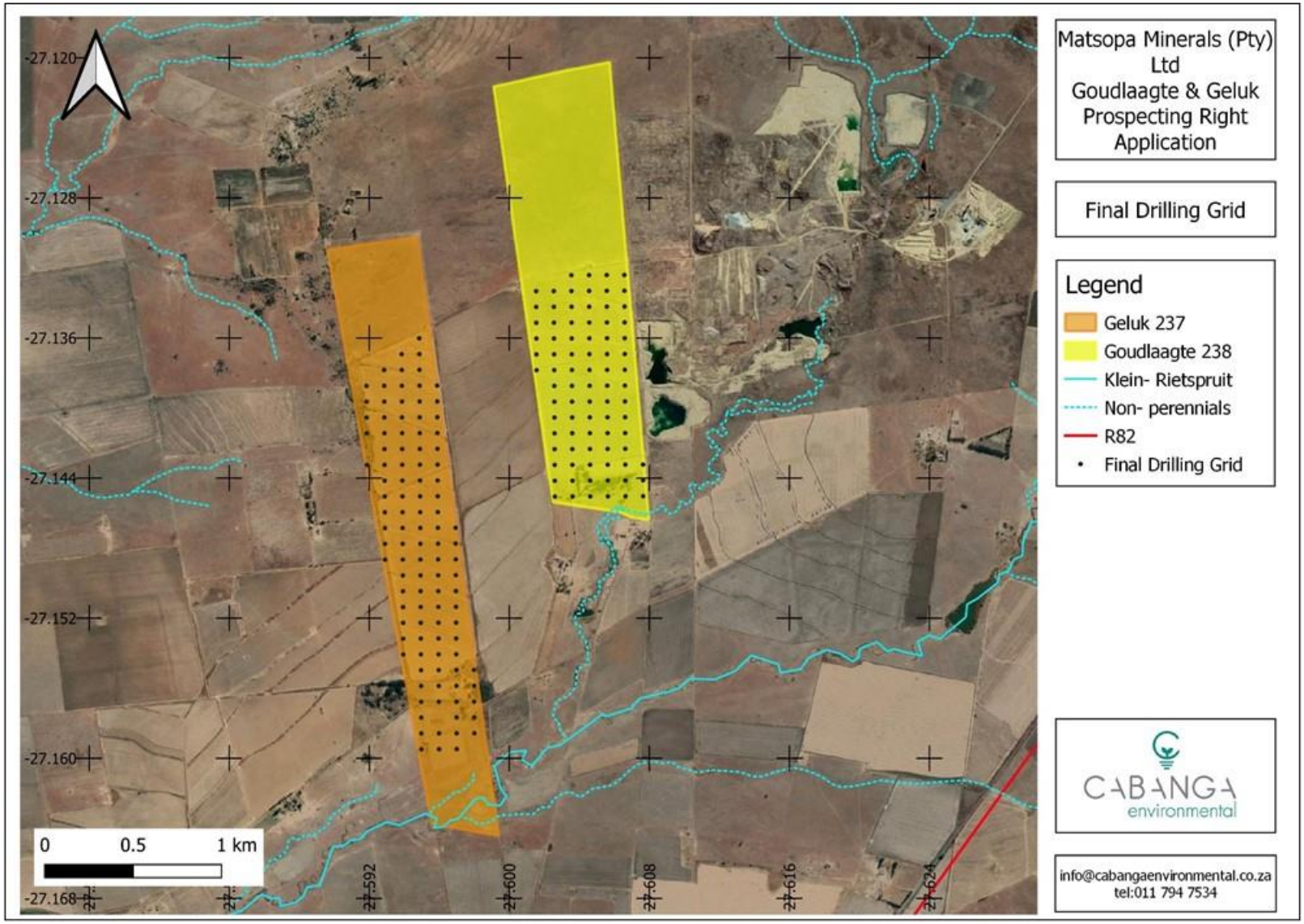
With proper implementation of the EMP, no post mitigation impacts are expected to exceed a Significance of Low.

## 9.15 Final Site Map

The final site map indicating the preferred layout is depicted in Plan 20 overleaf.




**Plan 19: Final Site Map overlayed with Environmental Sensitivities**




**Plan 20: Final Site Map**

### 9.16 Summary of the Positive and Negative Implications and Risks of the Proposed Activity and Identified Alternatives

Table 12 below, summarises the impacts associated with the project **post-mitigation.**

**Table 12: Summary of Post Mitigation Significance**

| Activity | Aspect | Impact / Risk Description | Probability | | Sensitivity of the Aspect | | Severity of the Impact | | Duration | | Scale / Extent | | Significance (with Mitigation) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Access to site, including overland movement of drill rig and equipment to drilling locations | Soils, Land Use & Capability | Potential compaction of soils. | 3 | Probable | 3 | Sensitive | 1 | Slight | 2 | Short to Medium Term | 1 | Isolated | 21 | Low |
| | Fauna & Flora | Destruction and/or disturbance of fauna and flora species, and sensitive habitat areas. SCC have been identified within the PRA. | 2 | Possible | 5 | Irreplaceable | 3 | Moderate | 2 | Short to Medium Term | 4 | Regional | 28 | Low |
| | Surface water, wetlands & aquatic ecosystems | Loss and degradation of wetlands. | 2 | Possible | 4 | Very sensitive | 3 | Moderate | 1 | Short Term | 2 | Site | 20 | Low |
| | Air Quality & Noise | Vehicle traffic will generate increased emissions, dust and noise. | 2 | Possible | 3 | Sensitive | 3 | Moderate | 2 | Short to Medium Term | 3 | Local | 22 | Low |
| | Heritage | Inadvertent damage to subsurface graves, heritage sites, archaeological finds and fossils. | 1 | Unlikely | 5 | Irreplaceable | 3 | Moderate | 5 | Permanent | 2 | Site | 15 | Insignificant |
| | Socio-Economic | Increased risk of unfamiliar people may result in a risk of safety and security to the landowner/user. Increased risk of stock theft / loss. | 2 | Possible | 4 | Very sensitive | 3 | Moderate | 2 | Short to Medium Term | 3 | Local | 24 | Low |
| Establish working area: Clearing of vegetation Stripping & stockpiling of topsoil | Soils, Land Use & Capability | Loss of topsoil and fertility. | 2 | Possible | 3 | Sensitive | 2 | Slight to Moderate | 2 | Short to Medium Term | 1 | Isolated | 16 | Insignificant |
| | | Increased risk for erosion. | 2 | Possible | 3 | Sensitive | 2 | | 2 | | 1 | Isolated | 16 | Insignificant |

| Activity | Aspect | Impact / Risk Description | Probability | | Sensitivity of the Aspect | | Severity of the Impact | | Duration | | Scale / Extent | | Significance (with Mitigation) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Slight to Moderate | | Short to Medium Term | | | | |
| | Fauna & Flora | Encroachment of alien invasive species | 3 | Probable | 3 | Sensitive | 4 | Moderate to High | 3 | Medium Term | 3 | Local | 39 | Low |
| | | Destruction and/or disturbance of fauna and flora species, and sensitive habitat areas. SCC have been identified within the PRA. | 2 | Possible | 5 | Irreplaceable | 3 | Moderate | 3 | Medium Term | 4 | Regional | 30 | Low |
| | Surface water, wetlands & aquatic ecosystems | Potential silt loading of downstream water resources. | 2 | Possible | 3 | Sensitive | 2 | Slight to Moderate | 2 | Short to Medium Term | 1 | Isolated | 16 | Insignificant |
| | | Impeding/diverting the flow of water. | 2 | Possible | 4 | Very sensitive | 3 | Moderate | 1 | Short Term | 3 | Local | 22 | Low |
| | | Loss and degradation of wetlands. | 2 | Possible | 4 | Very sensitive | 3 | Moderate | 3 | Medium Term | 2 | Site | 24 | Low |

| Activity | Aspect | Impact / Risk Description | Probability | | Sensitivity of the Aspect | | Severity of the Impact | | Duration | | Scale / Extent | | Significance (with Mitigation) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | |
| | Air Quality & Noise | Construction activities will generate increased emissions, dust and noise | 2 | Possible | 3 | Sensitive | 3 | Moderate | 2 | Short to Medium Term | 3 | Local | 22 | Low |
| | Socio-Economic | Damage to crops and interference with current land use. | 2 | Possible | 3 | Sensitive | 2 | Slight to Moderate | 2 | Short to Medium Term | 1 | Isolated | 16 | Insignificant |
| | Heritage | Inadvertent damage to subsurface graves, heritage sites, archaeological finds and fossils. | 1 | Unlikely | 5 | Irreplaceable | 3 | Moderate | 5 | Permanent | 2 | Site | 15 | Insignificant |
| Establishment and operation of contractor's camp | Soils, groundwater, surface water, wetlands & aquatic ecosystems | Contamination from sewage, sanitary waste and human excrement. | 2 | Possible | 3 | Sensitive | 4 | Moderate to High | 2 | Short to Medium Term | 3 | Local | 24 | Low |
| | Soils, groundwater, surface water, wetlands & aquatic ecosystems | Potential hydrocarbon contamination from spills and leaks. | 2 | Possible | 3 | Sensitive | 4 | Moderate to High | 4 | Long Term | 2 | Site | 26 | Low |

| Activity | Aspect | Impact / Risk Description | Probability | | Sensitivity of the Aspect | | Severity of the Impact | | Duration | | Scale / Extent | | Significance (with Mitigation) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Soils, groundwater, surface water, wetlands & aquatic ecosystems | Leachates from littering and illegal dumping will leach into the soils and water resources. | 2 | Possible | 3 | Sensitive | 3 | Moderate | 3 | Medium Term | 2 | Site | 22 | Low |
| | Air Quality, Fauna & Flora, Health & Safety, Socio-Economic | Increased risk for veldt fire. | 1 | Unlikely | 3 | Sensitive | 3 | Moderate | 2 | Short to Medium Term | 2 | Site | 10 | Insignificant |
| Drilling of boreholes | Air Quality & Noise | Operation of the drill rig will generate increased emissions, dust and noise. | 3 | Probable | 3 | Sensitive | 2 | Slight to Moderate | 2 | Short to Medium Term | 3 | Local | 30 | Low |
| | | Damage of hearing to workers near loud machinery (drill rig and generators) | 1 | Unlikely | 4 | Very sensitive | 3 | Moderate | 2 | Short to Medium Term | 1 | Isolated | 10 | Insignificant |
| | Soils, Land Use & Capability | Loss of topsoil and fertility. | 2 | Possible | 3 | Sensitive | 2 | Slight to Moderate | 2 | Short to Medium Term | 1 | Isolated | 16 | Insignificant |
| | Heritage | Inadvertent damage to fossils. | 1 | Unlikely | 5 | Irreplaceable | 5 | High | 5 | Permanent | 1 | Isolated | 16 | Insignificant |
| Rehabilitation of boreholes, Removal of structures, machinery & vehicles | Topography, Health & Safety (injury to livestock) | Localised dips in topography if boreholes collapse after material is replaced. | 1 | Unlikely | 2 | Somewhat sensitive | 4 | Moderate to High | 5 | Permanent | 1 | Isolated | 12 | Insignificant |
| | Soils, Land Use & Capability | Loss of topsoil and fertility. | 2 | Possible | 3 | Sensitive | 2 | Slight to Moderate | 2 | Short to Medium Term | 1 | Isolated | 16 | Insignificant |
| | | Increased risk for erosion. | 2 | Possible | 3 | Sensitive | 2 | Slight to Moderate | 2 | Short to Medium Term | 1 | Isolated | 16 | Insignificant |

# 10 PROPOSED IMPACT MANAGEMENT OBJECTIVES AND OUTCOME FOR INCLUSION IN THE EMP

The objectives of impact mitigation and management are to:

- Primarily pre-empt impacts and prevent the realisation of these impacts -PREVENTION.
- To ensure activities that are expected to impact on the environment are undertaken and controlled in such a way so as to minimise their impacts – MODIFY and/or CONTROL.
- To ensure a system is in place for treating and/or rectifying any significant impacts that will occur due to the proposed activity – REMEDY.
- Implement an adequate monitoring programme to:
    - Ensure that mitigation and management measure are effective.
    - Allow quick detection of potential impacts, which in turn will allow for quick response to issue/impacts.
    - Reduce duration of any potential negative impacts.

Environmental impact management outcomes are:

- Conduct prospecting activities responsibly and ensure operation is compliant with legislative requirements.
- Protect the biophysical environment as far as possible, specifically wetlands, riverine areas, areas of high – very high sensitivity and SCC.
- Protect the water resources in the area as far as possible.
- Ensure adequate rehabilitation.
- Provide a safe environment for people to work in:
    - Ensure safety, health and environmental policies are established on site in line with national policy.
    - Ensure adequate PPE for staff, contractors and visitors to the site.
- Ensure socially responsible activities.
- Protect historical and cultural sites, including fossils, if they are observed on site.

# 11 ASPECTS FOR INCLUSION IN THE CONDITIONS OF AUTHORISATION

Granting of the environmental authorisation should be subject to the following conditions:

- Prospecting activities may only commence on approval of the General Authorisation to be issued by the Department of Water Affairs with regards to activities within the regulated area of a water resource (incl. wetlands).
- A suitably qualified person must be appointed to implement the EMP onsite. Regular inspections and monitoring is required to ensure full compliance with the EMP and other Regulatory requirements.
- Environmental awareness training is to be provided to all site personnel prior to commencement of activities.

# 12 ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

The following is a list of assumption, uncertainties and gaps as identified by the various specialists.

- It is assumed that all information received from the client is accurate.
- All datasets accessed and utilised for this assessment are considered to be representative of the most recent and suitable data for the intended purposes.
- Only a single season survey was conducted for the terrestrial and wetland assessments, namely a wet season survey.
- The handheld GPS used potentially could have inaccuracies up to 5 m. Any and all delineations therefore could be inaccurate within 5 m.
- Areas characterised by external wetland indicators were the focus for the wetland study. Areas lacking these characteristics have not been focussed on.
- Fieldwork was only undertaken within the proposed PRA, with desktop assessments being concluded for the remaining extent within the 500 m regulation area.
- Despite wetland indicators being identified within selected cultivated areas, the accuracy of delineating the extent of these wetland areas is comprised due to the agricultural practices. Wet areas within the cultivated areas could not be delineated with any appreciable level of confidence, and the locality of these wet areas has only be demarcated. The soil form identified for these area is the Westleigh form, generally characteristic of a seasonal wetland zone.
- It has been assumed that the extent of the project area provided to the specialists is accurate.
- Due to the subsurface nature of heritage resources, the possibility of discovery of heritage resources during the construction phase cannot be excluded. Also, thick grass cover and cultivated areas hampered ground visibility and although unlikely informal graves could have been undetected during the field survey. This limitation is successfully mitigated with the implementation of a chance find procedure and monitoring of the study area by the ECO.
- Based on the geology of the area and the palaeontological record as we know it, it can be assumed that the formation and layout of the dolomites, sandstones, shales and sands are typical for the country and do not contain fossil plant, insect, invertebrate and vertebrate material. The overlying soils and sands of the Quaternary period would not preserve fossils. Archaean and Jurassic igneous rocks do not have any fossils.

# 13 REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

Based on the impact assessment undertaken and the proposed mitigation measures, it is the opinion of the EAP project team that the project be favourably considered but that mitigation measures should be strictly adhered to.

# 14 PERIOD FOR WHICH ENVIRONMENTAL AUTHORISATION IS REQUIRED

Prospecting activities are likely to require 5 years, including initial data assessment. The EA is

requested for a period of 6 years in the event that additional permits or authorisations may be required once invasive prospecting activities commence.

# 15 UNDERTAKING

The undertaking can be found in Section 26 at the end of the report.

# 16 FINANCIAL PROVISION

A total of R77,436.41 is required for rehabilitation of the prospecting activities. Please refer to Section 22 for the detailed calculations.

## 16.1 Explain how the Aforesaid Amount was Derived

The financial guarantee was calculated using the DMRE's rules based quantum for financial provision.

Currently it is expected that each exploration site will be delimited to a maximum of 10m$^2$, whilst the contractor's camp will affect 200 m$^2$. Thus a total disturbed area of 3,500 m$^2$ has been assumed.

## 16.2 Confirm that this Amount can be Provided for from Operating Expenditure

The applicant will provide the necessary guarantees upon request by the DMRE.

# 17 SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

## 17.1 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:-

### 17.1.1 Impact on the socio-economic conditions of any directly affected person

No impacts on the socio-economic conditions of any directly affected persons are currently foreseen as a result of the Prospecting Programme. Prospecting is limited to reconnaissance and drilling; and thus the current land use of the properties in question will remain unchanged and can continue concurrent with the prospecting activities.

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

- A Phase I Heritage Impact Assessment, including a desktop Paleontological Assessment, has been conducted for the proposed project (Annexure 8 and Annexure 9.
    - No heritage sites will be directly impacted.
    - it is extremely unlikely that any fossils would be preserved in the Volksrust Formation. There is a very small chance that fragmentary and transported fossils may occur in the shales of the Permian Volksrust Formation.
    - A The possibility of the occurrence of subsurface finds cannot be excluded. If any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped, and a qualified archaeologist must be contacted for an assessment of the find. A chance find protocol has been included below.
    - This procedure applies to the all phases of the prospecting programme, and aims to establish monitoring and reporting procedures to ensure compliance with this NHRA. All contractors and site employees must be provided with induction and environmental awareness training, which training must include the details of the chance find protocol.

<u>Chance Find Protocol: Heritage Resources</u>

- If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager, Geologist and the ECO.
- It is the responsibility of the Geologist and ECO to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area.
- The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.
    - If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Sityhilelo Ngcatsha/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA.
    - If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Ngqalabutho Madida 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA.
- The following conditions apply with regards to the appointment of specialists:
    - If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required

subject to permits issued by SAHRA.

Chance Find Protocol: Palaeontology

The following procedure is only required if fossils are seen on the surface and when drilling commences:

- When activities begin the rocks and must be given a cursory inspection by the ECO or Geologist. Any fossiliferous material (plants, insects, bone, coal) should be put aside in a suitably protected place. This way the project activities will not be interrupted.
- Photographs of similar fossils must be provided to the developer to assist in recognizing the fossil plants, vertebrates, invertebrates or trace fossils in the shales and mudstones (refer to Annexure 9 for examples). This information must be included in the induction training and environmental awareness plan and procedures.
- Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment.
- If there is any possible fossil material found by the contractor/Geologist/ECO then the qualified palaeontologist sub-contracted for this project, should visit the site to inspect the selected material and check the dumps where feasible.
- Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site a SAHRA permit must be obtained. Annual reports must be submitted to SAHRA as required by the relevant permits.
- If no good fossil material is recovered then no site inspections by the palaeontologist will be necessary. A final report by the palaeontologist must be sent to SAHRA once the project has been completed and only if there are fossils.
- If no fossils are found and the prospecting has finished then no further monitoring is required.

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

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). Every application for EA must include: -

- Impact on the socio-economic conditions of any directly affected person.
    - The socio- economics of the area will not be negatively impacted.
    - The existing land use can continue concurrent to the proposed prospecting programme.
- Other matters required in terms of sections 24(4)(a) and (b) of the Act Section 24(4)(b)(i) of the Act specifies "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".
- This has been discussed under Section 7. Location alternatives are delimited by properties that are available (another company does not hold a prospecting right on the property) and geology of the area.

# PART B: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

## 18 DETAILS OF THE EAP

The requirement for the provision of the details and expertise of the EAP are included in Part A, Section 2.2 herein and Annexure 2 as required.

## 19 DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

Please refer to Part A, Section 4 herein as required.

## 20 COMPOSITE MAP

Please refer to Part A, Plan 19 herein. Also refer to Annexure 1 for A3 format.

## 21 DESCRIPTION OF IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

### 21.1 Determination of Closure Objectives

The closure objectives are:

- Ensure rehabilitated areas are made safe, are physically stable and free draining;
- Ensure the functionality of the environment as well as the current land use is not adversely affected; and
- To ensure that alien invasive establishment and spread on areas disturbed by prospecting is prevented and controlled.
- Eliminate safety threats to animals and humans.

### 21.2 Volumes and Rate of Water Use Required for the Operation

No processing water requirements.

Water will be brought onto site for potable use, this is estimated at 5 litres per person/day.

### 21.3 Has a Water Use Licence has been Applied For

Although no activities will be undertaken within a water resource, the proposed prospecting programme will be within the 500m regulated zone of a wetland. A General Authorisation is required in terms of Section 21(c) and (i) of the NWA. No application has been submitted as of yet however, the DWS has been notified as a key stakeholder for the project.

## 21.4 Impacts to be Mitigated in their Respective Phases

**Table 13: Measures to rehabilitate the environment affected by undertaking the listed activity**

| Activity | Aspect | Impact / Risk Description | Management Actions | Compliance with Standards | Standard to be Achieved/Impact Management Outcome | Time Period for Implementation |
|---|---|---|---|---|---|---|
| Access to site, including overland movement of drill rig and equipment to drilling locations | Soils, Land Use & Capability | Potential compaction of soils. | All vehicles and personnel should make use of any existing roads and walking paths as far as possible.<br>Sign-off of off-road routes must be obtained from the ECO and landowner before off-road activities take place. | CARA and NEMA regulations regarding soil amelioration.<br>General duty of care in terms of NEMA. | Reduce compaction of soil and maintain existing land capability. | Throughout all phases of the prospecting (operational and decommissioning). |
| | | | Compacted soils are to be ripped. | | | |
| | Fauna & Flora | Destruction and/or disturbance of fauna and flora species, and sensitive habitat areas. SCC have been identified within the PRA. | A qualified ECO must be on site when activities commence on site. | Protected species will be managed in accordance with NEM:BA and associated regulations.<br>General duty of care in terms of NEMA. | Ensure sensitive habitats and SCC are not damaged and/or harmed.<br>Keep the environmental disturbance to a minimum. | Throughout all phases of the prospecting (operational and decommissioning). |
| | | | High visibility flags must be placed near any protected or threatened plants (SCC) in order to avoid any damage or destruction. | | | |
| | | | No plants of SCC may be damaged or relocated without the necessary permits. Preferably, the plants should be relocated to an area that will not be impacted on by future activities. | | | |
| | | | All highly sensitive areas should be considered as "no-go areas". Any planned activities should be realigned to prioritise prospecting within low/medium sensitivity areas | | | |
| | | | All activities must be restricted to within the low/medium sensitivity areas. No unnecessary loss of highly sensitivity areas should be permitted. | | | |
| | | | It is recommended that areas to be disturbed be specifically demarcated so that during the activity phase, only the demarcated areas be impacted upon. | | | |
| | | | All routes must be walked through at least once prior to first location of prospecting to ensure no faunal species remain in the habitat and get killed. Should animals not move out of the area on their own relevant specialists must be contacted to advise on how the species can be relocated. | | | |
| | | | All motor vehicle operators should undergo induction and environmental awareness training that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings and erosion is limited. | | | |
| | Surface water, wetlands & aquatic ecosystems | Loss and degradation of wetlands. | All wetlands and water courses should be considered as "no-go' areas. | General duty of care in terms of NEMA & NWA.<br>Compliance with GN704 of the NWA.<br>Vehicles, machinery and equipment maintained within operational specification and legislative requirements. | Protection of water resources and maintain current PES.<br>Prevent disturbance to sensitive aquatic ecosystems.<br>Keep the environmental disturbance to a minimum. | Throughout all phases of the prospecting (operational and decommissioning). |
| | | | 30 metre buffer zone to be implemented around all wetlands. | | | |
| | | | Use wetland spatial data, load it onto a GPS and use it to mark out the prescribed 30 m buffer on the boundary of a wetland. | | | |
| | | | All vehicles and equipment must be well maintained to ensure that there are no oil or fuel leakages. | | | |
| | Air Quality & Noise | Vehicle traffic will generate increased emissions, dust and noise. | Machinery and equipment will be regularly serviced. | Vehicles, machinery and equipment maintained within operational specification and legislative requirements.<br>Dust fallout regulations as per | Minimise emissions from vehicles and machinery on site.<br>Minimise nuisance dust.<br>Prevent unnecessary noise. | Throughout all phases of the prospecting (operational and decommissioning). |
| | | | Communicate with landowners to ensure work schedules are communicated to them and that they are aware that noise will be generated and over what period this may affect them. | | | |
| | | | Limit activities to daylight hours. 07:00am - 17:00pm. | | | |

| Activity | Aspect | Impact / Risk Description | Management Actions | Compliance with Standards | Standard to be Achieved/Impact Management Outcome | Time Period for Implementation |
|---|---|---|---|---|---|---|
| | | | Establish speed limits that will effectively reduce dust generation on roads. | NEM:AQA.<br>Environmental Noise managed in terms of Free State Noise Control Regulations, 1998 published under Section 25 of the Environment Conservation Act, 1989.<br>Operations will comply with MHSA, Occupational Health and Safety Act, and all relevant Regulations as well as the Basic Conditions of Employment Act. | | |
| | | | Manage dust through water carts and wetting the area of activity if and when required. | | | |
| | Heritage | Inadvertent damage to subsurface graves, heritage sites, archaeological finds and fossils. | High visibility flags must be placed near any graves that fall within close proximity of the activities. 30 metre buffer zone to be implemented. | General duty of care in terms of NEMA.<br>Compliance with the NHRA. | Ensure preservation of graves, heritage sites and fossils. | Throughout all phases of the prospecting (operational and decommissioning). |
| | | | All vehicles and personnel should make use of any existing roads and walking paths as far as possible.<br>Sign-off of off-road routes must be obtained from the ECO and landowner before off-road activities take place. | | | |
| | | | All routes must be walked through at least once prior to first location of prospecting to ensure no unmarked graves were missed in the Heritage Impact Assessment. | | | |
| | | | Stop work immediately. Chance find protocol to be implemented. Refer to Section 17.1.2 for details. | | | |
| | Socio-Economic | Increased risk of unfamiliar people may result in a risk of safety and security to the landowner/user.<br>Increased risk of stock theft / loss. | All contractors and site personnel must undergo induction and environmental awareness training. Proof of induction to be kept on file. | Operations will comply with MHSA, Occupational Health and Safety Act, and all relevant Regulations as well as the Basic Conditions of Employment Act.<br>Compliance with MPRDA. | Limit possibilities for opportunistic criminals. | Throughout all phases of the prospecting (operational and decommissioning). |
| | | | All farm gates must be kept closed. | | | |
| | | | Contractors and site personnel must carry company identification. | | | |
| | | | Any employee or contractor found guilty of stock theft and/or misconduct will be dealt with according to Matsopa's disciplinary procedures. | | | |
| | | | No trapping, killing, or poisoning of any wildlife is to be allowed. Signs must be put up to enforce this. | | | |
| Establish working area: Clearing of vegetation Stripping & stockpiling of topsoil | Soils, Land Use & Capability | Loss of topsoil and fertility. | Strip and stockpile topsoil appropriately. This can be used for rehabilitation of the drill site. | CARA and NEMA regulations regarding soil amelioration.<br>General duty of care in terms of NEMA. | Maintain existing land capability.<br>Prevent unnecessary loss of soils due to erosion. | Throughout all phases of the prospecting (operational and decommissioning). |
| | | Increased risk for erosion. | Restrict all activities to within the designated footprint area. | | | |
| | | | Minimise unnecessary clearing of vegetation. Retain as much vegetation cover as possible for all selected routes and working areas. Removed vegetation should be preserved and replaced for rehabilitation of the drill sites. | | | |
| | | | Landscape and re-vegetate denuded areas as soon as possible | | | |
| | Fauna & Flora | Encroachment of alien invasive species | Prior to entering the site, all heavy machinery must be thoroughly cleaned and checked to avoid introduction of soil and seeds. | Compliance with NEM:BA and CARA.<br>General duty of care in terms of NEMA. | Maintain existing land capability.<br>Limit the impacts to surrounding fauna and flora. | Throughout all phases of the prospecting (operational and decommissioning). |
| | | | The use of herbicides is not recommended in or near wetlands (opt for mechanical removal). | | | |

| Activity | Aspect | Impact / Risk Description | Management Actions | Compliance with Standards | Standard to be Achieved/Impact Management Outcome | Time Period for Implementation |
|---|---|---|---|---|---|---|
| | | | Promptly remove all alien and invasive plant species that may emerge during drilling and related activities (i.e. weedy annuals and other alien forbs). | | Prevent the encroachment and spread of alien invasive species. | |
| | | Destruction and/or disturbance of fauna and flora species, and sensitive habitat areas. SCC have been identified within the PRA. | A qualified ECO must be on site when activities commence on site. | Protected species will be managed in accordance with NEM:BA and associated regulations.<br>General duty of care in terms of NEMA. | Ensure sensitive habitats and SCC are not damaged and/or harmed.<br>Keep the environmental disturbance to a minimum. | Throughout all phases of the prospecting (operational and decommissioning). |
| | | | High visibility flags must be placed near any protected or threatened plants (SCC) in order to avoid any damage or destruction. | | | |
| | | | No plants of SCC may be damaged or relocated without the necessary permits. Preferably, the plants should be relocated to an area that will not be impacted on by future activities. | | | |
| | | | All highly sensitive areas should be considered as "no-go areas". Any planned activities should be realigned to prioritise prospecting within low/medium sensitivity areas | | | |
| | | | All activities must be restricted to within the low/medium sensitivity areas. No unnecessary loss of highly sensitivity areas should be permitted. | | | |
| | | | It is recommended that areas to be disturbed be specifically demarcated so that during the activity phase, only the demarcated areas be impacted upon. | | | |
| | | | Activities (incl. the drilling of boreholes) must be done in a progressive manner in order to allow burrowing animals time to move off and to prevent trapping. Should any holes remain open overnight they must be covered temporarily to ensure no fauna species fall in. | | | |
| | | | All areas earmarked for disturbance must be walked through at least once prior to first location of prospecting to ensure no faunal species remain in the habitat and get killed. Should animals not move out of the area on their own relevant specialists must be contacted to advise on how the species can be relocated. | | | |
| | | | Should any SCC fauna be observed on site before or during activities, all activities must cease immediately, and a relevant specialist must be consulted in order to facilitate the capture or removal of the animal. | | | |
| | | | Minimise unnecessary clearing of vegetation. Retain as much vegetation cover as possible for all selected routes and working areas. Removed vegetation should be preserved and replaced for rehabilitation of the drill sites. | | | |
| | | | All contractors and labour must undergo environmental awareness training, and be encouraged to maintain a "clean" working area, and report any (potential) risks to the environment as a result of the drilling programme. | | | |
| | | | No trapping, killing, or poisoning of any wildlife is to be allowed. Signs must be put up to enforce this. | | | |
| | Surface water, wetlands & aquatic ecosystems | Potential silt loading of downstream water resources. | Restrict all activities to within the designated footprint area. | General duty of care in terms of NEMA & NWA.<br>Compliance with GN704 of the NWA. | Prevent unnecessary loss of soils due to erosion and subsequent siltation of downstream water resources.<br>Protection of water resources and maintain current PES.<br>Prevent disturbance to sensitive aquatic ecosystems. | Throughout all phases of the prospecting (operational and decommissioning). |
| | | | Minimise unnecessary clearing of vegetation. Retain as much vegetation cover as possible for all selected routes and working areas. Removed vegetation should be preserved and replaced for rehabilitation of the drill sites. | | | |
| | | | Landscape and re-vegetate denuded areas as soon as possible | | | |

| Activity | Aspect | Impact / Risk Description | Management Actions | Compliance with Standards | Standard to be Achieved/Impact Management Outcome | Time Period for Implementation |
|---|---|---|---|---|---|---|
| | | | | | Keep the environmental disturbance to a minimum. | |
| | | Impeding/diverting the flow of water. | All wetlands and water courses should be considered as "no-go' areas.<br>30 metre buffer zone to be implemented around all wetlands.<br>100 metre buffer zone to be implemented around all rivers and tributaries. | General duty of care in terms of NEMA & NWA.<br>Compliance with GN704 of the NWA. | Protection of water resources and maintain current PES.<br>Prevent disturbance to sensitive aquatic ecosystems.<br>Keep the environmental disturbance to a minimum. | Throughout all phases of the prospecting (operational and decommissioning). |
| | | Loss and degradation of wetlands. | All wetlands and water courses should be considered as "no-go' areas.<br>30 metre buffer zone to be implemented around all wetlands.<br>Use wetland spatial data, load it onto a GPS and use it to mark out the prescribed 30 m buffer on the boundary of a wetland.<br>Restrict all activities to within the designated footprint area.<br>Minimise unnecessary clearing of vegetation. Retain as much vegetation cover as possible for all selected routes and working areas. Removed vegetation should be preserved and replaced for rehabilitation of the drill sites.<br>Appropriately stockpile topsoil cleared from the project area. This can be used for rehabilitation of the drill site.<br>Site establishment must be undertaken in an orderly manner and all amenities must be installed before the onset of drilling.<br>All structures must be temporary in nature. | General duty of care in terms of NEMA & NWA.<br>Compliance with GN704 of the NWA. | Protection of water resources and maintain current PES.<br>Prevent disturbance to sensitive aquatic ecosystems.<br>Keep the environmental disturbance to a minimum<br>Ensure successful rehabilitation of prospecting activities. | Throughout all phases of the prospecting (operational and decommissioning). |
| | Air Quality & Noise | Construction activities will generate increased emissions, dust and noise | Machinery and equipment will be regularly serviced.<br>Communicate with landowners to ensure work schedules are communicated to them and that they are aware that noise will be generated and over what period this may affect them.<br>Limit activities to daylight hours. 07:00am - 17:00pm.<br>Establish speed limits that will effectively reduce dust generation on roads.<br>Manage dust through water carts and wetting the area of activity if and when required. | Vehicles, machinery and equipment maintained within operational specification and legislative requirements.<br>Dust fallout regulations as per NEM:AQA.<br>Environmental Noise managed in terms of Free State Noise Control Regulations, 1998 published under Section 25 of the Environment Conservation Act, 1989.<br>Operations will comply with MHSA, Occupational Health and Safety Act, and all relevant Regulations as well as the Basic Conditions of Employment Act. | Minimise emissions from vehicles and machinery on site.<br>Minimise nuisance dust.<br>Prevent unnecessary noise. | Throughout all phases of the prospecting (operational and decommissioning). |
| | Socio-Economic | Damage to crops and interference with current land use. | No change in land use is proposed.<br>Prospecting and related activities will be undertaken in the drier months as far as practically possible so as to accommodate the maize production season. | General duty of care in terms of NEMA & NWA.<br>Compliance with CARA. | Maintain existing land capability.<br>Limit the economic impacts on the surface rights holder. | Operational Phase |

| Activity | Aspect | Impact / Risk Description | Management Actions | Compliance with Standards | Standard to be Achieved/Impact Management Outcome | Time Period for Implementation |
|---|---|---|---|---|---|---|
| | Heritage | Inadvertent damage to subsurface graves, heritage sites, archaeological finds and fossils. | High visibility flags must be placed near any graves that fall within close proximity of the activities. 30 metre buffer zone to be implemented.<br>All working areas must be walked through at least once prior to first location of prospecting to ensure no unmarked graves were missed in the Heritage Impact Assessment.<br>Stop work immediately. Chance find protocol to be implemented. Refer to Section 17.1.2 for details. | General duty of care in terms of NEMA.<br>Compliance with the NHRA. | Ensure preservation of graves, heritage sites and fossils. | Throughout all phases of the prospecting (operational and decommissioning). |
| Establishment and operation of contractor's camp | Soils, groundwater, surface water, wetlands & aquatic ecosystems | Contamination from sewage, sanitary waste and human excrement. | Portable, chemical toilets to be provided. Contractors and employees must be encouraged to make use of the ablution and under no circumstances shall indiscriminately excrete or urinate in areas other than the supplied facilities.<br>All laydown, chemical toilets etc. should be restricted to low/medium sensitivity areas.<br>At least 1 portable, chemical toilet to be provided for every 10 persons. Sanitary bins to be provided.<br>Toilets to be located outside of the 1:100 year flood line and/or 100m horizontal distance whichever is further.<br>Toilets to be emptied on a regular basis for treatment at a suitably licensed facility. Waste disposal certificates to be kept on file.<br>A method statement is required from the Contractor(s) that includes the layout of the drilling site, amenities and wastewater / water management during drilling. | General duty of care in terms of NEMA & NWA.<br>Compliance with GN704 of the NWA.<br>Operations will comply with MHSA, Occupational Health and Safety Act, and all relevant Regulations as well as the Basic Conditions of Employment Act.<br>Compliance with NEMWA and Norms and Standards where relevant. | Reduced bacterial contamination and associated health effects on workers, the environment and neighbouring areas.<br>Contain dirty water. | Throughout all phases of the prospecting (operational and decommissioning). |
| | Soils, groundwater, surface water, wetlands & aquatic ecosystems | Potential hydrocarbon contamination from spills and leaks. | Machinery and equipment will be regularly serviced.<br>No storage of vehicles or equipment will be allowed outside of the designated project areas at any time.<br>Drip trays to be placed under vehicles and machinery when not in use.<br>No servicing of equipment on site unless absolutely necessary. Leaking equipment must be repaired immediately or be removed from site to facilitate repair.<br>No storage of vehicles or equipment will be allowed outside of the designated drilling site or contractor's camp area.<br>Spill kits must kept on site.<br>All contaminated soil shall be treated in situ or removed and be placed in containers for disposal at a licensed facility.<br>All contractors and site personnel must undergo induction and environmental awareness training. Which training must include the use of spill kits.<br>All hydrocarbons to be stored within portable bund facilities. Bund facilities must have a capacity equal to the storage plus 10%.<br>A method statement is required from the Contractor(s) that includes the layout of the drilling site, amenities and wastewater / water management during drilling. | General duty of care in terms of NEMA & NWA.<br>Compliance with GN704 of the NWA | Limit the possibility of leaks from vehicles and machinery.<br>Prevent the contamination of soils and water resources.<br>Contain and control any spills. | Throughout all phases of the prospecting (operational and decommissioning). |
| | Soils, groundwater, surface water, wetlands & | Leachates from littering and illegal dumping will leach into the soils and water resources. | Sealable bins to be provided. These are to be emptied weekly for disposal at a licensed facility. Waste disposal certificates to be kept on file.<br>Separate bins to be provided for domestic/general waste and hazardous waste (oil rags, used hydrocarbons etc.). | General duty of care in terms of NEMA & NWA.<br>Compliance with the NEMWA and Norms and Standards where relevant. | Attain "cradle to grave" management of waste on site. | Throughout all phases of the prospecting (operational and decommissioning). |

| Activity | Aspect | Impact / Risk Description | Management Actions | Compliance with Standards | Standard to be Achieved/Impact Management Outcome | Time Period for Implementation |
|---|---|---|---|---|---|---|
| | aquatic ecosystems | | All contractors and site personnel must undergo induction and environmental awareness training. Which training must include littering and waste management.<br>A method statement is required from the Contractor(s) that includes the layout of the drilling site, amenities and wastewater / water management during drilling. | | Prevent the contamination of soils and water resources.<br>Limit the possibility of littering and wind strewn waste. | |
| | Air Quality, Fauna & Flora, Health & Safety, Socio-Economic | Increased risk for veldt fire. | No open fires will be permitted on site.<br>Fire extinguishers will be provided.<br>All contractors and site personnel must undergo induction and environmental awareness training.<br>Matsopa will join the local fire protection association. In the event that there is no fire protection association Matsopa join local community groups to stay in contact with local landowners and users. | Compliance with National Veld and Forest Fire Act, Act 101 of 1998 and CARA.<br>General duty of care in terms of NEMA.<br>Operations will comply with MHSA, Occupational Health and Safety Act, and all relevant Regulations as well as the Basic Conditions of Employment Act. | Prevent and control fires. | Throughout all phases of the prospecting (operational and decommissioning). |
| Drilling of boreholes | Air Quality & Noise | Operation of the drill rig will generate increased emissions, dust and noise. | Machinery and equipment will be regularly serviced.<br>Limit activities during periods of high wind.<br>Communicate with landowners to ensure work schedules are communicated to them and that they are aware that noise will be generated and over what period this may affect them.<br>Limit activities to daylight hours. 07:00am - 17:00pm. | Vehicles, machinery and equipment maintained within operational specification and legislative requirements.<br>Dust fallout regulations as per NEM:AQA.<br>Environmental Noise managed in terms of Free State Noise Control Regulations, 1998 published under Section 25 of the Environment Conservation Act, 1989.<br>Operations will comply with MHSA, Occupational Health and Safety Act, and all relevant Regulations as well as the Basic Conditions of Employment Act. | Minimise emissions from vehicles and machinery on site.<br>Minimise nuisance dust.<br>Prevent unnecessary noise. | Throughout all phases of the prospecting (operational and decommissioning). |
| | | Damage of hearing to workers near loud machinery (drill rig and generators) | Workers to wear PPE (ear plugs) when near loud machinery | Operations will comply with MHSA, Occupational Health and Safety Act, and all relevant Regulations as well as the Basic Conditions of Employment Act. | Prevent loss of hearing and occupation hazards. | Throughout all phases of the prospecting (operational and decommissioning). |
| | Soils, Land Use & Capability | Loss of topsoil and fertility. | An appropriate ground sheeting must be placed around expected borehole. During drilling, soil displaced will thus spill out onto the ground sheeting and not onto surrounding topsoil. | CARA and NEMA regulations regarding soil amelioration.<br>General duty of care in terms of NEMA. | Maintain existing land capability.<br>Successful rehabilitation. | Operational |
| | Heritage | Inadvertent damage to fossils. | Stop work immediately. Chance find protocol to be implemented. Refer to Section 17.1.2 for details. | General duty of care in terms of NEMA.<br>Compliance with the NHRA. | Ensure preservation fossils. | Operational |

| Activity | Aspect | Impact / Risk Description | Management Actions | Compliance with Standards | Standard to be Achieved/Impact Management Outcome | Time Period for Implementation |
|---|---|---|---|---|---|---|
| Rehabilitation of boreholes, Removal of structures, machinery & vehicles | Topography, Health & Safety (injury to livestock) | Localised dips in topography if boreholes collapse after material is replaced. | Rehabilitation should be completed for the closure of each hole, and not at the end of the drilling programme<br>The replaced material must be compacted into the hole. A small raised mound can be present to allow for settlement of material. To ensure this, the amount of samples taken must not exceed the likely bulking factor of 20% of the fully displaced material – i.e. a material shortage leaving a depression must be prevented. | CARA and NEMA regulations regarding soil amelioration. General duty of care in terms of NEMA. | Maintain existing land capability.<br>Ensure the area is free draining and made safe.<br>Successful rehabilitation. | Decommissioning |
| | Soils, Land Use & Capability | Loss of topsoil and fertility. | Re-instate topsoil and lightly till disturbance footprint. | CARA and NEMA regulations regarding soil amelioration. General duty of care in terms of NEMA. | Maintain existing land capability.<br>Successful rehabilitation. | Decommissioning |
| | | Increased risk for erosion. | All disturbed and compacted footprint areas must be rehabilitated and landscaped after drilling is complete. These areas must either be rehabilitated to the original land use or an agreed upon land use.<br>Revegetation of the impacted areas may not be practical as a large portion of the proposed prospecting area is ploughed lands however, prevention of the establishment of alien invasive flora must be carried out. | CARA and NEMA regulations regarding soil amelioration. General duty of care in terms of NEMA.<br>Compliance with NEM:BA and CARA. | Maintain existing land capability.<br>Ensure the area is free draining and made safe.<br>Successful rehabilitation.<br>Prevent the encroachment and spread of alien invasive species. | Decommissioning |

# 22 FINANCIAL PROVISION

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

Closure objectives identified include:

- Topography
  - Ensure boreholes and hazardous excavations are backfilled and the area is made safe.
  - To ensure that the final elevation of rehabilitated areas are free draining.
- Soil and Land Capability
  - To ensure that top soil (with vegetation clods where applicable) are replaced to the surface of rehabilitated boreholes to maintain land capability and reduce risk of erosion.
- Surface Water
  - To ensure no sedimentation of the surrounding surface water systems.
- Flora and Fauna
  - To ensure that alien invasive establishment and spread is prevented and controlled.
    - The site already has alien and invasive species. The aim is to reduce introduction of new species or spread of existing species. The baseline conditions are not expected to vary greatly but EMP measures, inspection and action must be implemented.
  - To preserve protected species *in situ*.
- Wetlands
  - To prevent disturbance to wetlands and maintain current wetland status and maintain ecological corridors associated with rivers and wetlands.

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

The Basic Assessment Report and Environmental Management Plan (this report) has been made available for public review for thirty (30) days. All comments received from interested and affected parties have been responded to and included in the final report.

## 22.3 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

Part A, Plan 20 indicates the aerial extent of the proposed prospecting activities.

Rehabilitation will be undertaken concurrently i.e. boreholes will be rehabilitated immediately on completion of sampling before continuing to the next site. The following rehabilitation actions must be implemented.

**Table 14: Rehabilitation Plan**

| # | Action | Aim: |
|---|---|---|
| 1 | Photographic evidence must be captured of the before, during and after for each site impacted. | Ensure minimal environmental damage is realised and identify any unexpected impacts needing remediation. Inform knowledge gaps. |
| 2 | All vehicle tracks and impacted footprint areas associated with the drilling points as well as supporting infrastructure areas on site must be assessed for compaction and contamination by the ECO.<br>Compacted soils should be ripped. If any soil contamination is evident from the vehicles, chemical toilet, hydrocarbon storage or other, the ECO must make specific recommendations on how this is to be fully remediated. | Minimize impacts to soils and ecology. |
| 3 | The ECO and geologist must complete a post-prospecting assessment of the study area to determine final rehabilitation steps required. | Ensure knowledge gaps are filled and the rehabilitation vision is achieved. |
| 4 | Revegetation of the impacted areas may not be practical as the proposed prospecting area is ploughed lands however, prevention of the establishment of alien invasive flora must be carried out. | Prevent negative ecological impacts from alien and invasive species. |
| 5 | Monitoring of the rehabilitation success must take place for one year after the proposed activities have been concluded. | Ensure knowledge gaps are filled and the rehabilitation vision is achieved. |
| 6 | A final rehabilitation audit report must be compiled by the ECO once all rehabilitation actions have been completed, and the site has been monitored for one year. | Ensure the rehabilitation vision is achieved. |

## 22.4 Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives

The rehabilitation plan aims to mitigate the negative impacts associated with the prospecting activities ultimately ensuring that functionality of the environment is not adversely affected, and that the current land use can continue unhindered.

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

**Table 15: Rehabilitation Cost Estimate**

| Template for Level 2: "Rules-base" assessment of the quantum for financial provision 2022 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Site:** | **Geluk & Goudlaagte Prospecting Right Application** | **Ref:** | | | | | |
| **Applicant:** | **Matsopa Minerals (Pty) Ltd** | **Location:** | Koppies, Free State | | | | |
| **Evaluators:** | Jane Barrett | **Date:** | Saturday, 12 March 2022 | | | | |
| *Disclaimer: Calculations are based on survey data and information provided by the client, as well as visual observations on site & previous experience in the field. Rates are based on DMR published rates (provided by Mashudu Maduka via e-mail on 02 August 2021, escalated with 3.3% CPI). Whilst every attempt is made to ensure this information is accurate, these calculations are estimates only and Cabanga Concepts cannot be held liable for any discrepancies.* | | | | | | | |
| **No.:** | **Description:** | **Unit:** | **A Quantity Step 4.5** | **B Master rate (DMRE) Step 4.3** | **C Multiplication factor Step 4.3** | **D Weighting Factor Step 4.4** | **E=A*B*C*D Amount (Rands)** |
| 1 | Dismantling of processing plant & related structures (incl. overland conveyors & Power lines) | $m^3$ | | R 17,97 | 1,00 | 1,10 | |
| 2 (A) | Demolition of steel buildings & Structures | $m^2$ | | R 246,59 | 1,00 | 1,10 | |
| 2 (B) | Demolition of reinforced concrete buildings & structures | $m^2$ | | R 363,40 | 1,00 | 1,10 | |
| 3 | Rehabilitation of access roads | $m^2$ | | R 44,13 | 1,00 | 1,10 | |
| 4 (A) | Demolition & rehabilitation of electrified railway lines | m | | R 428,29 | 1,00 | 1,10 | |
| 4 (B) | Demolition & rehabilitation of non-electrified railway lines | m | | R 233,61 | 1,00 | 1,10 | |
| 5 | Demolition of housing &/or administration facilities | $m^2$ | | R 493,17 | 1,00 | 1,10 | |
| 6 | Opencast rehabilitation including final voids & ramps | ha | | R 251 002,63 | - | 1,10 | |
| 7 | Sealing of shafts, adits & inclines | $m^3$ | | R 132,38 | 1,00 | 1,10 | |
| 8 (A) | Rehabilitation of overburden & spoils | ha | | R 172 353,41 | 1,00 | 1,10 | |
| 8 (B) | Rehabilitation of processing waste deposits & evaporation ponds (basic, salt producing waste) | ha | | R 214 663,05 | 1,00 | 1,10 | |
| 8 (C) | Rehabilitation of processing waste deposits & evaporation ponds (acidic, metal-rich waste) | ha | | R 623 483,25 | - | 1,10 | |
| 9 | Rehabilitation of subsided areas | ha | | R 144 320,02 | 1,00 | 1,10 | |
| 10 | General surface rehabilitation | ha | 0,35 | R 136 532,96 | 1,00 | 1,10 | R 52 565,19 |
| 11 | River diversions | ha | | R 136 532,96 | 1,00 | 1,10 | |
| 12 | Fencing | m | | R 155,75 | 1,00 | 1,10 | |
| 13 | Water management | ha | | R 51 913,67 | - | 1,10 | |
| 14 | 2 to 3 years of maintenance & aftercare | ha | | R 18 169,79 | 1,00 | 1,10 | |
| 15 (A) | n/a | SUM | | | 1,00 | 1,10 | |
| 15 (B) | n/a | SUM | | | 1,00 | 1,10 | |
| | | (Sum of items 1 to 15 Above) | | | | | R 52 565,19 |
| | **Sub-total 1**: Multiply Sum * of 1 - 15 by Weighting Factor 2 | Weighting factor 2 (step 4.4) | | | | 1,05 | **R 55 193,45** |
| 1 | Preliminary and General | Add 6% of Subtotal 1 if Sub-total 1 >R100,000,000.00 | | | | 6% | |
| | | Add 12% of Subtotal 1 if Sub-total 1 < R100,000,000.00 | | | | 12% | **R 6 623,21** |
| 2 | Contingencies | Add 10% of Sub-total 1 | | | | 10% | **R 5 519,35** |
| | **Sub-total 2**: Sub-total 1 plus sum of management and contingency) | | | | | | **R 67 336,01** |
| | Add VAT (15%) | | | | | 15% | **R 10 100,40** |
| | **GRAND TOTAL** | | | | | | **R 77 436,41** |

## 22.6 Confirm that the financial provision will be provided as determined

A signed undertaking and proof of funds will be submitted to the DMR upon request.

# 23 MECHANISMS FOR MONITORING COMPLIANCE

Table 16 summarises the monitoring (which also includes frequency of monitoring) that will occur on site during prospecting and the responsible person for the monitoring.

**Table 16 Monitoring and Frequency**

| ACTIVITY | IMPACTS REQUIRING MONITORING PROGRAMMES | FUNCTIONAL REQUIREMENTS FOR MONITORING | ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES) | MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS |
|---|---|---|---|---|
| General housekeeping inspections | General day-to-day compliance with EMP such as inspections for litter, soil compaction, soil erosion, spills, alien invasives etc. | Visual inspections<br>Completion of checklists to be kept on file | Site Manager | Weekly inspections as prospecting progresses. |
| Inspection of no-go areas | Inspection to ensure that buffers have not been encroached on. | Visual inspections | ECO | Weekly inspections as prospecting progresses. |
| External EMP performance assessment and environmental compliance | Compliance with the approved EMP and conditions stipulated within EA. | Formal audit report for submission to the Competent Authorities | External EAP | Annually |
| Rehabilitation monitoring | Rehabilitation undertaken concurrently. | Rehabilitation success monitoring (as per Action Plan – see Table 14)<br>Photographic record to be | Geologist, Site Manager & ECO | Monthly as prospecting progresses |

| ACTIVITY | IMPACTS REQUIRING MONITORING PROGRAMMES | FUNCTIONAL REQUIREMENTS FOR MONITORING | ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES) | MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS |
|---|---|---|---|---|
| | | maintained<br>Sign off by landowner | | |

## 23.1 Indicate the frequency of the submission of the Performance Assessment Report

An annual performance assessment (or at a frequency stipulated in the EA) will be conducted by an external consultant throughout the life of prospecting as required under NEMA. This is conducted to assess the adequacy and compliance to the EMP, EA and the relevant legislation.

# 24 ENVIRONMENTAL AWARENESS PLAN

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

The Geologist and Site Manager must be conversant in environmental legislation, with special reference to the MPRDA, NEMA and the NWA.

The contractor / driller will be responsible for training its staff in terms of general environmental awareness. This will include basic training on the contents of this EMP; and will be conducted prior to commencement of prospecting activities. The aim of the environmental awareness training will be to highlight the potential impacts of the prospecting activities, and to highlight no-go areas.

The contractor / driller will ensure that records are kept of all training sessions / inductions. The Environmental Manager will monitor these records and undertake regular follow ups.

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

Training, as detailed above, will address the specific measures and actions as listed in the EMP and also conditions of the EA. In this way the prospecting team will be provided the knowledge required to conduct the prospecting activities without resulting in environmental non-

compliance, the liability of which would lie with Matsopa Minerals. Secondly, informing the prospecting team of the EMP will also assist the team in identifying if an impact is likely to occur / has occurred and communicate this appropriately to the ECO.

In order for appropriate action to be taken, proper communications network and reporting protocol must be established.

## 25 SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

Any requirements made by the authority or under the conditions of the EA will be attended to.

The financial provision will be reviewed annually.

## 25 UNDERTAKING

The EAP herewith confirms

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

Signature of the environmental assessment practitioner:

Cabanga Concepts t/a Cabanga Environmental

Name of company:

21/04/2022

Date:

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Praktiserende Prokureur R.S.A.

-END-

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**Annexure 1: Plans (A3 Format)**

**Annexure 2: Curriculum Vitae of EAP Project Team**

**Annexure 3: PPP Report**

**Annexure A: I&AP Register**

**Annexure B: Background Information Document (BID)**

**Annexure C: Proof of delivery of BID**

**Annexure D: Advertisements**

**Annexure E: Posters**

**Annexure F: Correspondence with Competent & Commenting Authorities**

**Annexure G: Correspondence with I&APs**

**Annexure 4: Geohydrological Assessment**

**Annexure 5: Compliance Statement Soils**

**Annexure 6: Terrestrial Assessment**

**Annexure 7: Freshwater Ecology Assessment**

**Annexure 8: Heritage Impact Assessment**

**Annexure 9: Palaeontological Study**