BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

PROSPECTING RIGHT APPLICATION FOR AGGREGATE, SAND GENERAL AND GRAVEL ON THE FARM KWAGGAFONTEIN 216 JR, SITUATED WITHIN THEMBISILE HANI MAGISTERIAL DISTRICT IN MPUMALANGA PROVINCE .

PREPARED FOR:

WIZA MINING (Pty)Ltd

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COMPETENT AUTHORITY:

mineral resources
Department:
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REPUBLIC OF SOUTH AFRICA

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MP 30/5/1/1/2/17028 PR

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2022

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: Wiza Mining (Pty) Ltd

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FILE REFERENCE NUMBER SAMRAD: MP 30/5/1/1/2/ (17028) PR

Disclaimer

The opinion expressed in this, and associated reports are based on the information provided by Wiza Mining (Pty) Ltd to Singo Consulting (Pty) Ltd ("Singo Consulting") and is specific to the scope of work agreed with Wiza Mining (Pty) Ltd.

Singo Consulting acts as an advisor to the Wiza Mining (Pty) Ltd and exercises all reasonable skill and care in the provision of its professional services in a manner consistent with the level of care and expertise exercised by members of the environmental profession.

Except where expressly stated, Singo Consulting has not verified the validity, accuracy or comprehensiveness of any information supplied for its reports. Singo Consulting shall not be held liable for any errors or omissions in the information given or any consequential loss resulting from commercial decisions or acts arising from them.

Where site inspections, testing or fieldwork have taken place, the report is based on the information made available by the Wiza Mining (Pty) Ltd or their nominees during the visit, visual observations, and any subsequent discussions with regulatory authorities. The validity and comprehensiveness of supplied information has not been independently verified and, for the purposes of this report, it is assumed that the information provided to Singo Consulting is both complete and accurate. It is further assumed that normal activities were being undertaken at the site on the day of the site visit(s), unless explicitly stated otherwise.

These views do not generally refer to circumstances and features that may occur after the date of this study, which were not previously known to Singo Consulting (Pty) Ltd or had the opportunity to assess.

IMPORTANT NOTICE

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

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

In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1) (c) the competent Authority must check whether the application conforms to the requirements of the EIA Regulations, any protocol or minimum information requirements relevant to the application as identified and gazetted by the Minister in a government notice or instruction or guidance provided by the competent authority to the submission of application.

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorization for listed activities triggered by an application for a right or a permit 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 Authorization being refused.

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

OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;
b) identify the alternatives considered, including the activity, location, and technology alternatives;
c) describe the need and desirability of the proposed alternatives;
d) through the undertaking of an impact and risk assessment process, inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine:
    i. the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
    ii. the degree to which these impacts—
        (aa) can be reversed.
        (bb) may cause irreplaceable loss of resources; and
        (cc) can be managed, avoided or mitigated.

e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the
    sites and location identified through the life of the activity to—
        i. identify and motivate a preferred site, activity and technology alternative.
        ii. identify suitable measures to manage, avoid or mitigate identified impacts; and
        iii. identify residual risks that need to be managed and monitored.

DOCUMENT CONTROL

DOCUMENT CONTROL			
Document Title	Basic Assessment Report and Environmental Management Programme report for Prospecting Right Application of prospecting right for Aggregate, Gravel and Sand General on the farm Kwaggafontein 216 JR situated within Thembisile Hani Local Municipality, Mpumalanga Province DMRE **Ref**.: **MP 30/5/1/1/2/17028 PR.**		
Version	Version 1:	Draft Basic Assessment Report and Environmental Management Programme (5 August 2022 – 05 September 2022)	
QUALITY CONTROL			
	Compiled By	**Reviewed By**	**Distribution**
Name	DP Makhubela	Dr NK Singo	**DMRE Submission**
Designation	Consultant	Principal EAP	

EXECUTIVE SUMMARY

Wiza Mining (Pty) Ltd (the Applicant) has applied for a Prospecting Right in terms of Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) and an Application for Environmental Authorization in terms of Chapter 6 of GNR 326 promulgated under the National Environmental Management Act (Act 107 of 1998) (NEMA) to prospect for aggregate, sand general and gravel resources.

The proposed project will aim to ascertain if economically viable mineral deposit exists within the applied area. To undertake prospecting activities, Wiza Mining (Pty) Ltd will require a Prospecting Right in terms of the Mineral and Petroleum Resources Development Act (MPRDA, Act No.28 of 2002). The Applicant is also required to obtain an Environmental Authorisation (EA) in terms of the National Environmental Management Act (NEMA, Act No. 107 of 1998) which involves the submission of a Basic Assessment Report (BAR) and Environmental Management Programme Report.

Singo Consulting (Pty) Ltd has been appointed by Wiza Mining (Pty) Ltd to compile the BAR (this report) in support of the Prospecting Right application submitted by Wiza Mining (Pty) Ltd, which in turn will be submitted to the DMRE for adjudication. This BAR has been designed to meet the requirements for a BAR and Environmental Management Programme report (EMPr) as stipulated in the 2014 EIA Regulations promulgated under the NEMA. The adjudicating authority for this Application will be the Department of Mineral Resources and Energy (DMRE), and this report has been compiled in accordance with the applicable DMRE guidelines and reporting template.

The project area consists residential homes, a mall, and mining industries for sand, gravel, and aggregate. Goldern Rewards (Pty) Ltd is the company adjacent to the proposed area that is currently mining G6/G7 minerals and producing 100 loads of aggregate per day ,which are supplied to SANRAL for the construction of the access road(R573).This is also an indicator that the area indeed has a mineral that we have applied for, the proposed Prospecting Right Area is situated within farm Kwaggafontein 216 JR and is located approximately 20.7 km northwest of KwaMhlanga and 22.6 km southwest of Siyabuswa under Thembisile Hani Magisterial District. DMRE Ref: MP 30/5/1/1/2 (17028) PR.

A Prospecting Work Programme (PWP) has been developed to include both non-invasive and invasive prospecting activities. The target geological formation of the PWP is the Bushveld Igneous Complex, Rustenburg Layered Suite, The Lebowa Granite Suite, and The Rooiberg Group. The BAR (this report) will be made available to Interested and Affected Parties (I&AP's) for comment for 30 days period. All comments received during this period will be included in the final BAR & EMPr to be submitted to the DMRE for adjudication.

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ABBREVIATIONS

CA	Competent Authority
CBA	Critical Biodiversity Area
DAFF	Department of Agriculture, Forestry and Fisheries
DEFF	Department of Environmental, Forestry and Fisheries
DMRE	Department of Mineral Resources & Energy
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMPR	Environmental Management Programme report

ESA	Ecological Support Area
ESM	Environmental Site Manager
GDP	Gross Domestic Product
GN	Government Notice
GIS	Geographic Information System
GPS	Global Positioning System
GVA	Gross Value Added
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
Mamsl	Meters above mean sea level
MHSA	Mine Health and Safety Act (Act No. 29 of 1996) [as amended]
MPRDA	Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) (as amended)
NEMA	National Environmental Management Act, 1998 (Act no 107 of 1998) (as amended)
NEMAQA	National Environmental Management: Air Quality Act (Act No. 39 of 2004) (as amended)
NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NEMWA	National Environmental Management: Waste Act (Act No. 59 of 2008) (as amended)
NHRA	National Heritage Resource Act, 1999 (Act No. 25 of 1999)
NVFFA	National Veld and Forest Fire Act (Act No. 101 of 1998)
NWA	National Water Act, 1998 (Act No. 36 of 1998) (as amended)
PM	Public Meeting
PPE	Personal Protective Equipment
PPP	Public Participation Process
SAHRA	South African Heritage Resources Agency
SANS	South African National Standards
SAWS	South African Weather Service
SDF	Spatial Development Framework
SLP	Social and Labour Plan
SM	Site Manager
VAC	Visual Absorption Capacity

PART A: SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1. INTRODUCTION

Singo Consulting (Pty) Ltd on behalf of Wiza Mining (Pty) Ltd submitted an application for a Prospecting Right subject to Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) and an application for an Environmental Authorisation in terms to Chapter 6 of GNR 982 enacted under the National Environmental Management Act (Act 107 of 1998) (NEMA) for aggregate, soil general and gravel.

The proposed project will aim to ascertain if economically viable mineral deposits exist within the application area. In order to undertake the proposed prospecting activities, Wiza Mining (Pty) Ltd will require a Prospecting Right in terms of the Mineral and Petroleum Resources Development Act (MPRDA, Act No.28 of 2002). The Applicant is also required to obtain an Environmental Authorisation (EA) in terms of the National Environmental Management Act (NEMA, Act No. 107 of 1998) which involves the submission of a Basic Assessment Report and Environmental Management Programme report (BAR & EMPr).

Singo Consulting (Pty) Ltd has been appointed by Wiza Mining (Pty) Ltd to manage the Environmental Authorisation process by conducting Environmental Impact Assessment, Public Participation for the proposed project and to compile the Basic Assessment Report and Environmental Management Programme report in support of the Prospecting Right application which in turn will be submitted to the Department of Mineral Resources and Energy for adjudication. This BAR & EMPr has been designed to meet the specifications as set out in the NEMA's 2014 EIA Regulations. Feedback received from stakeholders will form basis of this BAR & EMPr.

Locality Description: The proposed Prospecting Right Application covers Kwaggafontein 216 JR farm, encircling extent of approximately 5 088.770 Hectares. The proposed project area is situated under Magisterial District of Thembisile Hani in Mpumalanga Province. The area of interest is situated approximately 20.7 km northwest of KwaMhlanga and 22.6 km southwest of Siyabuswa. It can be accessed from R573 road which run throughout the proposed project area.

1.1 Details of the Environmental Assessment Practitioner

Singo Consulting (Pty) Ltd was appointed by Wiza Mining (Pty) Ltd as an independent EAP to compile this report. The contact details of the consultants who compiled this report are as follows:

Table 1: Details of the Consultant

Name of the Practitioner	Dineo Makhubela
Designation	Consultant
Tel No.	+27 13 692 0041
Cell No.	+27 78 380 0667
Fax No.	+27 86 515 4103
Email	dineo@singoconsulting.co.za

Table 2: Details of the EAP who reviewed the Report

Name of the Practitioner	NK Singo
Designation	Principal EAP
Tel No.	(013) 692 0041
Cell No.	+27 78 2727 839
Fax No.	+27 86 515 4103
Email	kenneth@singoconsulting.co.za

1.2 Qualifications of the EAP

National Diploma in Environmental Sciences

1.3 Qualifications of the Principal EAP

Bsc(Hons) Mining and Environmental Geology

MSc (Environmental Geology)

Summary of of the appointed consulting firm

In the year 2008, Singo Consulting (Pty) Ltd was established as an Independent Consulting Company focused to create opportunities within the Mining and Environmental Industry. With time, Singo Consulting (Pty) Ltd has diversified its services, providing high value Geological, Hydrological, Environmental, Cleaning and Rehabilitation specialized services to clients across a range of industries that are primarily natural resource based.

The company aims to be a consulting firm that communicates sound environmental services solutions. Singo Consulting (Pty) Ltd takes pride in the fact that it holds no equity in any project which in turn permits it to offer clients objective support on crucial issues.

2. Locality of the overall Activity

Table 3: Location of the Overall Activity

<table>
<tr><td>Farm Name:</td><td>Kwaggafontein 216 JR</td></tr>
<tr><td>Application area (Ha)</td><td>5 088.770 ha</td></tr>
<tr><td>Magisterial district:</td><td>Thembisile Hani</td></tr>
<tr><td>Distance and direction from nearest town</td><td>Situated approximately 20.7 km northwest of KwaMhlanga and 22.6 km southwest of Siyabuswa</td></tr>
<tr><td>21-digit Surveyor General Code for the Farm</td><td>T0JR00000000021600010
T0JR00000000021600018
T0JR00000000021600021
T0JR00000000021600023
T0JR00000000021600000
T0JR00000000021600025
T0JR00000000021600027
T0JR00000000021600004</td></tr>
<tr><td>Coordinates</td><td>
<table>
<tr><th>ID</th><th>X</th><th>Y</th></tr>
<tr><td>A</td><td>28.920002</td><td>-25.268208</td></tr>
<tr><td>B</td><td>28.967733</td><td>-25.286268</td></tr>
<tr><td>C</td><td>28.973933</td><td>-25.287960</td></tr>
<tr><td>D</td><td>28.966935</td><td>-25.319978</td></tr>
<tr><td>E</td><td>28.952812</td><td>-25.326892</td></tr>
<tr><td>F</td><td>28.981827</td><td>-25.374234</td></tr>
<tr><td>G</td><td>28.949456</td><td>-25.390651</td></tr>
<tr><td>H</td><td>28.921925</td><td>-25.342005</td></tr>
</table>
</td></tr>
</table>

3. Locality map

(Show nearest town, scale not smaller than 1:250000)

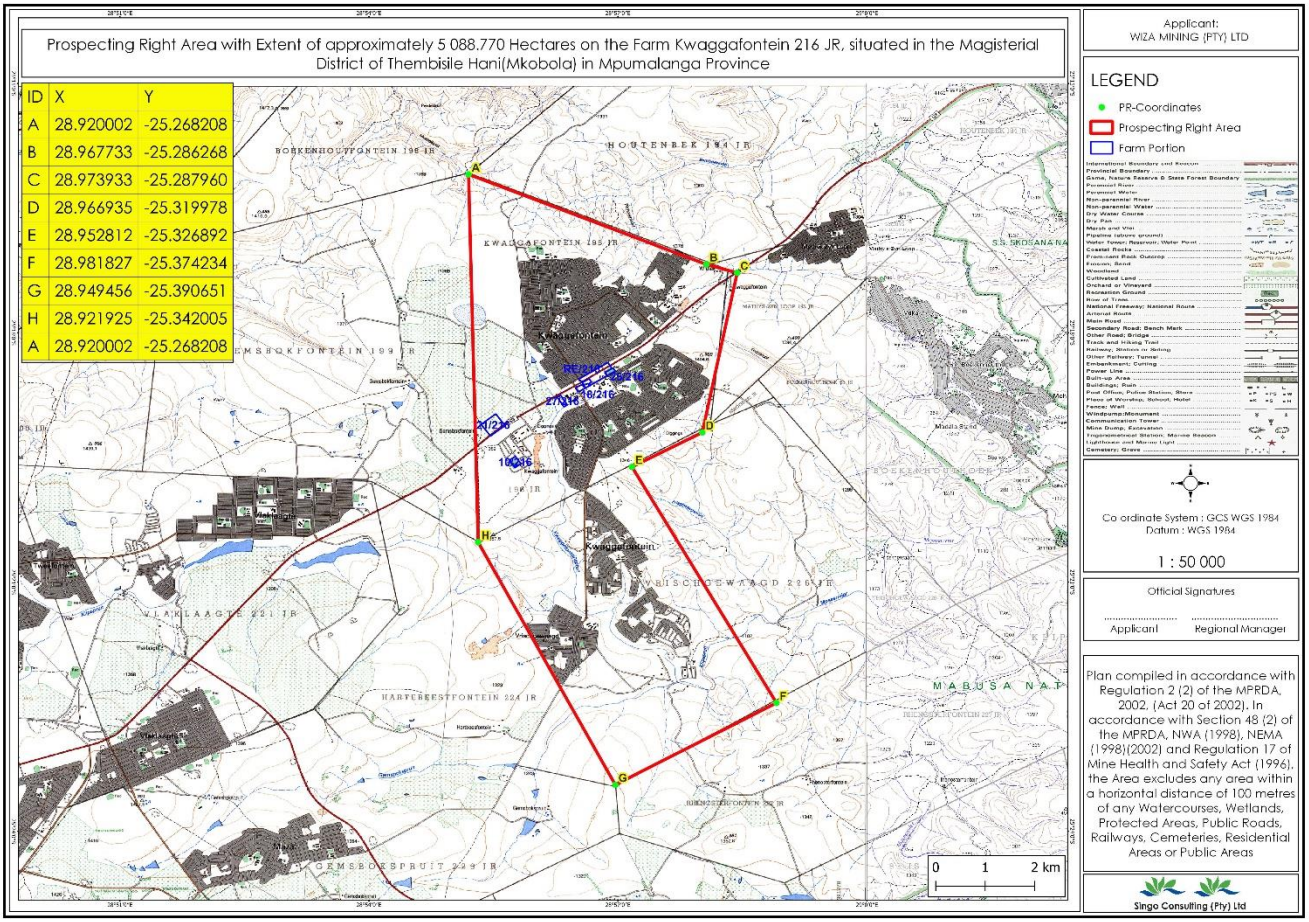

Figure 1: Regulation 2.2 plan of the project area. *(Singo consulting (Pty) Ltd , 2022)*

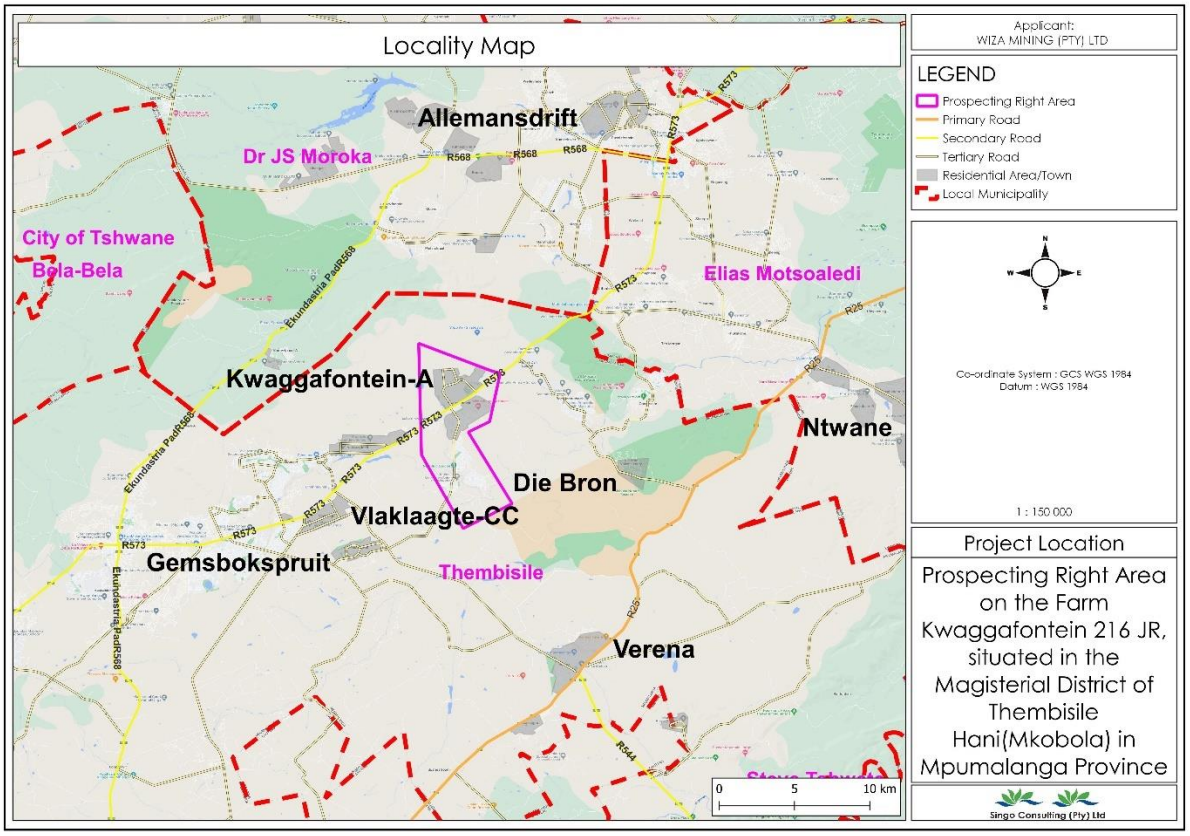

Figure 2: Locality of the project area. *(Singo consulting (Pty) Ltd , 2022)*

As seen on the above maps, the project area is within Thembisile Hani Local Municipality near Vlaklaagte within Mpumalanga Province. The site can be accessed using the R573 road which transverses the proposed project area. The area consists of natural vegetation, water bodies, wetlands, mines, cultivated land and built-up areas. The most dominant vegetation type in the area is moist sandy highveld grassland and subsidence farming is the most dominant farming activity in this area. Upon site inspection it was discovered that there is a mall present on the entry of the farm coming from south going towards the north (see ***Photo 1*** below).

Photo 1: A Mall on a prospecting area.*(Singo consulting (Pty) Ltd , 2022)*

4. DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY

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

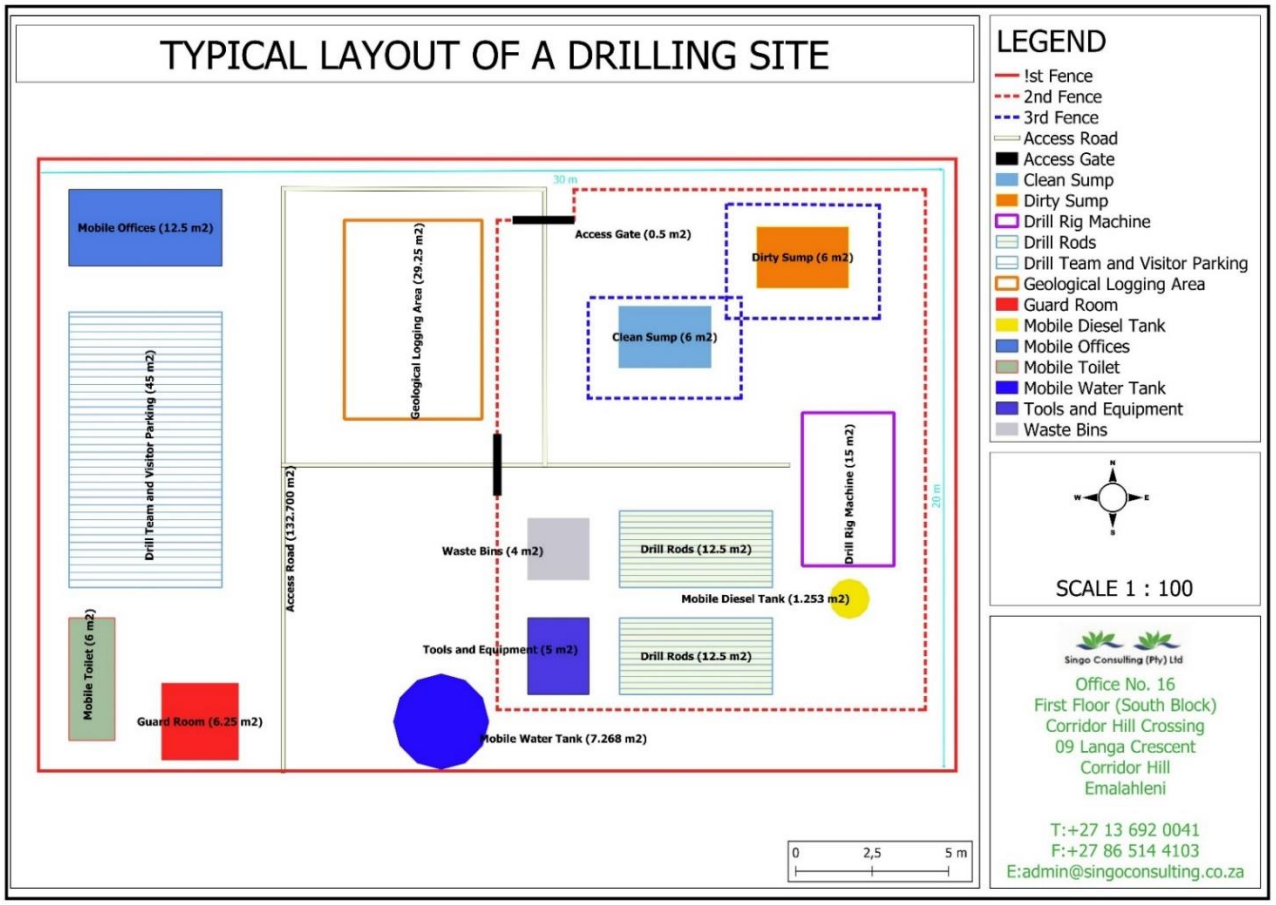

Figure 3: Typical Layout of a drill site. *(Singo consulting (Pty) Ltd , 2022)*

4.1 Listed and specified activities

Table 5: Listed and specified activities

NAME OF ACTIVITY (E.g., For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc. E.g. for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.…etc.…etc.)	AERIAL EXTENT OF THE ACTIVITY (Ha or m²)	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE GNR 517, June 2021	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorization is required in terms of the Waste Management Act). (Mark with an X)
Prospecting Area	5 088.770	**X**	GNR 517 Listing Notice 1, Activity 20.	Not required
Vegetation clearing	0.9 ha		Not Listed	
Drilling	0.9 ha		Not Listed	
Site Camp	600 m^2		Not Listed	

Drilling method	Diamond core drilling
Number of boreholes	15
Depth of boreholes	110m
Duration of drilling	A borehole takes roughly about 2 days to complete; 15 will take at least 30 days.
Demarcated working area	❖ $600\text{m} \times 15\text{m} = 9000\ \text{m}^2$ ❖ $9000 \div 10000 = 0.9\ \text{ha}$ **0.9 ha** for all 15 drilling sites
Total area to be disturbed	**0.9 ha**

4.2 Description of the activities to be undertaken

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

Activities for the prospecting of Wiza Mining (Pty) Ltd will be done in three phases. The Proposed Prospecting area is depicted by ***Figure 1-2*** above clearly showing the areas of interest.

A total number of proposed boreholes to be drilled for the operation is fifteen (15). Vegetation will be cleared at each drilling site and progressing rehabilitation will take place after each drill site. The total vegetation clearing for the overall activities is 0.9 ha. The Proposed project area will be accessed through the currently existing roads and **only** where necessary, with the acknowledgement of the landowner. Access within the farm will be communicated with the respective Landowner.

As part of the proposed Prospecting Work Program (PWP), both non-invasive and invasive prospecting activities will be conducted. The framework will adopt a staggered strategy, where the work program for prospecting is split into several sequential phases.

There will be a brief period at the end of each phase to compile and review outcomes. The findings will decide not only whether prospecting progresses but also how it will proceed. The applicant will only act over the next prospecting phase once satisfied with the results obtained in the previous phases. Moreover, if need arises, smaller, non-core parts of the prospecting work program will be undertaken. A detailed descriptive of the invasive and non-invasive activities planned is presented below.

4.2.1 Phase 1 (Non-invasive)

Desktop study: All historical geological data (including assays and mineralogy) will be gathered and evaluated. This will include assessments of any existing mining operations in the area, boreholes and any relevant data from any institution that may have done work in and around that specific area. As part of this phase, remote sensing studies will be carried out to prepare for the implementation of subsequent phases.

Preliminary field work: This allows the implementation of survey grids for geological and structural mapping as well as geophysical surveys. Following these activities, proposed drill sites for the drilling program will be pegged. At the end of this phase, a preliminary report with updated maps will be produced.

Geophysics: In smaller areas, a hand-held instrument is used to search for ore underground. In larger areas, an instrument is mounted on an aircraft, which is then used to survey the area for ore targets. The procedure is non-invasive.

4.2.2 Phase 2 (Invasive)

Field mapping: This is the verification of on-site field lithology based on the geological map and geophysical data. This includes ground mapping of geological features, including rock outcrops, lithological contact zones, geological structural features, surface depressions and vegetation types. This may include collecting data from outcrops for analysis, as the outcrop also indicates what can be found underground.

Site establishment:

This is the mobilisation of all project equipment to the site or a nearby location in order to conduct efficient prospecting. There is very little environmental impact with regards to this. Rehabilitation will take place progressively per drill site. Site Establishment includes

- **Ablution:** Portable chemical toilets
- **Temporary office area:** A temporary site office shaded area will be erected at the drill site. This will be used for daily project administration.
- **Accommodation:** No accommodation for staff and workers will be provided on-site; Workers will be transported to and from the prospecting site on a daily basis. Night security staff will be employed once equipment has been established on site.
- **Storage of dangerous goods:** During the drilling activities there will be no storage of diesel fuel, oil and lubricants on site. Trucks and other mobile transports will utilise the nearby filling station. Significant amount of diesel will be transported to site for the drill rig machine daily for the duration of the prospecting activities.

Figure 4: Typical example of mobile toilets to be adopted

Figure 5: Typical example of Gazebo as a usage for temporary offices/shaded Area.

Figure 6 Typical example of portable diesel storage tank.

Drilling:

A core drilling program will be carried out, which will be informed by the results of the previous phased approach and will aid in the identification of areas to be drilled. To evaluate the area, logging and sampling of the borehole core will be performed. The drill core samples will be sent to an accredited laboratory for analysis and determination of the average mineral content.

At least fifteen holes will be drilled during this phase. The drill bit size is NQ (76.7 mm in diameter) and will drill to an average depth of 110 m, which will cover an area of 0.9 ha at any given drilling time (total area of disturbed area per drilled borehole).

Pre-feasibility studies:

Geological modelling of gathered existing geological data and prospecting data will be performed if the results warrant it.

4.2.3 Phase 3

Closure & rehabilitation: This includes progressive rehabilitation and closing borehole openings, re-vegetating, returning soil stockpiles, and removing any prospecting-related waste. This will restore the area to as good or better condition than it was before prospecting began.

5. POLICY & LEGISLATIVE CONTEXT

Table 6: Policy and Legislative Context

Applicable Legislation and Guidelines	Reference Where Applied (i.e., where in this document has it been explained how the development complies with and responds to the legislation and policy context)	How does this Development Comply with and Respond to the Legislation and Policy Context
National Environmental Management Act (No. 107 of 1998) (NEMA):	This entire report is prepared as part of the prospecting right application under the NEMA, section 24	In terms of the National Environmental Management Act an Application for Environmental Authorisation subject to a Basic Assessment Report. The application was lodged at the DMRE
Minerals and Petroleum Resources Development Act (No.28 of 2002) (MPRDA): In support of the Prospecting Right Application submitted by Wiza mining (Pty) Ltd, the applicant is required to conduct a NEMA BAR process in terms of Section 5A and Chapter 16 of the MPRDA.	This entire report is prepared as part of the Prospecting Right Application under the MPRDA, section 16(2).	The application is for a prospecting right and therefore all regulations pertaining to the application process of a prospecting right and environmental management are applicable to this application. DMRE REF: **MP 30/5/1/1/2/ 17028 PR**
National Water Act (No. 36 of 1998) (NWA): Water may not be used without prior authorisation by the DWS. Section 21 of the National Water Act (No.36 of 1996) the NWA water uses for which authorisation is required.	No Water Use License has been applied for this prospecting project.	No water use license is required for this Application. The water required will be bought from the municipality or licensed water supplier that sells potable water or treated industrial water for which a water sale agreement will be drawn and agreed upon before work commences. Appropriate dust extractions /suppression equipment will be a condition imposed on the drill contractor for their drill rigs.

The National Environmental Management: Biodiversity Act (Act No. 10 of 2004 – NEMBA) Section 57 and 87	Regulations published under NEMBA provides a list of protected species (flora and fauna), according to the Act (GNR. 151 dated 23 February 2007, as amended in GNR. 1187 dated 14 December 2007) which require a permit in order to be disturbed or destroyed	No applications have been submitted in terms of the National Environmental Management: Biodiversity Act.
Thembisile Hani Local Municipality Integrated Development Plan (IDP) Strategic Development Framework (SDF)	Needs and Desirability, socio-economic needs. Land use	Incorporated in Section 6 and 9.1 of this BAR. The applicant acknowledges the need to maximize economic benefit from mining, industrial, business, agricultural and tourism development in the area and promote a climate for economic development in line with the municipal development frameworks.
Municipality By-Laws: Waste Management by-law Act 59 of 2008, Air Quality Management By-law Act 39 of 2004, Noise control by-law, Spatial Planning and Land Use Management act no 16 of 2013 (SPLUMA).	Environmental Management measures awareness plan	Best practice guidelines will be followed for any by-law's management and the development of the mine environmental and other legislative management.
Constitution of South Africa, Specifically, everyone has the right: a) to an environment that is not harmful to their health or wellbeing; and	BAR & EMPr	Prospecting activities will only proceed after effective consultation. All activities will be conducted in a manner that does not violate the Constitution of the Republic of South Africa.

b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that i) prevent pollution and ecological degradation; ii) promote conservation; and iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.		
National Heritage Resources Act, 1999	Management measures	Should archaeological artefacts or skeletal material be revealed in the area during development activities, such activities should be halted, and SAHRA notified in order for an investigation and evaluation of the find(s) to take place.

6. NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

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

The rapid growth of South Africa's urban areas has put immense pressure on existing construction material resources as there is increasing demand of land use for infrastructure, housing, recreation and industrial building activity. Sand, gravel, and aggregates have various uses, including their use in mixing cement materials such as concrete, mortar, and plaster. The widespread use of these minerals results not only from its general availability and low value but also from the fundamental role they play in developing and sustaining modern society and economy. *(Motsie R. ,Malematja E., 2014)*

The applicant has identified this opportunity upon the farm Kwaggafontein 216 JR. Based on the location of the proposed site, prospecting is favored and most likely to yield positive feedback. Subsidence farming is the most dominant farming activity in this area. Drill sites will be aimed at minimising the impacts of the drilling activities on the current land uses.

Table 7: Need and desirability considerations

NEED AND DESIRABILITY OF THE PROPOSED PROJECT		
PART I: NEED		
Questions (Notice 792, NEMA, 2012)		Answers
1.	Is the land use associated with the activity being applied for considered within the timeframe intended by the existing approved SDF agreed to be the relevant environmental authority?	Prospecting is an integral part of its rationale to make use of the abundant natural resources in the area to create strong, resilient, and prosperous district. Thembisile Hani depends largely on mining for job opportunities this opportunity will create strong, resilient, and prosperous district.
2.	Should the development, or if applicable, expansion of the town/area concerned in terms of this land use occurs here at this point in time?	Should a mining right be applied for and be approved in future, the integrity of the existing environmental management priorities of the area may be compromised, and a full Environmental Impact Assessment must then be conducted to determine the sustainability of the mining activities. The proposed project has the potential to have a positive impact on the socio-economic conditions of the local communities involved as well as for gathering information about the geographical

		layout of the area. Should the results of the prospecting show that feasible reserves are present to mine, a mining right may be approved.
3.	Does the community/area need the activity and the associated land use concerned? This refers to the strategic as well as local level.	According to the IDP (2021/2022), the unemployment increased slightly from 36,1 % in 2014 to 39.7% in 2017. Unemployment rate for females 39.9% and males 34.1%. Youth unemployment rate according to the 2011 Census figures 49.4% - challenge with especially very high youth unemployment rate of females. The largest employing industries in Thembisile Hani are trade (including industries such), community/government services and mining. Should the Wiza Mining (Pty) Ltd prospecting yield positive impact on the socio-economic conditions especially if it graduates to mining, by creating more jobs and providing developments to the local communities.
4.	Are the necessary services with adequate capacity currently available (at the time of application) or must additional capacity be created to cater for the development?	All infrastructure for services and capacity will be temporary and will be provided for the proposed prospecting/drilling activities. Temporary Infrastructure includes i.e., Mobile toilets, temporary shaded area (in a form of Gazebo). Drilling mechanisms to be employed will be of diamond core drilling. The road networks are fully intact, and the project will not have a major impact on road congestion. Thus, additional capacity does not need to be created for the development.
5.	Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of the services and opportunity cost)?	The development is not provided for in the infrastructure planning of the municipality as it is a small development of local importance. Thus, the proposed project will not have any implications for the infrastructure planning, as no services and/or infrastructure needs to be upgraded or created to cater for this project. The proposed project will be making use of mobile structures.

6.	Is the project part of a national programme to address an issue of national concern or importance?	The mining sector is a significant contributor to the National GDP as well as a massive employer of people. This project will contribute to the National Development Plan of eradicating poverty/unemployment. Chapter 6 of the National Development Plan highlights an "inclusive rural economy" and the objectives of this plan are to create jobs in mining and industry and activating rural economies through service to small and micro mining.
PART II: DESIRABILITY		
7.	Is the development the best practicable environmental option for this land/site?	The project area lies on heavily modified land. The activities currently present on site have already had an impact on environmental management. The disturbed areas (drill sites) will be rehabilitated immediately after prospecting activities.
8.	Would the approval of this application compromise the integrity of the existing approved and credible IDP, and SDF as agreed to by the relevant authorities?	The approval of this prospecting application will not compromise the integrity of the existing environmental management priorities of the area provided that sensitive areas are avoided, and the mitigation measures as recommended in this report and in the EMPr are implemented.
9.	Would the approval of this application compromise the integrity of the existing environmental management priorities for the area (e.g., as defined in EMFs), and if so, can it be justified in terms of sustainability considerations?	The integrity of the existing environmental management priorities for the area will not be compromised by this development.
10.	Do location factors favour this land use at this place? (This relates to the contextualization of the proposed land use on this site within its broader context).	Goldern Rewards company which is adjacent to the proposed prospecting area is already producing G6/G7 minerals and 100 loads of aggregate daily which are supplied to SANRAL for the construction of the main access road(R573). Therefore, the prospecting study region already has the needed minerals present.

11.	How will the activity of the land use associate with the activity being applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?	When it comes to the Basic Assessment of the subject area, it was discovered through desktop research that there are cemeteries which are regarded as historical or cultural significance, hence the cemeteries would be avoided during the prospecting phase and relevant authorities will be notified. This information will be added to the BAR & EMPr.
12.	How will the development impact on people's health and well-being? (E.g., In terms of noise, odours, visual character and sense of place, etc.)?	The impacts on well-being, following mitigation, will be as follows: • Visual: Medium to low • Dust: Medium • Noise: Medium • Vibrations: Low Strict adherence to the recommendations & mitigation measures identified will be ensured.
13.	Will the proposed activity or the land use associated with the activity being applied for, result in unacceptable opportunity costs?	The mining industry in Mpumalanga has been a cornerstone of the economy for a long period of history. South Africa offers ongoing proof that mineral revenues can create sizeable benefits to the economy in countries where they are sourced. The applied commodities contribute significantly towards the Municipal's GDP.
14.	Will the proposed land use result in unacceptable cumulative impacts?	The proposed project has only been identified to have minimal cumulative impacts that can be mitigated to an acceptable level. The measures outlined in the EMP attached will serve as a method to keep the proposed project from having any serious long term cumulative impacts on the receiving environment.

7. MOTIVATION OF THE OVERALL PREFERRED SITE.

The geology is the primary driver in determining the location of prospecting and mining. After due consideration and conducting background and desktop studies about Kwaggafontein geology, Geological studies *(De Waal, 1963; Snyman, 1958; Hartzer, 1994)* showed that the Marble Hall Fragment forms a dome-like structure of folded supracrustal rocks of the Transvaal Supergroup. It is surrounded by granite of the Lebowa Granite Suite, and, in the south-western part, overlain by flat-lying sedimentary rocks of the Karoo Supergroup. Several outcrops of basic intrusive occur in the Fragment. De Waal (1963) and Hartzer (1994) attempted to interpret the shape of these intrusions from outcrop information. However, the generally poor outcrops in this area, widely acknowledged as outstanding irrigation land, makes such interpretation speculative at best (see ***Figure 7*** for the project geology). Given that granite is nearly always massive (lacking any internal structures), hard, and tough. These properties have made granite a widespread construction stone throughout human history.

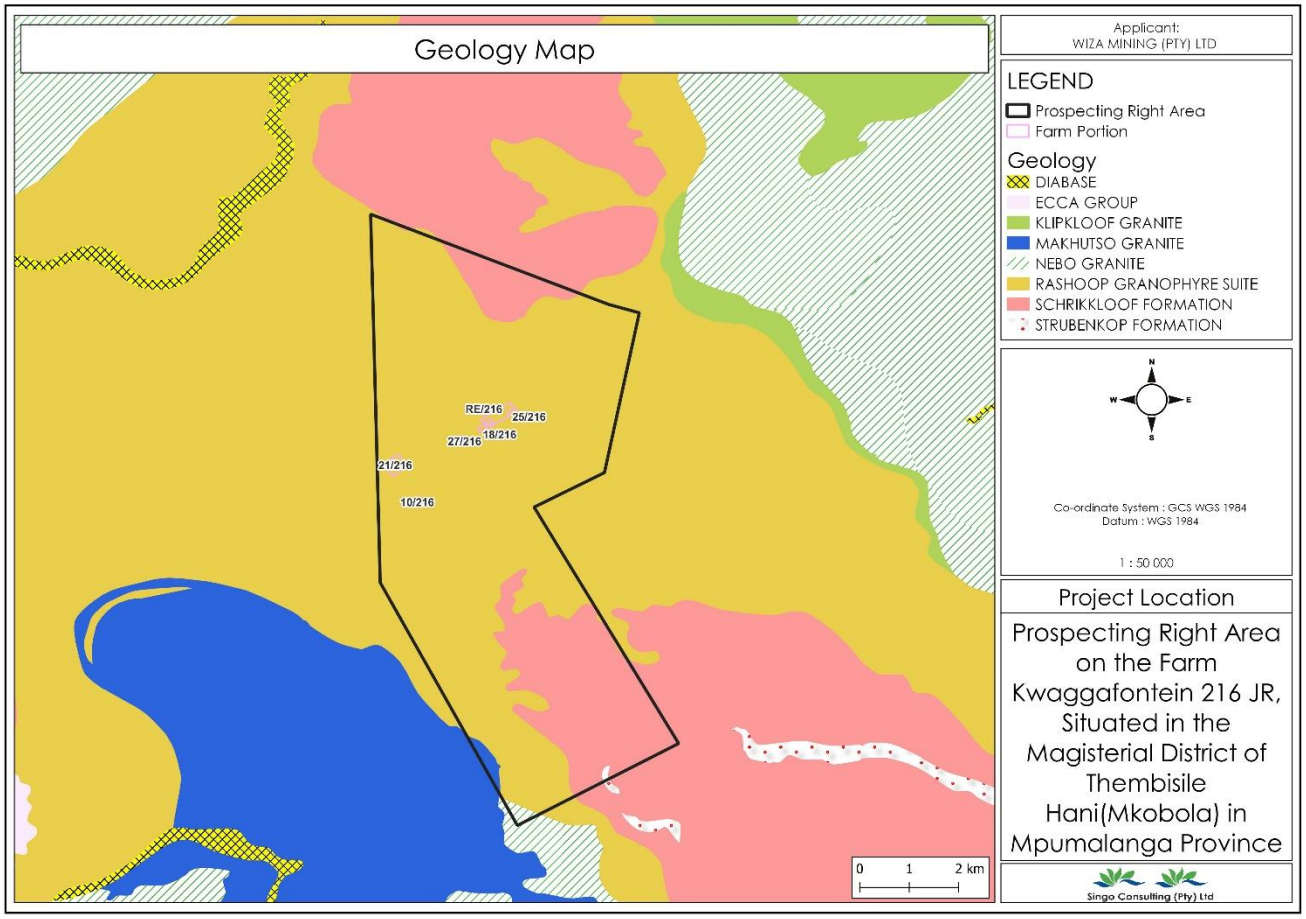

Figure 7: Geological map. *(Singo consulting (Pty) Ltd , 2022)*

8. FULL DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED ALTERNATIVES WITHIN THE SITE

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

8.1 Details of all alternatives considered

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

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

(b) the type of activity to be undertaken;

(c) the design or layout of the activity;

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

(e) the operational aspects of the activity; and

(f) the option of not implementing the activity)

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

The prospecting right application directly affects the whole Kwaggafontein 216 JR farm. The development footprint encircles 5 088.770 ha.

(b) The type of activity to be undertaken

No bulk sampling work will be carried out during this prospecting program. Invasive prospecting activities such as drilling as well as non-invasive activities will be conducted during prospecting due to the unavailability of extensive historical borehole datasets.

(c) Design or Layout

No permanent structures will be constructed since exploration is temporary in nature. Landowners will be consulted duly for access and usage of the existing access roads.

- Portable ablution facilities will be used.
- It is planned to use one drill rig for all 15 drill holes.
- Rehabilitation will closely be controlled, and supervision will be focussed.
- No changes to the layout are considered, however, the holes can be orientated to match the shape of the good quality of resource with the geophysical survey information.
- Buffer zones will apply to all the sensitive areas on site

(d) Technology Alternatives

The technology chosen is deemed effective for exploring deposits of this type, resource definition and evaluation. This is inclusive of the non-invasive and invasive technology. The non-invasive includes desktop studies, geological file mapping and geophysical survey whilst invasive includes the prospecting boreholes for resource estimation. Prospecting will be done in interrelated phases. Alternatives will be considered once the preceding phase necessitate reasonable changes and adaptations.

(e) The operational aspects of the activity

A prospecting period of three years has been applied for. No permanent services including water supply, electricity, or sewerage facilities are required. All infrastructure to be developed will be mobile and temporary including portable toilets and water tanks.

(f) The option of not implementing the activity

Not implementing the prospecting activities will result in a loss of information of mineral reserves present on the study area. Should economically feasible reserves exist on the study area and the applicant cannot prospect, the opportunity to utilise the reserves for future aggregate, soil general and gravel mining will be lost, i.e. the minerals will be sterilised and resultant socio-economic benefits will be lost. The proposed prospecting activities have the potential to have a negative impact on the ecological environment as well as the social environment of the area. These impacts, however, can potentially be prevented, minimised, mitigated and managed to low and very low levels, as shown through the impact assessment.

8.2 Details of the Public Participation Process Followed

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

The Public Participation is the basis of any EIA process. The Public Participation Process (PPP) seeks to provide the opportunity for all stakeholders including potential players and all applicable I&APs, state departments, state bodies and the competent authority (CA) to register so that they can raise concerns, contribute to local knowledge, comment on the Draft Basic Assessment Report (DBAR) & Environmental Management Programme report (EMPr) but most importantly provide suggestions for enhanced benefits. Comments received during the Public Participation Process are incorporated into the Final BAR & EMPr to be submitted to the competent authority being the Department of Mineral Resources & Energy for adjudication.

Defining Stakeholders

The term public can be taken to mean any individual or group in society, including the government and business sector. Who or what is included in the "public" depends very much on activities under consideration. The term "stakeholder" helps clarify the meaning or "public" in the context of development activities.

A stakeholder is any person, group of institution that has an interest in an activity, project or program. This includes both intended beneficiaries and intermediaries, those positively affected, and those involved and/or those who are generally excluded from the decision-making process.

Stakeholders can usefully be categorized in five main types:

- Directly affected people (who live or work where the project will be located)
- indirectly affected people (who live nearby or use resources from the project area)
- public sector agencies (ministries, provincial or local government, government mandated mass organizations)
- private developers (private companies with a direct investment in the project) and their subcontractors and financiers
- others (donors, NGOs with a stake in the project, external advisors, the business sector).

Objectives of the Public Participation

- Main objectives for involving the public are:
    - the identification of key issues of concern to the public, addressing public perceptions,
    - the provision of local expertise and knowledge,
    - the identification of possible alternatives/options,
    - ensuring that affected groups are involved at the very beginning of project design, and
    - the critical review of documentation.

The separation of these objectives is somewhat artificial as the achievement of one will often depend upon the achievement of another.

IDENTIFICATION OF INTERESTED AND AFFECTED PARTIES

Interested and Affected Parties Identification Procedure

The Interested & Affected Parties for this particular project will be consulted through e-mail media communications in order to share the valuable objections or interests in a draft BAR and EMPR. Other means of Identification & notification adopted was through sharing the hardcopies to the stakeholders, the print media (in a form of newspaper) and placement of notices in public spaces.

Newspaper Advertisements

Newspaper advertising is used to target particular demographics that are traditionally much harder to reach through other media such as the internet and other social networks. A newspaper advertisement was published on the 29th of August 2022 to notify all the Interested & Affected Parties of the proposed development. See ***Error! Reference source not found.*** for the published newspaper Advertisement.

Julian Muller hokkie maak skoonskip!

Laerskool Julian Muller se eerste hokkie span het die naweek deelgeneem aan die Waterberg hokkie-naweek in Zwartkloof.

Dié span het al ses hul wedstryde gewen.

Die uitslae is as volg: Laerskool Julian Muller wen teen Bosveld met 2-0, wen teen Bosveld met 2-0, wen teen Koedoeskop 2-0, wen teen Nylstroom 3-0, wen teen Warmbad 4-0 en wen Marble Hall 1-0.

Agter: Elmé Meiring, Dezi van der Merwe, Jaydene Cloete, Monya van Niekerk, Monique Viljoen en Lesedi Makofane. Voor: Gina Mashabela, Eléne Botes, Mea-né Hancke, Edunette Kriel, Daniëlle Wessels en Clarissa Fourie.

Gromar leerlinge by AVS

Drie van CVO Gromar se o/19 rugbyspelers was by vanjaar se AVS Bokkieweek in Kroonstad verkies tot die nasionale spanne. Pieter Rautenbach (Gazelle span), Charl Vosloo (Gazelle span) en Cronjé Hancke (Uitnodigingspan).

Daar het 'n bekroningsfunksie plaasgevind vir die nasionale spanne, waarna Charl Vosloo en Cronjé Hancke die volgende dag in Meyerton by Hoërskool Dr. Malan deelgeneem het aan die AVS byeenkoms. Charl het vir die Gazelle span uitgedraf en Cronjé vir die uitnodigingspan. Die twee spanne het ook teen mekaar te staan gekom, waarna die Gazelle span gewen het na 'n tawwe stryd.

Pieter Rautenbach, Charl Vosloo en Cronjé Hancke.

Gromar hou krieketkliniek en -proewe

CVO Gromar het Vrydag en Saterdag 'n krieketkliniek, asook die Oos-Transvaal krieket proewe aangebied. Die CVO skole wat deelgeneem het was Gromar, Pretoria, Marmer, Standerton en Middelburg. Daar is spanne gekies vanaf mini-krieket tot o/19, vir seuns en dogters.

Dit was 'n uiters suksesvolle krieketkliniek en -proewe en die skool kon spog met splinternuwe krieketnette.

'n Mens kon die gees voel toe selfs die borge nie net eenkant bly staan en toekyk nie, maar geesdriftig saam begin speel het.

Mnr. Stian Grobler en mnr. Derek Morkel.

Joe is agterspeler van die toernooi

Joe Ras, 'n leerling van Laerskool Marble Hall, het vir die o/13 Verre-Noord Kavalier span uitgedraf by die Bokkieweek.

Hy is aangewys as agterspeler van die toernooi.

Robert Abramse, Joe Ras en Marco de Sousa.

Vallei Gimnastiek by Ellisras Kruiskrag

Vallei Gimnastiek het die afgelope naweek aan die Ellisras Kruiskrag vriendskaplike Artistiese kompetisie deelgeneem.

Agt klubs regoor Limpopo het bymekaar gekom om twee dae van kompeterende gimnastiek te geniet.

Ná byna twee en 'n half jaar wat Vallei Gimnastiek Klub nie deelgeneem het nie, was dit weer vir hul lekker om terug in die ritme van kompetisie te kom.

Vallei Gimnastiek het 'n span van 11 Artistiese meisie-gimnaste gestuur vir hierdie vriendskaplike kompetisie.

Dié meisies het 22 apparaat medaljes verower. Hulle harde werk gedurende die vakansie en elke oefensessie is beloon met uitstekende punte.

Agter: Zsannaë van den Heever, Lé Chantell Cornwell, Kara van der Merwe, Samantha de Jonge en Lisa Oosthuizen.
Voor: Ansophie Prinsloo, Kiki Fouché, Minke Blignaut en Klara van Blerk.

Celiska Stemmet, Ansuné Olivier en Eliska Prinsloo.

Angela Borchers.

Figure 8: Newspaper Advertisement (encircled with red polygon)

Public Space Notices

Site notices were placed around the farm boundaries, adjacent properties, the local municipality, and Thembisile Hani Public Library on the 02nd of August 2022 as another means of notifying any person/s who would be Interested & Affected by the proposed development. Refer to ***Error! Reference source not found.*** for Proof of site Notice Placement.

Photo 2: Site notice placement. *(Singo consulting (Pty) Ltd , 2022)*

Table 8: Windeed Search Results

Deeds Office Property - List

JR, 216, MPUMALANGA

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Any personal information obtained from this search will only be used as per the Terms and Conditions agreed to and in accordance with applicable data protection laws including the Protection of Personal Information Act, 2013 (POPI), and shall not be used for marketing purposes.

SEARCH CRITERIA			
Search Date	2022/06/13 16:04	Farm Number	216
Reference	-	Registration Division	JR
Report Print Date	2022/06/13 16:04	Portion Number	-
Farm Name	-	Remaining Extent	NO
Deeds Office	Mpumalanga	Search Source	Deeds Office

PORTION LIST

Portion	Owner	Title Deed	Registration Date	Purchase Price (R)
0	NATIONAL GOVERNMENT OF THE REPUBLIC OF SOUTH AFRICA	T38654/2002	-	-
1	THEMBISILE HANI LOCAL MUNICIPALITY	T3672/2022	-	-
3	PROVINCIAL GOVERNMENT OF THE MPUMALANGA PROVINCE	T52127/2002	-	-
5	THEMBISILE HANI LOCAL MUNICIPALITY	T3674/2022	-	-
6	THEMBISILE HANI LOCAL MUNICIPALITY	T3676/2022	-	-
7	THEMBISILE HANI LOCAL MUNICIPALITY	T3675/2022	-	-
8	THEMBISILE HANI LOCAL MUNICIPALITY	T6173/2022	-	-
11	THEMBISILE HANI LOCAL MUNICIPALITY	T3673/2022	-	-
12	SANLAM LIFE INSURANCE LTD	T10505/2020	-	-
13	TOP SPOT SHOPPING CENTRE CC	T6989/2011	-	-

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Draft Basic Assessment Report (BAR) and Environmental Management Programme report (EMPr)

The Draft BAR and EMPR will be released for a period of 30 days from 05th August 2022 to 04th September 2022.

Hard copies of the Draft BAR and EMPr will be submitted to organs of state and relevant authorities that have requested it i.e., Mpumalanga Tourism Parks Agency (MTPA), Department of Agriculture, Land Reform and Rural Development (DALRRD), South African National Roads Agency Ltd (SANRAL) & Department of Water and Sanitation (DWS). Additionally, copies were placed at the Thembisile Hani Public Library & another copy submitted at the Thembisile Hani Local Municipality. Electronic copies will be made available upon request from Singo Consulting (Pty) Ltd via email; Dropbox link; Google drive; WeTransfer, etc.

Consultation and Correspondence with I & AP's and Stakeholders

All comments received from I&APs and organs of state and responses sent will be included in this BAR and EMPR.

9. IDENTIFICATION OF I&AP'S

LIST OF AUTHORITIES IDENTIFIED AND I&AP'S

Names of I & AP's	Organisation	Contact numbers	Email Address
Mr Humbulani Netshakhuma	National Government of the Republic of South Africa -		
Mr Humbulani Netshakhuma	Provincial Government of the Mpumalanga Province		
Bongi Mahlangu	Top Spot Shopping Centre CC-Center Manager		
Ria Barkhuizen	SANRAL		
Wayleaves	Eskom		
Mary Mogale	Department of Agriculture, Land Reform & Rural Development		
Thandeka Dhlamini Vusi Khoza Themba Mkhonto	Department of Rural Development and Land Reform		
Tshilidzi Mavulwana	TRANSNET		
Phumla Nkosi Mervyn Lotter	Mpumalanga Tourism & Parks Agency (MTPA)		
Mr.Tsebe	Thembisile Hani Local Municipality -Municipality Manager		
Skosana Maggie Millicent	Nkangala District Municipality		
Tshilidzi Ramavhona Tsholofelo Shalot Sekonko	Biodiversity Mainstreaming EIA: Department of Forestry, Fisheries, and the Environment		
Mbulaheni L.	Department of Water and Sanitation		

Summary of issues raised by I&APs

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

Table 9: Summary of issues raised

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted	Date Comments Received (Call, Fax, emails)	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
AFFECTED PARTIES				
Landowner/s				
Republic of South Africa **National Government of the Republic of South Africa**	The Draft Basic Assessment Report (DBAR) & Environmental Management Programme report (EMPR) to be populated			

Republic of South Africa

Provincial Government of the Mpumalanga Province

THEMBISILE HANI

LOCAL MUNICIPALITY

KWAGGA MALL

Local Municipality:					
THEMBISILE HANI LOCAL MUNICIPALITY					
NKANGALA DISTRICT MUNICIPALITY					
Organs of state (Responsible for infrastructure that may be affected: Roads, Departments, Eskom, Telkom& DWA)					
water & sanitation Department: Water and Sanitation REPUBLIC OF SOUTH AFRICA					

SANRAL					
Eskom					
Communities					
Tribal leaders					
There are no tribal leaders					
Dept. of Environmental affairs					
environmental affairs Department: Environmental Affairs REPUBLIC OF SOUTH AFRICA					
Dept. Agriculture, land reform & rural development					

agriculture, land reform & rural development Department: Agriculture, Land Reform and Rural Development REPUBLIC OF SOUTH AFRICA	
Mpumalanga TOURISM AND PARKS AGENCY	
TRANSNET	
SAHRA	
https://sahris.sahra.org.za	
Other Affected Parties	
Interested parties	

N/B: Due to POPI Act sensitive information will not be disclosed to the public

10. THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES

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

10.1 BASELINE ENVIRONMENT

Socio Economic Context

The proposed Prospecting Project is located within the Magisterial District of Thembisile Hani under, situated within the Nkangala District Municipality. See ***Figure 9*** for ease of reference.

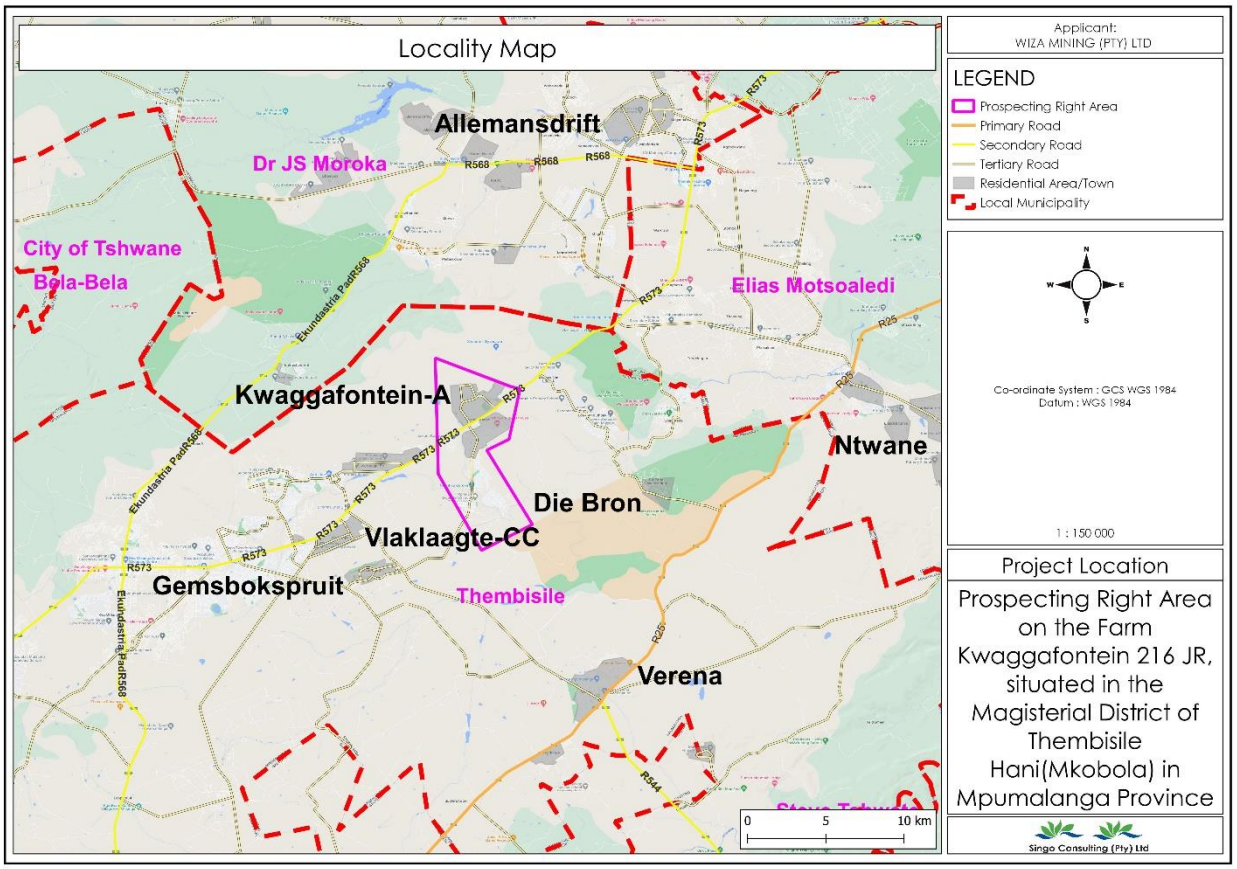


Figure 9: Project location. *(Singo consulting (Pty) Ltd , 2022)*

11. SOCIO-ECONOMIC ENVIRONMENT

Reference to the following section has been made from (2022 - 2027) Draft Integrated Development Plan of Thembisile Hani Local Municipality.

Municipal Administration Units and Wards

The Thembisile Hani Local Municipality comprises of 32 Wards and a total population of approximately 378 481 (CS 2021). The municipality has an area of approximately 2,384 km².

Demographic Profile and Density

Population Size

According to Mpumalanga SERO Report 2021 community survey), Thembisile Hani`s population grew from 333 3331 people in 2016 to 378 481 people in 2021 which accounts for 23.7% of Nkangala's population. The population grew by 1.6% PA between 2016 & 2021. According to the community Survey conducted in 2016 the population has grown to 333 331, the 7th largest population in the province and the 3rd in the district after Emalahleni Local Municipality.

Table 10: Population Size

[illegible]	Stats SA Census	Stats Census	Share of Nkangala's figure	Share of Mpumalanga's figure	Ranking: highest (1) - lowest (18)
	2016	2021	2016	2016	
Population number	333 331	378 581	23%	7.7%	5
Number of households	75 634	82 740	21.2%	7.0%	6
Area size - km²		2	14.2%	3.1%	15
Population per km²		1			

(Statistic South Africa(community survey) , 2016)

The population size and population growth indicate that Thembisile Hani municipal area has a lot of implications. The growth means that there will be high housing needs, water and other basic services like electricity, sanitation, and employment. With this in mind, the municipality will have to take cognizance of the growth when they budget.

The population number is estimated to be 394 651 in 2030 given the historic population growth rate per annum. Of the total population 52.4% are female and 47.6% are male and approximately 99.2% are Africans. Youth up to 34 years of age is estimated at 68.7% of the population and the number of households grew from 75 634 to 82 740 which amounts to 4.1 people per household and 23% of the total households in Nkangala. Female headed

households are estimated at 46.1% and child headed (10-17 years) households at 0.9 % in 2011. The population is estimated to be 416 282 in 2030.

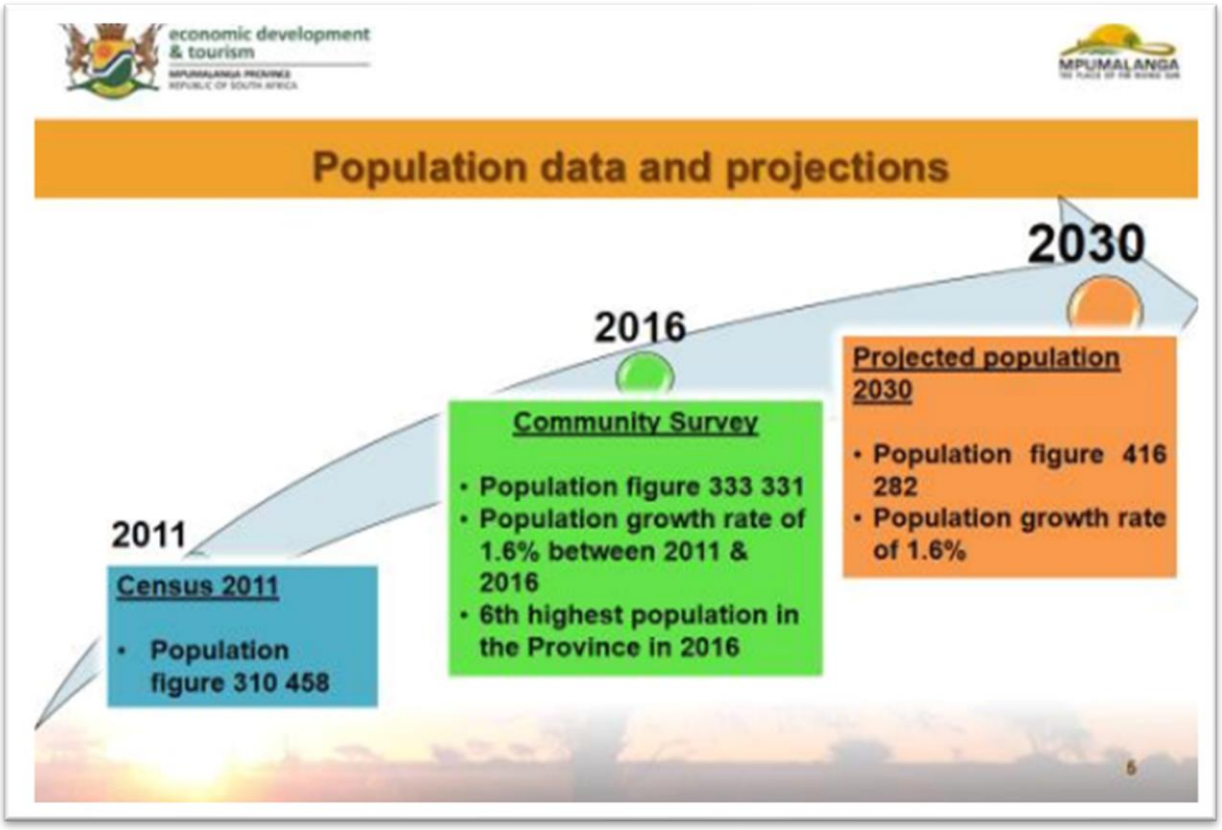


Figure 10: Schematic representation of population growth. *(IDP,2022)*

Employment and unemployment indicators

About 97 744 people are economically active (employed or unemployed but looking for work), and of these, 37% are unemployed. Of the 48 741 economically active youth (15 – 34 years) in the area, almost half (49, 4%) are unemployed. The unemployment rate in the municipality is currently standing at 37% with the 37 Female population accounting for most of the unemployment status. The loss of jobs and the decline in new job opportunities in neighboring urban areas such as Witbank, Middelburg and Pretoria exacerbate the unemployment rate. The SERO further indicates the following about the Municipality:

- Unemployment rate of 37.0% (strict definition) in2011 amounted 36 139 unemployed as a percentage of the EAP of 97 744 - decreasing trend (estimated 2013 unemployment figure by IHS Global Insight 36.4%).
- Unemployment rate for females 39.9% and males 34.1% - youth unemployment rate of 49.4% in 2011.
- Highest unemployment in Ward 30 (50.1%) & lowest unemployment in Ward 1 (29.0%).

- Employment number 17.3% of Nkangala's employed.
- Employment increased by 27 468 between 2001 & 2011 according to the Census – almost 3 000 new jobs per annum – 4% of provincial job creation target.
- Formal employment 54.3% & informal employment 22.5%

The SERO report further illustrates that the leading employment industries within the municipality in 2014 were trade at 24.6% and community services 21.7%. While in 2017 the whole leading industries (Trade and Community Services) decreased to 24.4% and 22.1% respectively. Prevailing trends have also shown a decreasing role/share of Agriculture and finance while there was a steady growth in manufacturing and mining as the main employers.

Table 11: Thembisile Hani labour indicators

LABOUR INDICATORS	Census 2001	Census 2011	Share of Nkangala's figure 2011	Ranking: best (1) – worst (18)
Working age population	151 714	195 457		
Active AP)/Labour Force	69 910	97 744		
Number of employed	34 137	61 605	17.3%	
Number of unemployed	35 773	36 139	23.7%	
Unemployment rate (%)	51.2%	37.0%		15

(Socio-Economic Report and Outlook for Mpumalanga, 2017)

Education indicators

According to the 2016 CS of Stats SA, the population in Thembisile Hani aged 20+ completed grade 12, increased from 55 341 in 2011 to 74 312 (increase of 18 971) in 2016 – an increase of 34.3% in the relevant period.

- Thembisile Hani's grade 12 pass rate improved from 67.2% in 2011 to 77.3% in 2016, which was the 12th highest of the municipal areas of the province
- The area achieved an admission rate to university/degree studies of 17.2% in 2016. The challenge is to accommodate the educated young people in the area - inadequate economic opportunities.
- Provision of adequate educational, recreational infrastructure and skills development activities to meet the needs of the community.

Table 12: Education Indicators

EDUCATION INDICATORS	Trend	Latest Figure		Better (+) or worse (-) than province	Ranking: best (1) - worst (18)
	2001	2011			
Number of people 20+ with no schooling	43 736	31 711			15
Population 20+ with no schooling (%)	33.9%	18.0%	(-) (11.5%)	(-) (14.0%)	13
Population 20+ with matric & Higher (%)	19.6%	31.6%	(-) (40.2%)	(-) (38.8%)	16
Functional literacy rate (%)	57.5%	71.8%	(-) (79.0%)	(-) (76.9%)	14

(Socio-Economic Report and Outlook for Mpumalanga, 2014)

Concluding Remarks

The municipality has been under strain because of the influx of job seekers and high unemployment rate, and it faces challenges in accommodating the area's potential educated young people due to a lack of economic opportunities. COVID-19 had a negative impact as well, as it caused many people to lose their jobs, significantly contributing to the unemployment rate. Although no local job opportunities are expected during the prospecting phase, looking at the statistics of the proposed area it is safe to conclude that the mining project will add on the growth of the manufacturing and mining employment industries and may help address the challenges currently facing the communities most affected by the proposed project.

12. SENSITIVITY STUDIES

Reference to the following section has been made from Singo Consulting (Pty) Ltd Specialists studies (Hydrogeological **Studies, Hydrological Studies, and Soil Studies)**

12.1 GEOLOGY

Regional Geology

Bushveld Igneous Complex

The Bushveld Igneous Complex (BIC) is the largest layered igneous intrusion within the Earth's crust. It has been tilted and eroded forming the outcrops around what appears to be the edge of a great geological basin: the Transvaal Basin. It is approximately 2 billion years old and is divided into four different limbs: the northern, southern, eastern, and western limbs. The Bushveld Igneous Complex now occurs in the following Provinces: Northwest, Gauteng, for the western limb and Limpopo and Mpumalanga for the eastern limb. The Bushveld Complex comprises the Rustenburg Layered suite, the Lebowa Granites and the Rooiberg Felsics, that are overlain by the Karoo sediments. The site was first discovered around 1897 by Gustaaf Molengraaf. The Bushveld Igneous Complex now occurs in the following Provinces: Northwest, Gauteng, for the western limb and Limpopo and Mpumalanga for the eastern limb.

Rustenburg Layered Suite

The Rustenburg Layered Suite is an approximately 8 km thick succession of layered mafic and ultramafic rocks, exposed in 5 major lobes, i.e., the eastern-, western-, and far-western lobes, the northern or Potgietersrus - Villa Nora lobe, and the Bethal lobe. The latter, hidden below younger sedimentary cover, was identified on the basis of a gravity high and is only known from borehole core. The individual lobes differ in aerial extent, thickness and degree of exposure. There is still controversy as to whether the limbs are joined at depth. Connectivity of the lobes at depth was first proposed by Hall (1932). Later interpretations of the Bouger anomalies suggested that the mafic rocks were not continuous at depth *(Cousins, 1959)*. Drilling 11 established extensions of the western limb at its northern end beneath the Bushveld granite, and of the eastern limb beneath the Karoo sedimentary cover to the west of the 6 Wonderkop fault *(Eales and Cawthorn, 1996)*. Cawthorn and Webb (2001) proposed that Hall's initial model was correct, in that the eastern and the western limb of the Bushveld Complex are linked and formed within a single lopolithic intrusion. Their proposition is largely based on the lithological and compositional similarity between the different lobes, and by considering the isostatic response of the crust after emplacement of the Bushveld magma. The Rustenburg Layered Suite is generally sub-divided into five zones *(Hall, 1932)*: at the base is the Marginal Zone which is overlain by the Lower Zone, Critical Zone, Main Zone, and the Upper Zone. The basal Marginal Zone consists of unlayered fine- to medium grained heterogeneous gabbronoritic rocks and varies in thickness between 0 and 250 m *(western Bushveld Complex, Coertze, 1974)*. The rocks of the Marginal Zone are generally established

extensions of the western limb at its northern end beneath the Bushveld granite, and of the eastern limb beneath the Karoo sedimentary cover to the west of the Wonderkop fault *(Eales and Cawthorn, 1996)*.

The Lebowa Granite Suite

The Bushveld granites form a 2-3 km thick sheet-like sill of batholithic proportions, which gently dips centripetally towards the centre of the Complex, although it is gently folded locally to expose inliers of the underlying sedimentary rocks, such as the Marble Hall and Crocodile River fragments *(Kleeman & Twist, 1989)*. The main granites of the Lebowa Granite Suite, or Nebo granite are highly potassic, magnetite-bearing, A-type granites *(SACS, 1980)*. Straus (1954) noted several variations within the Nebo granite such as an upwardly decrease in hornblende contents and a gradual colour change from grey at its base to a distinctive deepening red colour towards the upper parts, caused by the trapping of hematite in the feldspar lattices during deuteric alteration of the feldspar. The Nebo granites are by and large the most common variety and occupy most of the central core of the Complex.

The Rooiberg Group

The Rooiberg Group consists of a series of mainly felsic volcanic rocks that were subsequently intruded, first by the mafic and ultramafic layered rocks of the Rustenburg Layered Suite (RLS), and second by the Rashoop Granophyre and Lebowa Granite suites. This group is composed of an unusually thick and extensive sequence of epicrustal acid volcanics comprising dacites, rhyolites and rare andesites. Lavas, air-fall tuffs, ash-flow tuffs and phreatic (hydrothermal) tuffs are all present with interbedded shales, sandstones, and volcanic mudflows. Although the Rooiberg Group has long been viewed as the terminal stage of deposition in the Transvaal Basin, it is now more-widely considered to represent the preliminary stage of magmatism related to the Bushveld Complex, with a possible 30–40-million-year hiatus between sedimentary deposition in the Transvaal Basin and the eruption of the Rooiberg volcanics *(Robb, pers. comm.)*. With a thickness of more than 5 km in places and an estimated volume 7 of 300 000 km3, the Rooiberg Group represents one of the world's largest acid volcanic provinces *(French & Twist, 1983)*. It has been assigned an age of 2057.3 + 3.8 Ma obtained by single U-Pb SHRIMP zircon analysis *(Harmer & Armstrong, 2000)*, and may be seen to represent the earliest episode of magmatic activity pertaining to the Bushveld Complex. It forms the "roof" rocks to the rest of the Complex with unequivocal intrusive relationships between the Rooiberg Group and all the components of the Bushveld Complex.

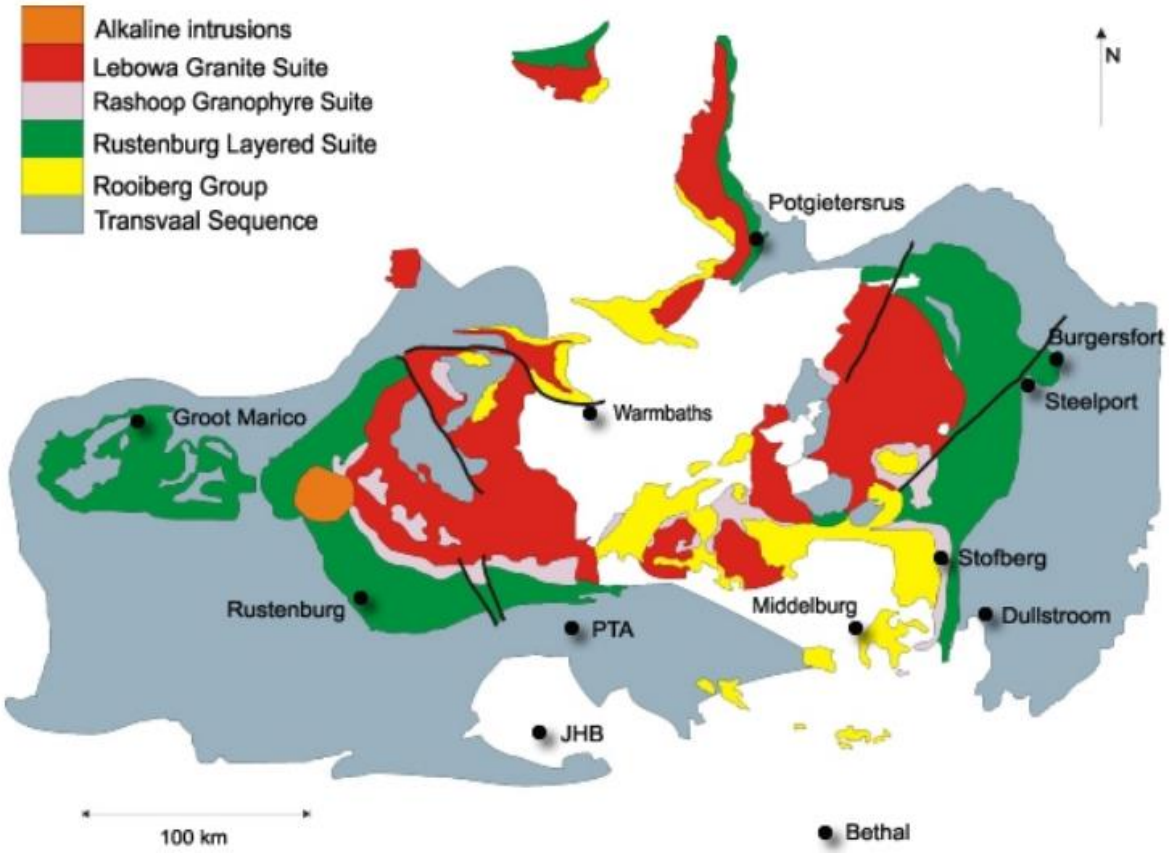


Figure 11: Simplified geological map of the Bushveld large Igneous Province, which includes the Rusternburg Layered suite, Lebowa Granite Suite, and Rooiberg group. *(Kinnaird, 2005)*

Local Geology

Rashoop Granophyre Suite

Granophyric rocks of the Bushveld Complex occur widely between the RLS beneath and the Rooiberg Volcanics above although they are never voluminous. Little work has been completed on the granophyric rocks since a memoir by Walraven in 1987. It is unfortunate in some ways that these texturally similar rocks have been grouped together because of the diversity of origin within the group. According to Walraven, (1987), the Stavoren granophyre, which is the predominant type, is shallow intrusive facies of a magma which intruded below the rhyolite roof of the Rooiberg Group or Pretoria Group sediments and also extruded to form the volcanic pile. In contrast, other granophyres formed by the melting of the overlying volcanic roof rocks by the underlying RLS, by recrystallisation of Rooiberg volcanic rocks, or by metamorphism of sedimentary roof rocks.

Schrikkloof Formation

Kwaggasnek formation falls under the Rooiberg group, within the context of the study, the formation lies in the upper part of the study area and the bottom part. The Formation contacts the Granophyre suite and is dominated by rare rhyolites flows and intercalated sedimentary horizons *(Kinnaird, 2012)*.

Strubenkop Formation

The formation is found on the boundary of the study area along the bottom polygon. In the study area, it is within the Kwaggasnek formation and is largely dominated by shale, henceforth also referred to as Strubenkop Shale Formation.

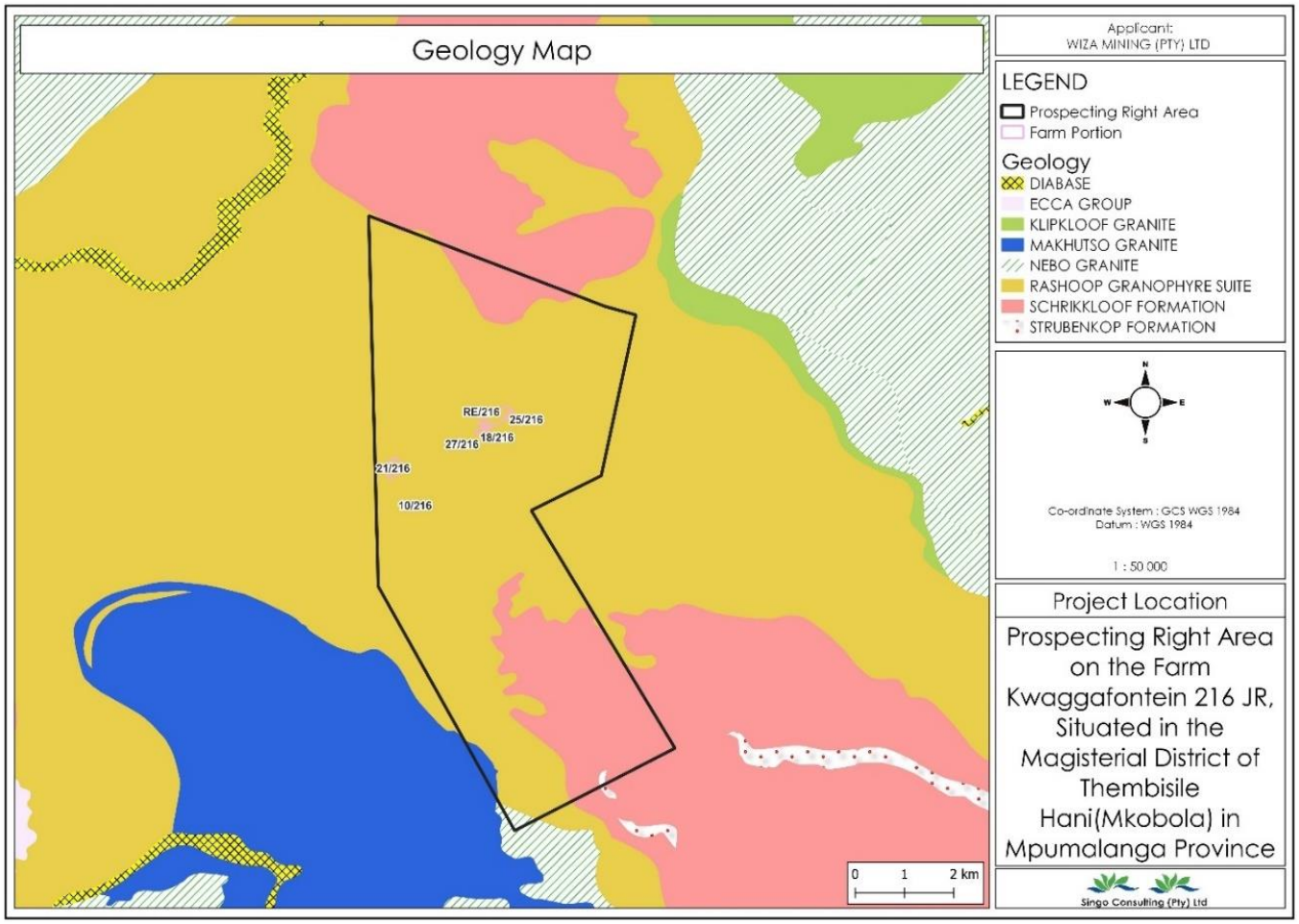


Figure 12: Geology map of the study area. *(Singo consulting (Pty) Ltd , 2022)*

12.2 SOILS

According to the baseline soil study conducted by Singo Consulting (Pty) Ltd in 2022, the soil classes map in ***Figure 13*** below, shows that the prospecting area is largely covered with freely drained, structureless soils and a small portion of non-soil land classes.

Freely drained, structureless soils:

The Freely drained, structureless soils can be defined based on their soil depth, Soil Drainage, erodibility, and natural fertility.

Non soil land classes:

The non-soils land classes are classified under the wildlife land capability group, this class have no capability for arable culture or permanent pasture. This class also includes rock land, other non-soil areas, and bodies of water too small to be shown on the maps *(S&WCE: Lesson 25 Land Use and Capability Classification (iasri.res.in))*. The area is highly dominated by rocks with little or no grazing potential, and a minor cultivation potential.

The lands are very rough and suitable for wildlife conservation, development of recreation spots or watershed conservation.

The arable capability limitation is due to:

- Erosion
- Severe climate
- Wet soil
- Stones
- Low moisture holding capacity
- Salinity, bad lands, rock outcrops, mine tailings, and nearly barren lands.

Soil depth

Depth of the soil profile is from the top to the parent material or bedrock. This type of soil can be classified as a restricted soil depth. A restricted soil depth is a nearly continuous layer that has one or more physical, chemical, or thermal properties.

Soil Drainage

Soil drainage is a natural process by which water moves across, though, and out of the soil because of the force of gravity. The soil in the proposed area has an excessive drainage due to the soils having very coarse texture. Their typical water table is less than 150.

Erodibility

Erodibility is the inherent yielding or non-resistance of soils and rocks to erosion. The freely drained structureless soils have high erodibility. A high erodibility implies that the same amount of work exerted by the erosion processes lead to a larger removal of material.

Natural Fertility

Soil fertility refers to the ability of soil to sustain agricultural plant growth, i.e., to provide plant habitat and result in sustained and consistent yields of high quality. The soil, as a nature of them, contains some nutrients which is known as 'inherent fertility'. Among the plant nutrients, nitrogen, phosphorus, and potassium is essential for the normal growth and yield of crop. The proposed area has a low natural fertility soil.

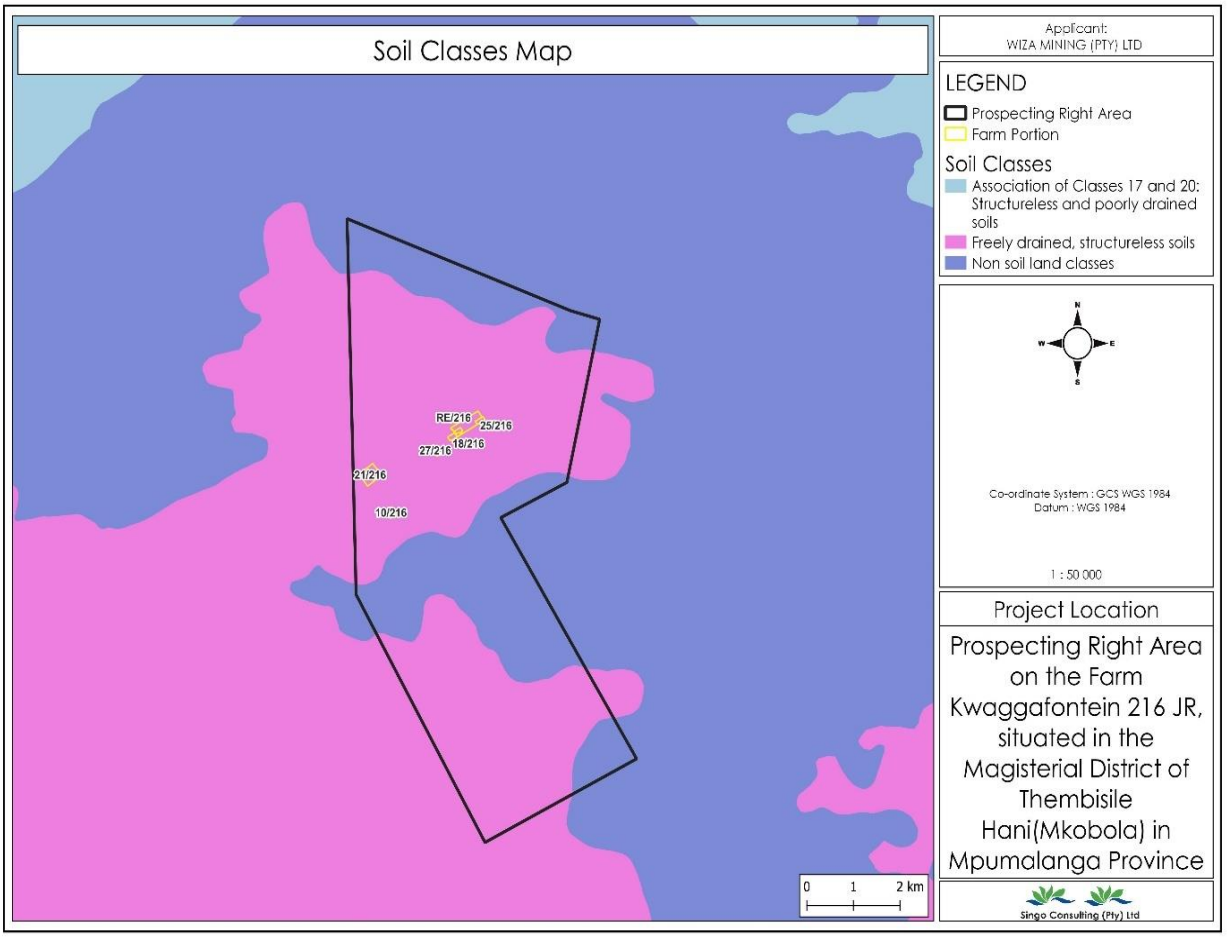


Figure 13: Soil Classes map of the proposed project area. *(Singo Consulting (Pty) Ltd, 2022)*

Photo 3: Soil type found on site. *(Singo Consulting (Pty) Ltd, 2022)*

Recommendations

- It is anticipated that the aggregate, soil general and gravel prospecting activities will not lead to severe loss of soils and degradation of agricultural potential.
- The exploration geologist will be advised to drill and sample away from the waterbody on site.
- The prospecting boreholes must be cased after drilling and properly rehabilitated by cap sealing the borehole after drilling. The core of aggregate on the drilled boreholes, should be cleared from the ground immediately after logging by a geologist, to prevent washing and leaching on the water resources during precipitation events.
- Absorbent Spill kits will be made available near the drill rigs during drilling activities.

12.3 LAND CAPABILITY

According to the map produced by the GIS technician (see *Error! Reference source not found.*), the land capability of the area is said to be arable and wilderness. The site assessment conducted on the 27th of June 2022 correlates to the current land use on site. Most of the proposed project area consists of crops while the other half is natural and used by livestock for grazing (see *Error! Reference source not found.* below). This information also correlates to the info produced by the screening tool.

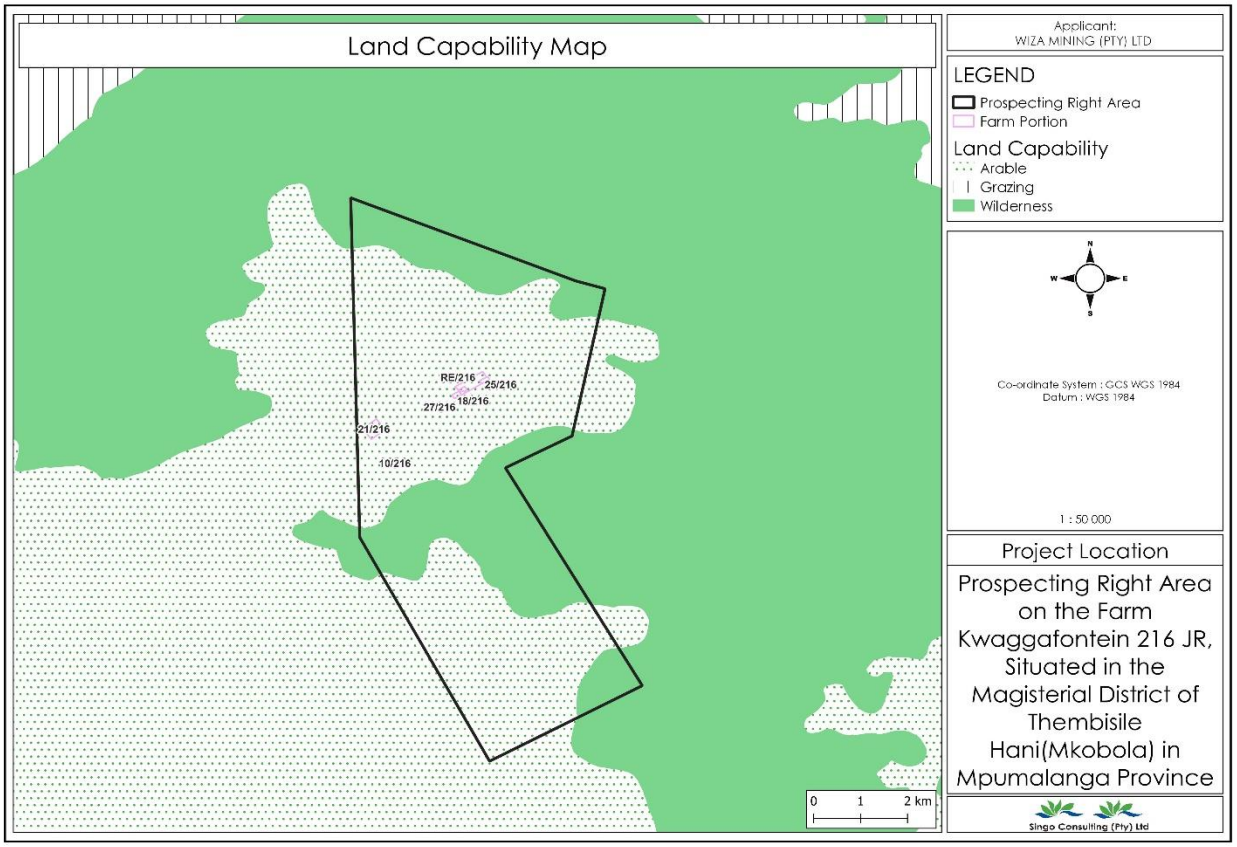


Figure 14: Land capability map. *(Singo Consulting (Pty) Ltd, 2022)*

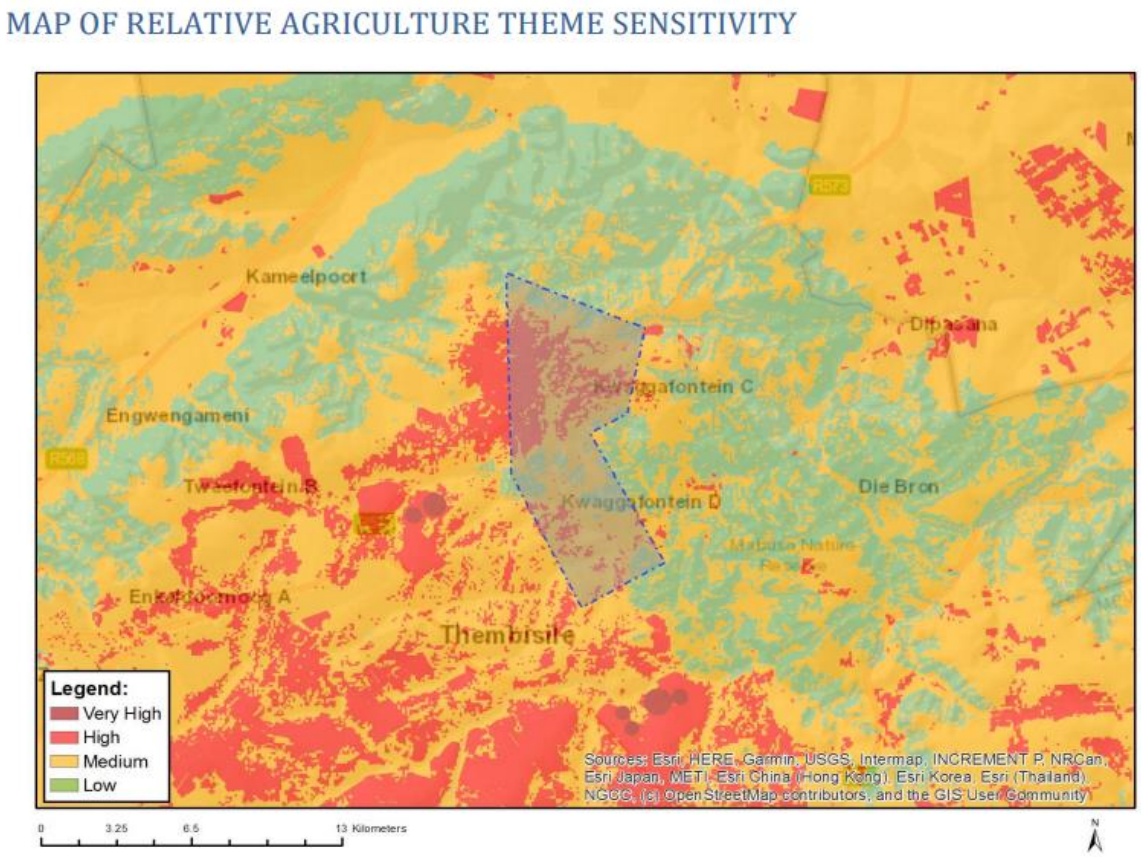


Figure 15: Agriculture theme sensitivity *(Source: Screening Tool)*

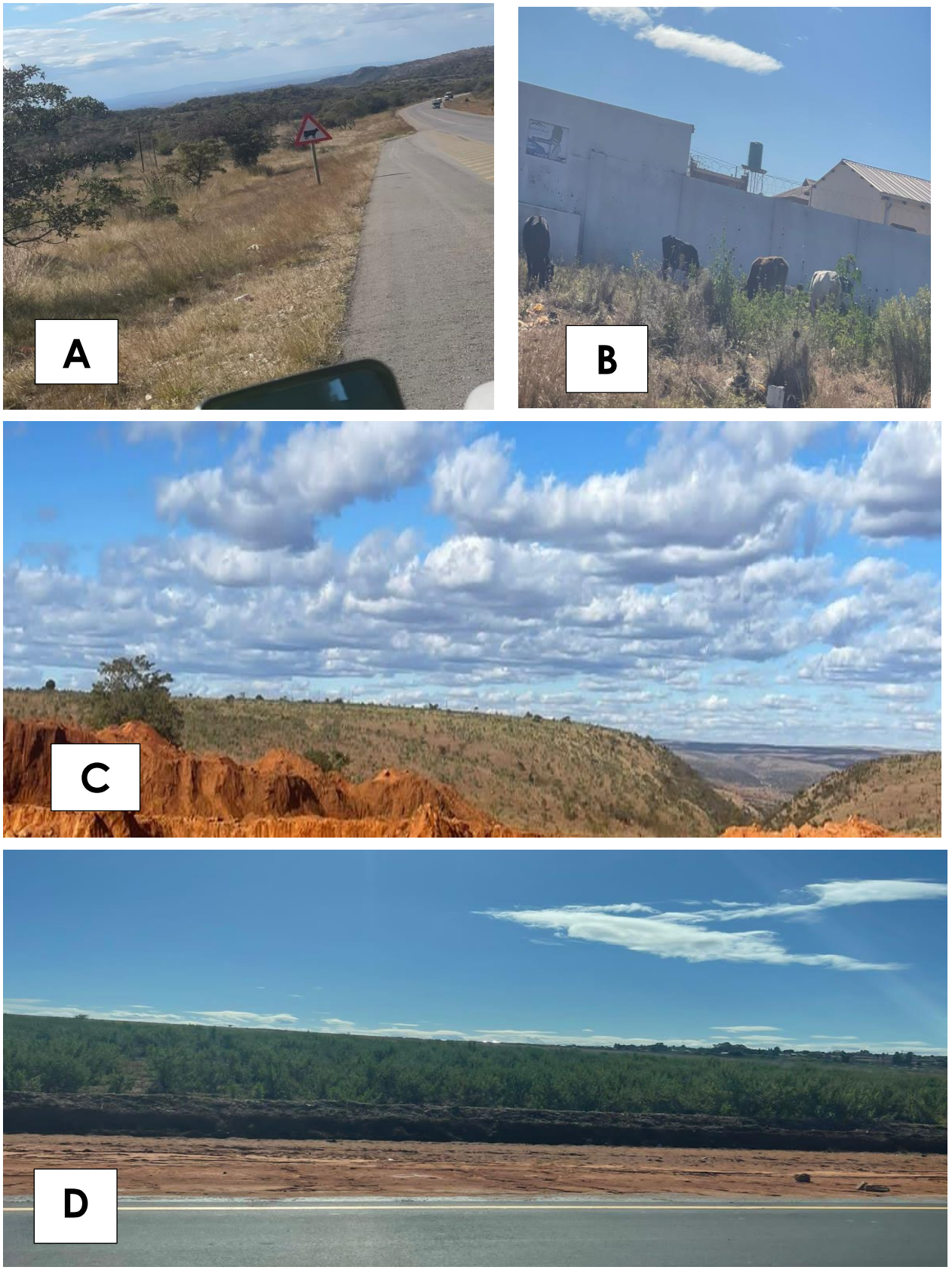


Photo 4: Agriculture and wilderness land. *(Singo consulting (Pty) Ltd , 2022)*

12.4 VEGETATION

The proposed project area is located within the savanna biome. The savanna biome is the largest biome in Southern Africa, occupying 46% of its area, and over one-third the area of South Africa. It is well developed over the lowveld and Kalahari region of South Africa (SANBI)

The area is covered with mixed bushveld and rocky highveld grassland vegetation type. Mixed Bushveld, as is deduced from the name, represents a great variety of plant communities, with many variations and transitions. While rocky highveld grassland represents patches of woodland vegetation found at sheltered sites on hill slopes and rocky outcrops.

The vegetation varies from a dense, short bushveld to a rather open tree savanna. The area is categorised as arable as per the land capability map which is also attached above. A minor part of the permit area is said to be wilderness.

The screening report illustrates low - medium sensitive plant species within and around the application area (see ***Figure 25***below).

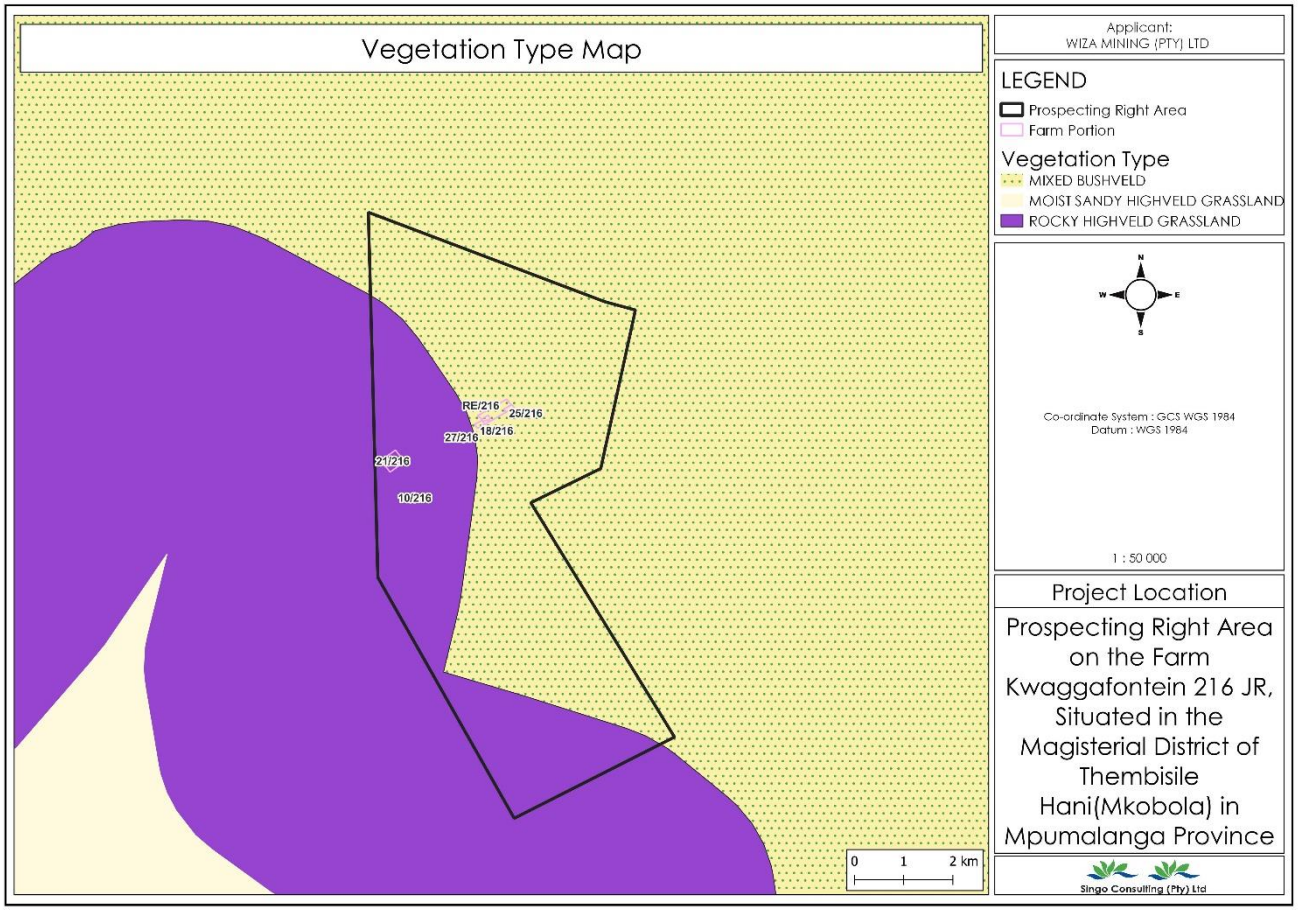


Figure 16:Vegetation type map. *(Singo consulting (Pty) Ltd , 2022)*

12.4.1 Plant species of concern

During the desktop study, no plant species of concern/Red Plant Species were found to be associated with the proposed site. During the site assessment, the was no plant species of concern/Red Plant Species. It was confirmed by the Species Status Report from the Mpumalanga Tourism and Parks Agency that there are no plant species of concern on the proposed site. See **Table 15** below.

Table 13: MTPA Plant Species Information.

Species Status Report

Monday, June 20, 2022

Resolution <=100: Map Grid=2528BD: Databse=All

2528BD

Common Name	Scientific Name	Conservation	
Endemic		RSA	MTPA
Birds			
BULTFONTEIN 94 JS			
Pallid Harrier	Circus macrourus	NT	NT
LEEUWKOP 228 JR			
Secretarybird	Sagittarius serpentarius	VU	VU
VLAKLAAGTE 221 JR			
African Grass-Owl	Tyto capensis	VU	VU
Tawny Eagle	Aquila rapax	EN	EN

Source: (MTPA, 2022)

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY

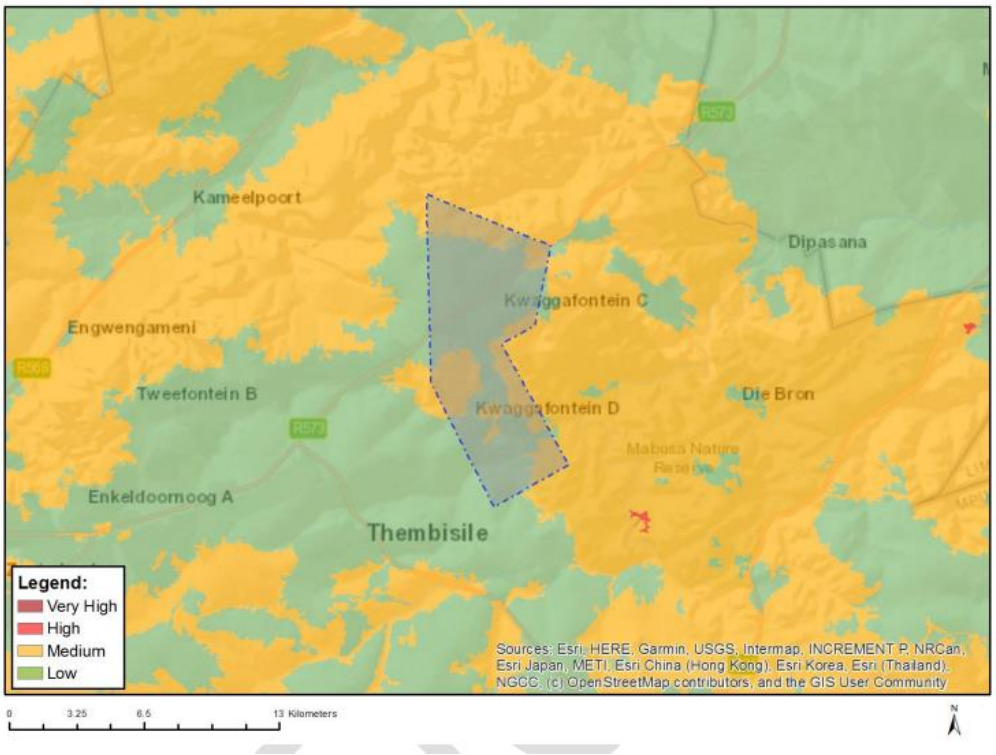


Figure 17: Relative plant species sensitivity map. *(Source: screening report)*

12.4.2 Vegetation units on site

Three vegetation communities were identified during a brief once-off field survey of the study area on the 27th of June 2022. These were recognised based on physiognomy, moisture regime, species composition and disturbance characteristics. Vegetation communities include cultivated/disturbed area, vegetation associated with watercourses (riparian and moist grassland) and natural (untransformed) grassland. The characteristics of each vegetation community are discussed in the following sections.

Cultivated/disturbed area

During site assessment, it was found that some of parts of the farm is having a stream running through. Amongst these, common vegetation types are *Bidens pilosa* (Blackjack), *Cortaderia selloana* (Pampas grass), *Eragrostis* (love grass), *Leonotis leonurus* (wild dagga), *Phragmites australis* (Phragmites), *Campuloclinium macrocephalum* (Pompom weed), *Aristida congesta* (Tassel three-awn).

Sensitivity aspects:

1. Due to the complete transformation of the area, the area has negligible or low ecological function.
2. No endemic, Red Data or protected species were recorded in the cultivated lands and the probability of such species occurring in this vegetation community is considered low.
3. Accordingly, the conservation importance of cultivated land is considered low.

Photo 5: Current common vegetation in the area. *(Singo Consulting (Pty) Ltd, 2022)*

Natural/untransformed grassland

During site assessment, it was found that the portion of the proposed area are covered with Mixed Bushveld, while other portions are covered in Moist Sandy Highveld Grassland. The Moist Sandy Highveld Grassland and Mixed Bushveld represent natural or untransformed grassland. The floral species identified in this community include *Eragrostis plana* (South African lovegrass), *E. curvula* (Weeping lovegrass), *Heteropogon contortus* (Spear grass), *Trachypogon spicatus* (Giant spear grass), *Themeda triandra* (red grass) and *Americana agave* (Century Plant).

Sensitivity aspects:

1. The open grassland has an ecological functioning of medium to high as it is a grazing area for livestock.
2. The suitability of this community for red data/protected species is considered low and red data species were not recorded during site assessment.

Photo 6: Indication of the mixed bushveld on site. *(Singo Consulting (Pty) Ltd, 2022)*

Table 14: Floral species identified on the proposed area.

SCIENTIFIC NAME	COMMON NAME	IUCN STATUS
Eragrostis plana	South African lovegrass	Least Concern
Eragrostis curvula	Weeping lovegrass	Least Concern
Heteropogon contortus	Spear grass	Least Concern
Trachypogon spicatus	Giant spear gras	Least Concern
Bidens pilosa	Blackjack	Least Concern
Cortaderia selloana	Pampas grass	Least Concern
Eragrostis	love grass	Least Concern
Americana Agave	Century Plant	Not Evaluated
Leonotis leonurus	wild dagga	Least Concern
Phragmites australis	Phragmites	Least Concern
Campuloclinium macrocephalum	Pompom weed	Least Concern
Aristida congesta	Tassel three-awn	Least Concern
Verbena bonariensis	Tall Verbena	Least Concern
Sclerocarya birrea	Marula	Least Concern

Acacia mellifera	Black thorn	Least Concern

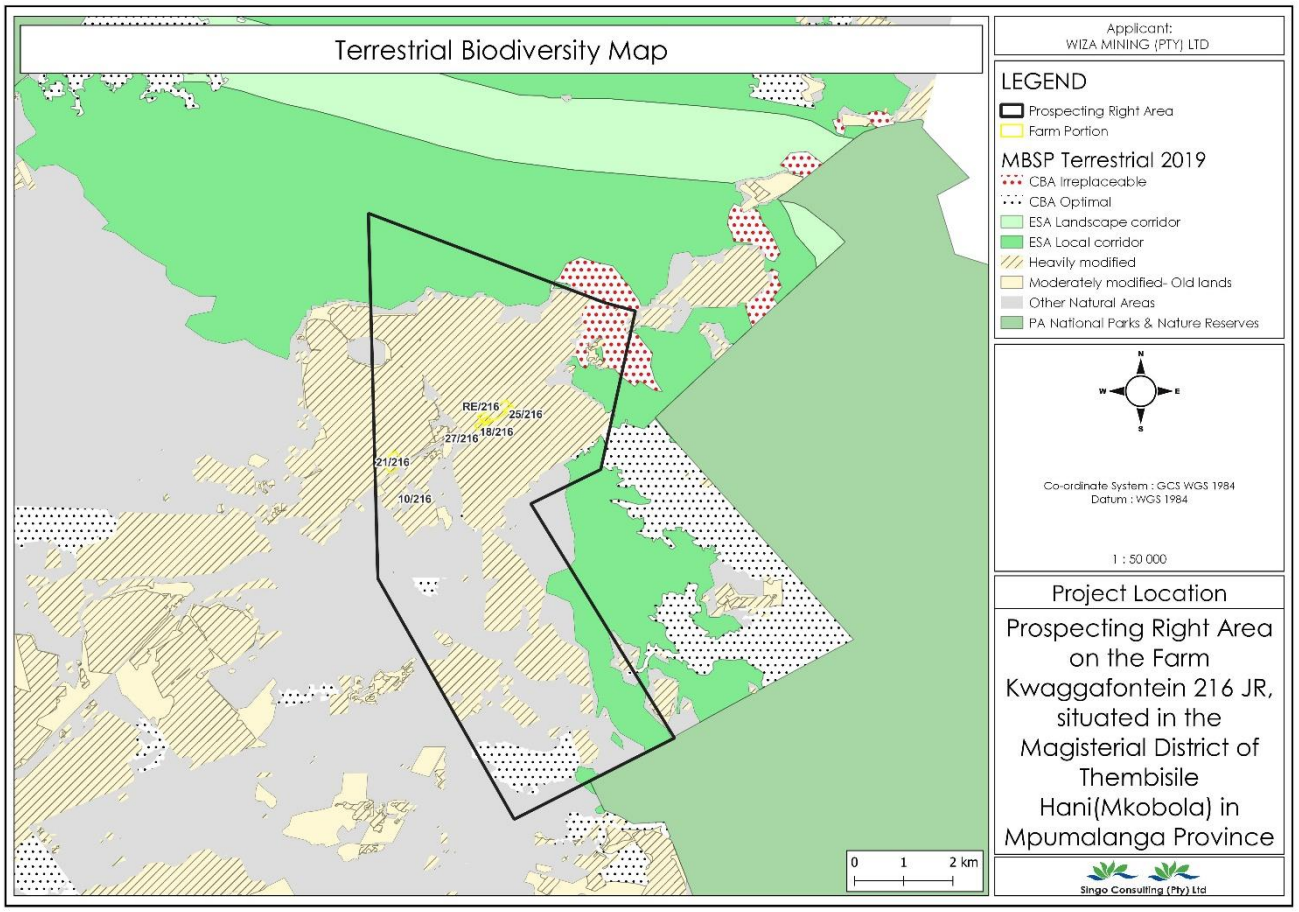


Figure 18: Biodiversity map. *(Singo Consulting (Pty) Ltd, 2022)*

The map above (***Error! Reference source not found.***) illustrates the CBA of the proposed project area. This map along with the freshwater map (see ***Figure 19***) influenced the positioning of the proposed boreholes. Boreholes have been placed strategically on open spaces within the field. According to the maps as well as the borehole map produces by the inhouse GIS technician, no boreholes will be placed near the wetland and infrastructure that is found within the proposed project area.

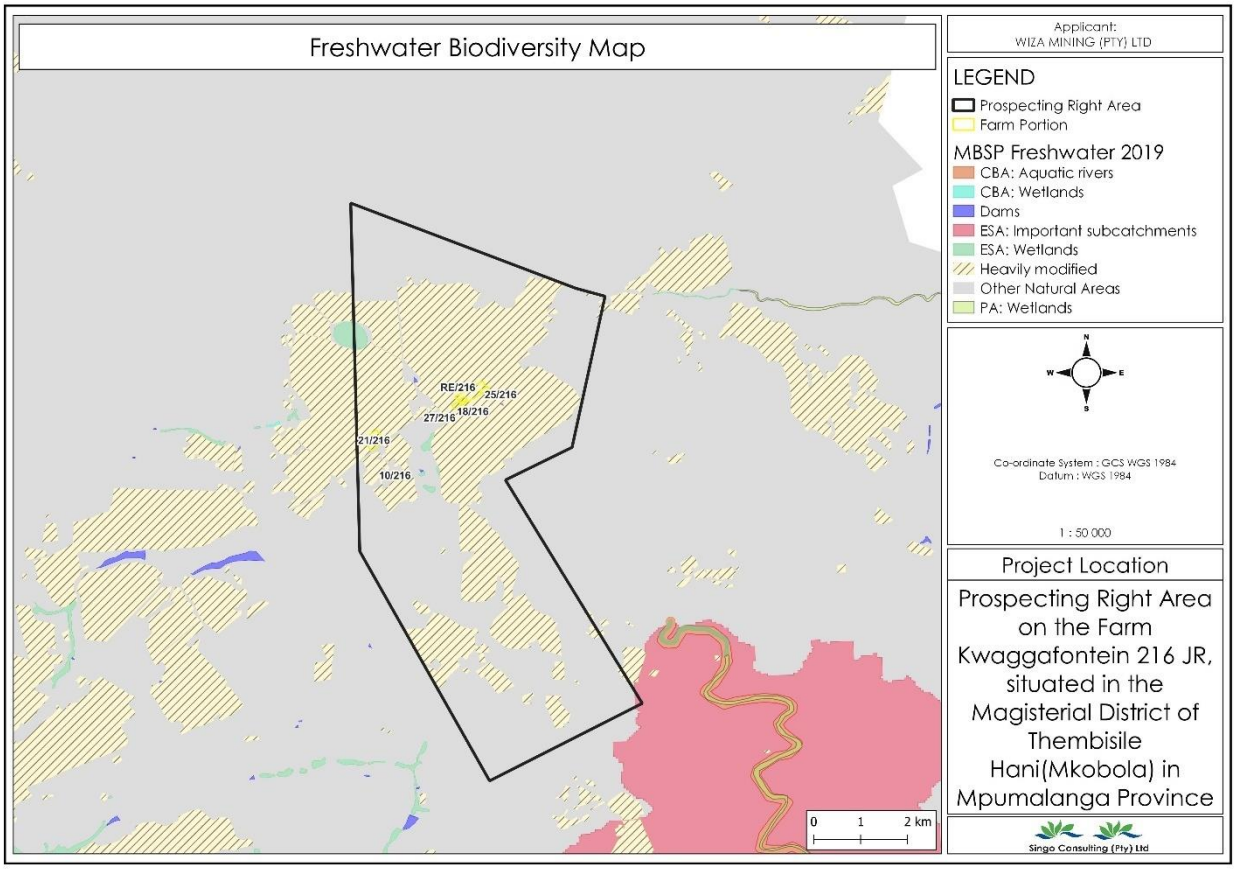


Figure 19: Freshwater map. *(Singo Consulting (Pty) Ltd, 2022)*

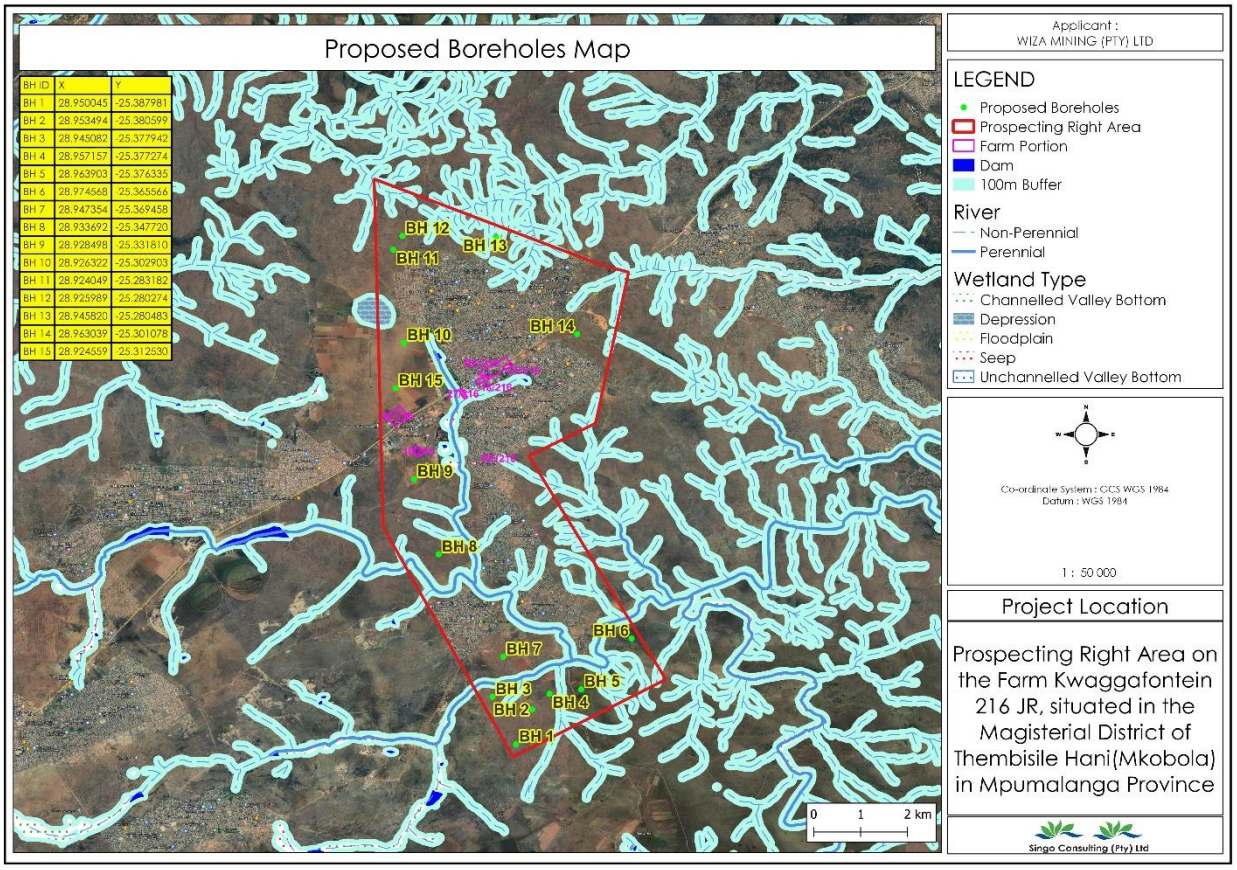


Figure 20: Proposed boreholes. *(Singo Consulting (Pty) Ltd, 2022)*

13. CLIMATE

The climate in the proposed area is a temperate highland tropical climate with dry winters, with an elevation of 1519.81 meters above sea level *(Classification: Cwb)*. The yearly temperature in the district is 22.52°C, which is 1.3 percent higher than the national average. Witbank receives 72.32 millimetres of precipitation on average per year, with 121.11 wet days (33.18 percent of the time).

11.1 Temperature

The project site is located where the mean annual temperature map is between 2.1- 4 Degree Celsius seen in ***Figure 16*** below and the Mean Annual precipitation ranges between 601 – 800 mm as seen in ***Figure 17***.

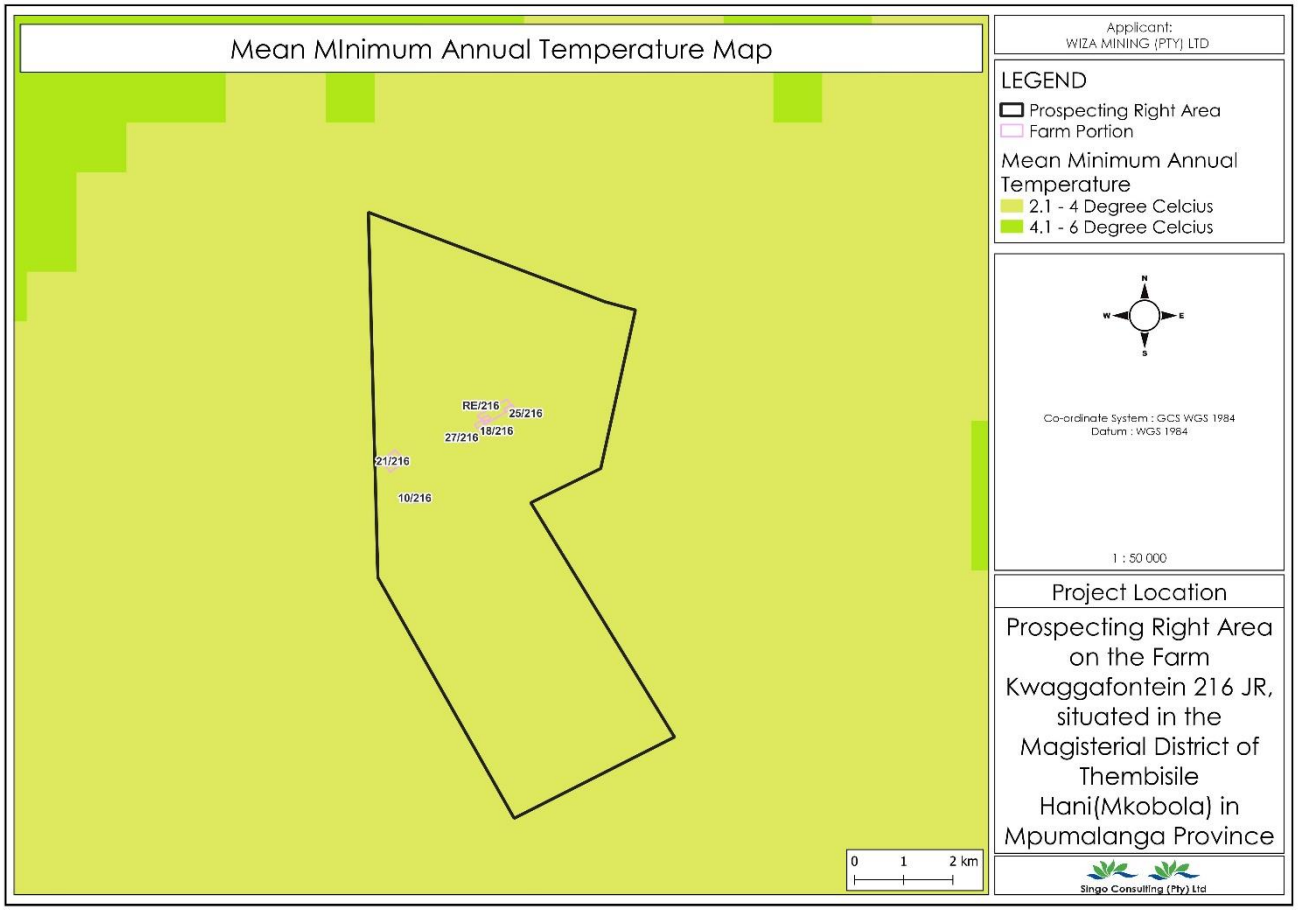


Figure 21: Average temperature graph for Kwaggafontein. *(Singo consulting (Pty) Ltd , 2022)*

14. RAINFALL

The proposed project area receives mean annual rainfall of 601mm to 800mm. The driest month is June, which receives an average of 5.38 mm precipitation, and the wettest month is January, which receives the most precipitation, averaging 176.46 mm. The mean annual rainfall for the project is shown in ***Figure 22*** below.

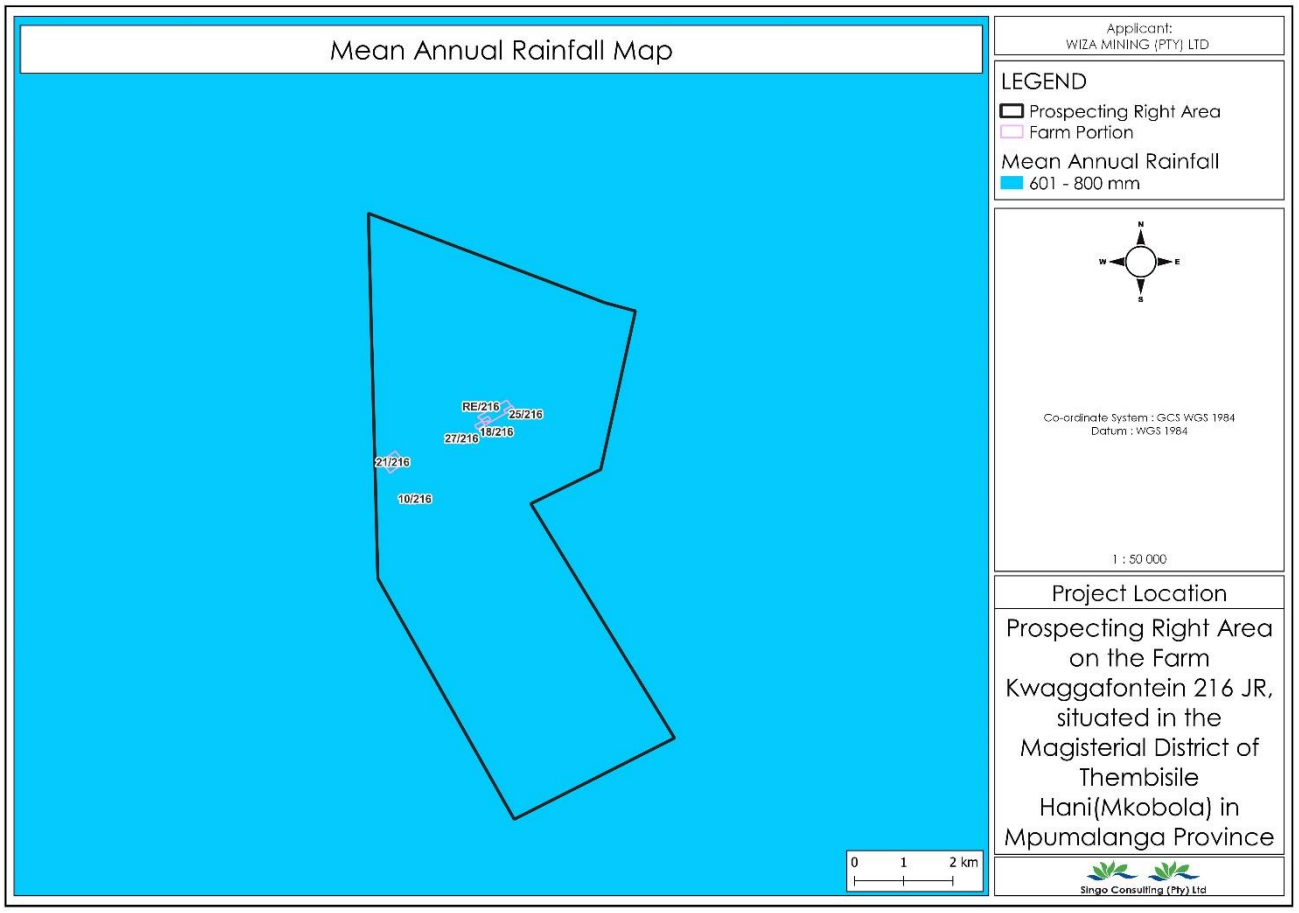


Figure 22: Mean annual rainfall for the project area. *(Singo consulting (Pty) Ltd , 2022)*

15. TOPOGRAPHY

The topology of the area is illustrated below by **Figure 18.** A topographical map shows the physical features of the land. Besides just showing landforms such as mountains and rivers, the map also shows the elevation changes of the land. The

topographical map illustrates that the proposed project area is situated in a region generally characterized by a flat-lying topography with the project area situated at 1400 m above the mean sea level as depicted on the topography map below. Elevation is shown using contour lines. When a contour line is drawn on a map it represents a given elevation. Every point on the map touching the line should be the same elevation. On some maps, numbers on the lines will let you know what the elevation is for that line. Contour lines next to each other will represent different elevations. The closer the contour lines are to each other, the steeper the slope of the land.

In this environmental project, topography is used to determine how surface water flows during rainy seasons or how it would flow during the existence of the project. The topography also influences groundwater vulnerability, as topography also influences run-off and infiltration rate by means of residence time. The slope of the study area is steep within the most part of the study area, this is seen by the contours being closely spaced. The contaminants will likely flow originating from the center of the study area, the perennial river which is through the study area flows from the area of high elevation to the area of low elevation, which is from the north direction towards the south direction.

It can be concluded that in the area water/ or liquid contaminants flow is likely to be fast, this will the reduce residence time of the water and or contaminants in the area, this decreases the aquifer vulnerability in the area, since the slope will encourage runoff. This knowledge helps the site development team to be able to know how to manage water in the area, since the measures to manage water on a gentle and steep slope are different.

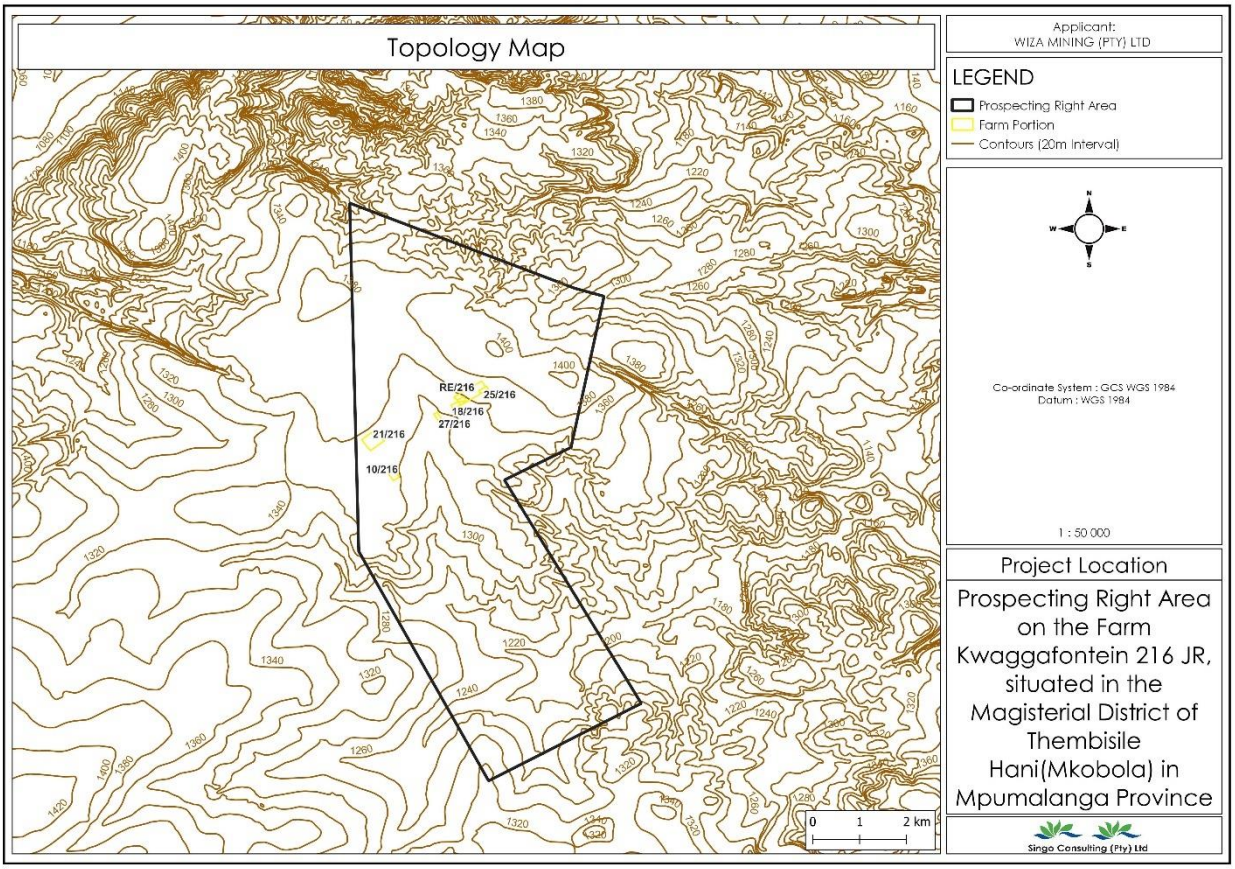


Figure 23: Topology of the application area. *(Singo consulting (Pty) Ltd , 2022)*

16. HYDROLOGY

The hydrology surrounding the proposed area is of vital importance. In this context hydrology is all the surface waters appearing within and nearby the proposed project area, where a potential to be impacted upon by the project exist. Site visit is the most significant part of the investigation. A site survey was conducted on the 27th of June 2022 as part of environmental assessment, to confirm the water bodies observed on the hydrological map and to take pictures of the current environmental condition before the commencement of the proposed prospecting (see ***Photo 5*** below).

Photo 7: Perennial River on the proposed area. *(Singo consulting (Pty) Ltd , 2022)*

The hydrology map illustrates the following water bodies exists within, around or outside the project area:

- Non – perennial river
- Perennial river
- Channelled Valley Bottom
- Dams
- Depression
- Seep
- Floodplain

According to MTPA (***Figure 19***), a portion of the area is a CBA irreplaceable and optimal area, which are areas with a high biodiversity significance and are needed to meet biodiversity targets. In addition, parts of the proposed area are within an ESA Landscape Corridor which is the ideal option for supporting the ecological functioning of critical biodiversity and needs to be maintained. A buffer map was produced to ensure that no impact results on the water bodies that are not within the borrow pits.

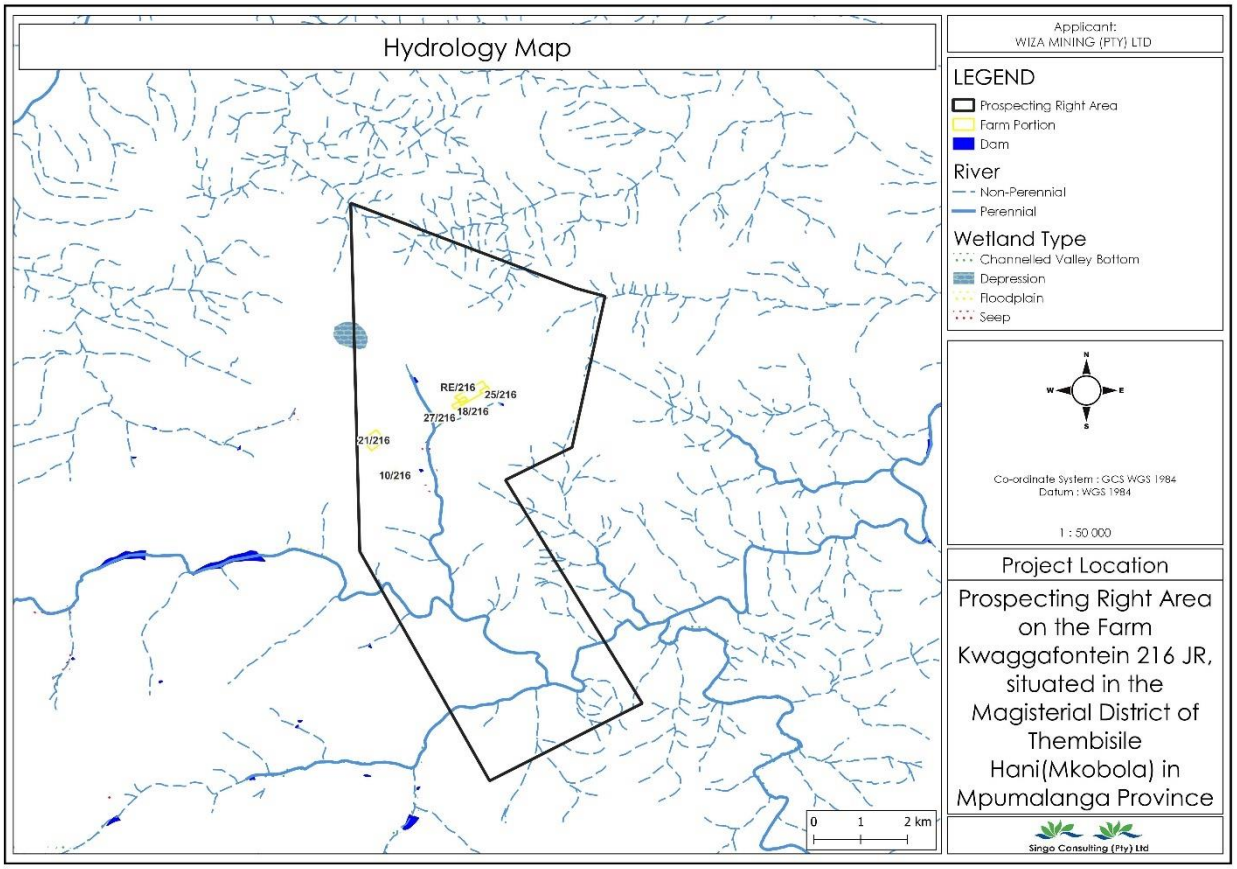


Figure 24: Hydrology Map. *(Singo consulting (Pty) Ltd , 2022)*

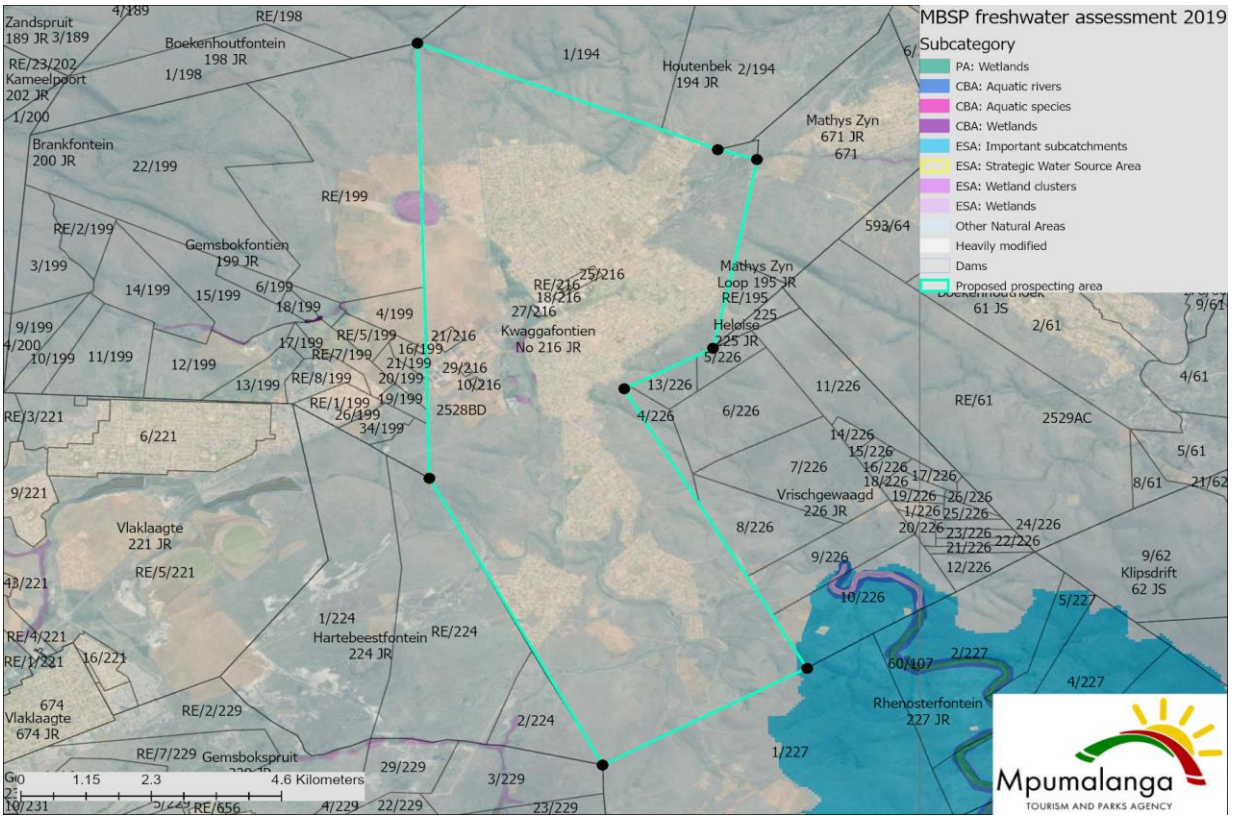


Figure 25: MBSP freshwater assessment 2019. *(MTPA, 2022)*

18.1 SURFACE WATER

The study area falls on Quaternary Catchment B32G, B31H and B31G under the Olifants Water Management Area. B31G is found in the Elands River catchment area, B31H and B31G is found in the Middle Olifants up to Flag Boshielo Dam (IUA Report, 2011). Olifants River catchment is the largest river system within the Olifants water management area (WRC 2012). According to the WR2012 study, each water management area has its hydrological characteristics as shown in ***Table 13*** below.

Table 15: WRC 2012 Report, WMA, QC

Water Management Area	Quaternary Catchment	Area of the quaternary catchment (KM^2)	MAP within the catchment (mm)	Evaporation Zone	MAE
Olifants water management	B31G	433	604	4A	1800
Olifants Water Management	B31H	612	575	4A	1552
Olifants Water management	B32G	968	639	4A	1850

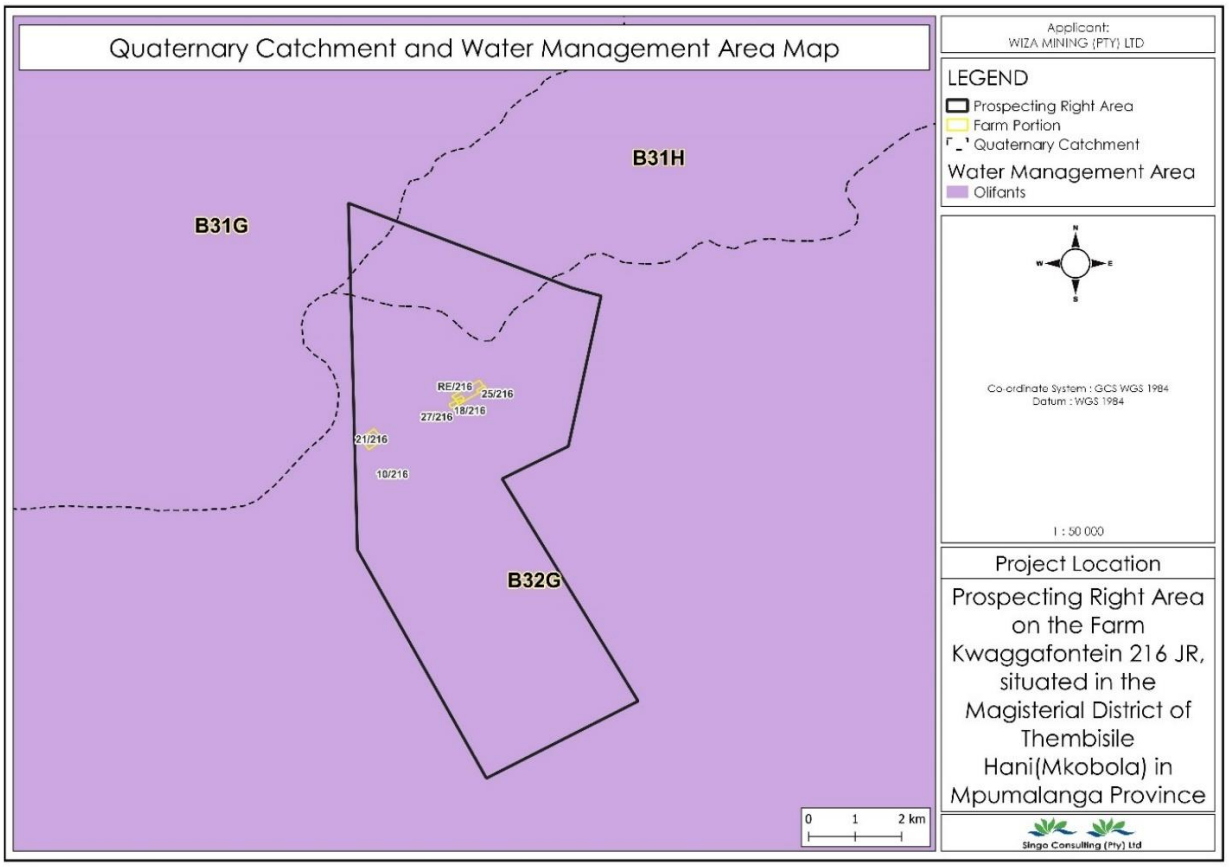


Figure 26: Quaternary catchment map. *(Singo consulting (Pty) Ltd , 2022)*

18.2 BUFFER ZONES

There will be procedures and guidelines put in place for this project to avoid the risk of water contamination through onsite and nearby water resources, such as ensuring strict management of waste material and buffering of 100 m. It will be advised on more mitigation measures to ensure the waterbodies as seen on the hydrology map are not contaminated. As shown in ***Figure 22***, a 100m buffer will be applied around the water bodies present within the prospecting right area. A buffer of 100m will be kept from identified wetlands and rivers subject to Regulation 48 (2) of MPRDA, NWA (1998), NEMA (1998) (2000) and Regulation 17 of Mine Health & Safety Act (1996).

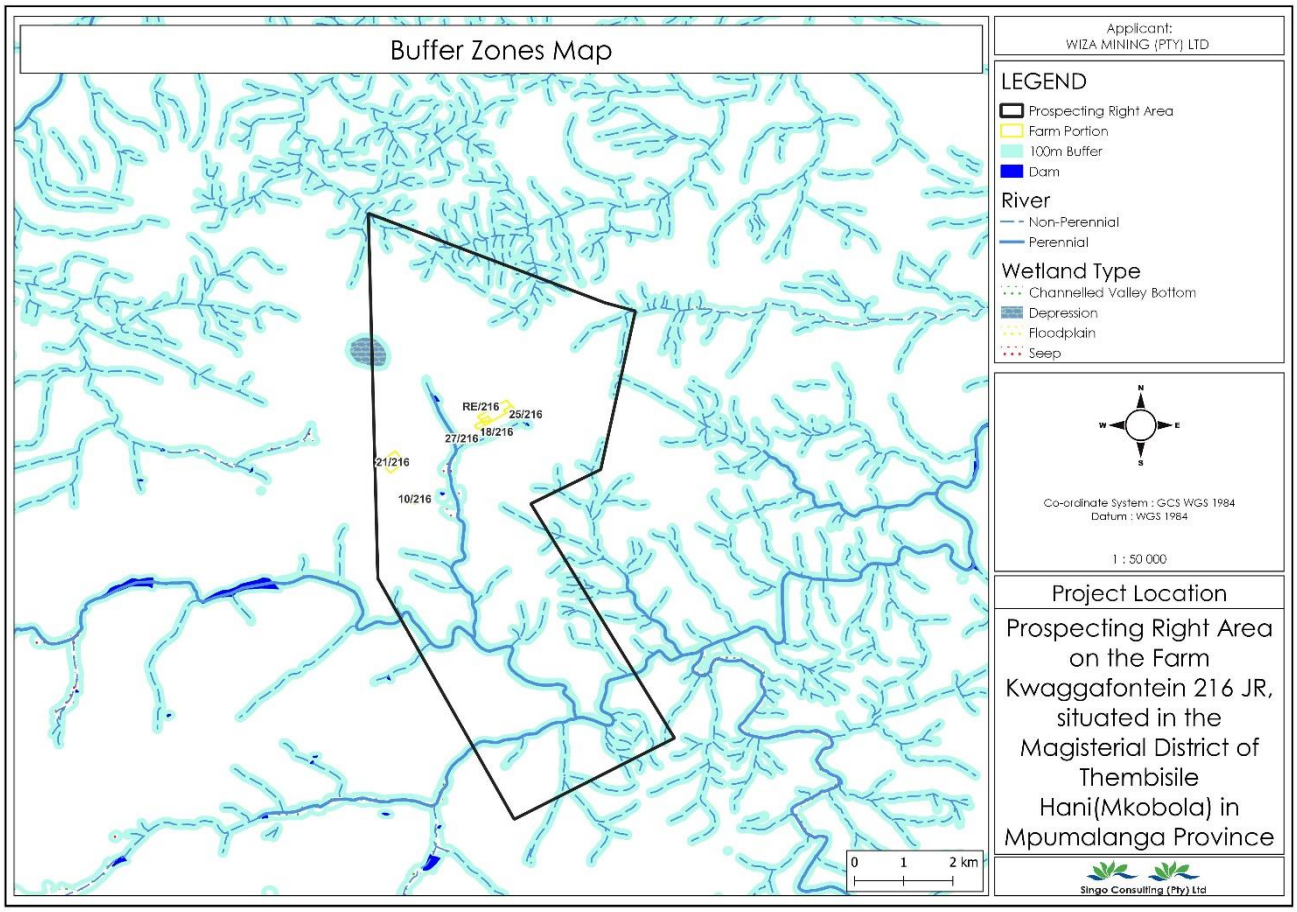


Figure 27: Hydrological buffer Map. *(Singo consulting (Pty) Ltd , 2022)*

18.3 Potential contaminants

Because this activity will only take place for a brief period of time, the possible pollutants for prospecting are limited and can be easily handled. The following contaminants are expected to be of concern during the prospecting activity.

- Leakage of sewage waste into the soil and flowing to the nearby water resource.
- Hydrocarbon spill into the soil
- Water used as cooling agent of the drill bit

18.4 Aquifer Classification

Due to the ensuing possibility of possible groundwater contamination from the sources or risks mentioned above, the aquifer's vulnerability is analyzed. The ***Figure 23*** below illustrates aquifer classification of different areas in South Africa. It can be deduced that the project area at magisterial district of Thembisile Hani comprises of minor aquifers and the dominant water source is surface water. ***Table 14*** interprets the meaning of the aquifer classification and when an area is said to have minor aquifer it means that the aquifer is low yielding or unacceptable quality aquifer

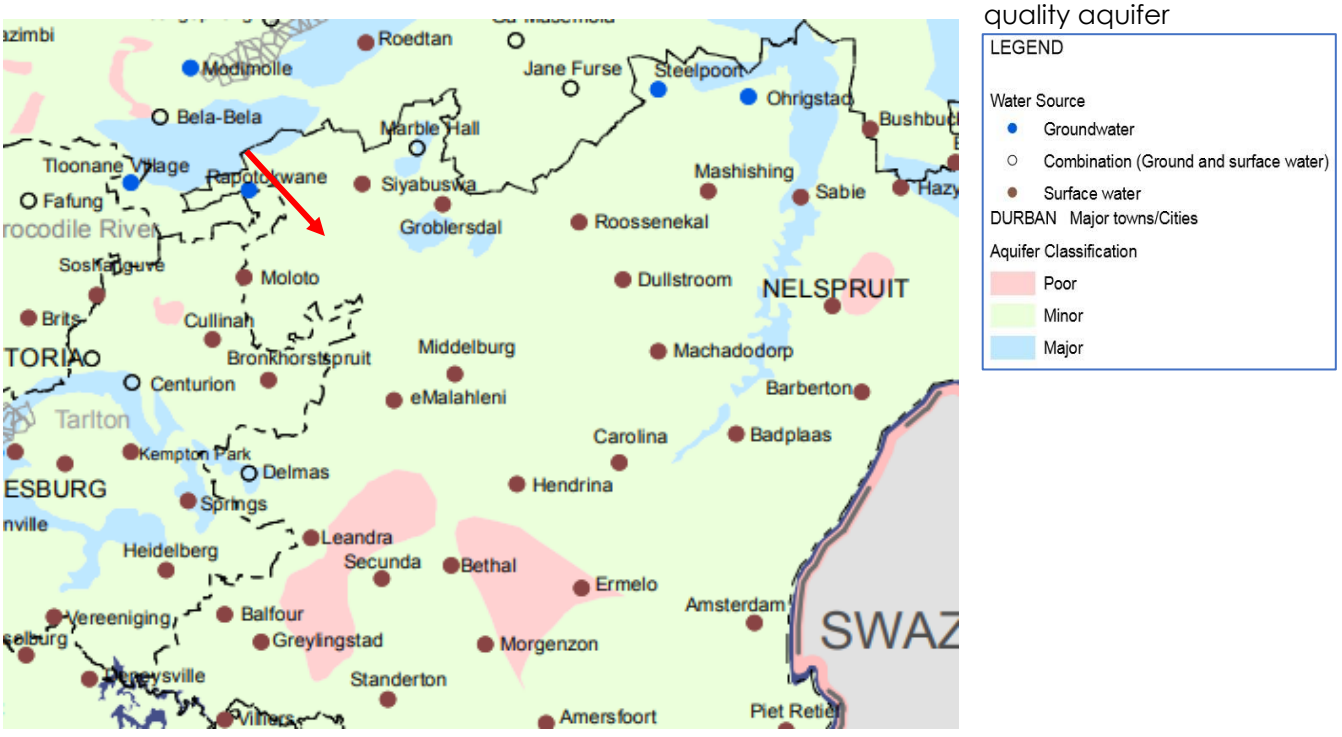


Figure 28: Aquifer Classification of the study area. *(Vegter & Seymour, 2012).*

Table 16: Aquifer characterization

Sole source aquifer	An aquifer used to supply 50% or more of urban domestic water for a given area, for which there are no reasonably available alternative sources should this aquifer be impacted upon or depleted.
Major aquifer region	High-yielding aquifer of acceptable quality water.
Minor aquifer region	Moderately yielding aquifer of acceptable quality or high yielding aquifer of poor-quality water.
Poor aquifer region	Insignificantly yielding aquifer of good quality or moderately yielding aquifer of poor quality, or aquifer that will never be utilised for water supply and that will not contaminate other aquifers.

16.5 Drilling and sitting of boreholes.

Exploration boreholes will be dug one at a time at various locations throughout the proposed project area. Drill hole depths will average 100 meters and will be determined onsite as the drilling program advances, depending on past hole depths and dips. Between certain wetlands and waterways, a 100-meter buffer will be maintained. A 100-meter buffer must be maintained from public highways.

After the drill site has been gated off, cleared, and drilled, drilling will begin. Following the drilling, immediate rehabilitation will take place. The site will be repaired after each hole is drilled before the drilling crew moves on to the next planned hole. This procedure will be repeated until all holes have been drilled

16.6 Recommendations

- The area is made up of fractured aquifers, it is recommended that during drilling, a map with fracture zones should be used so that the drilling process does not interact with water in fracture zones.
- Clearing of vast amount of vegetation should be avoided, this is to preserve infiltration.
- Constant availability of waste bins; Compliance of National Environmental Management: Waste Management Act 59 of 2008.
- Compliance of GN 704 4(b) and 7(a) and National Water Act 36 of 1998 (Chapter 3 – Part 4, Section 1 (a)(b).
- No onsite vehicle or machinery repairs such as changing oil.

- No onsite storage of oil, diesel, or petrol.
- A 100 meters buffer should be followed to preserve the surface water resources as the area mostly depends on surface water.
- It is recommended that a plan on how surface water will be managed as this area is of steep slope, meaning that there is likely to be leaching in the borehole if not properly rehabilitated.
- It is recommended that during the drilling process, the team should use fracture zone map, to clearly point areas of fracture zones, this will help them to not drill at that point as it will contribute to groundwater contamination.
- On the southern, western, and eastern direction, the contours are decreasing in value, which clearly shows that from the boundary of the study area, it is downhill, mitigation measures on how water will be managed on these areas should be clearly defined.
- The area has presence of floodplains, which shows that there is occasional flooding, it is recommended that the phases of the project be scheduled during the time when there is little to no rainfall (June- July), this is to protect the water resources and financial aspect of the prospecting company.
- It is recommended that the drill rig operates while standing on a non-permeable material, to avoid spillages from entering the soil and eventually the water resources.
- It is recommended that there should be monitoring boreholes and regular monitoring should be implemented.

17. FAUNA

Fauna that was observed during ground truthing were cows, sheep, goats, and housedogs. It is concluded that due to the nature of the agricultural activity, these faunas will be present on the site throughout the life of prospecting.

It is not foreseen that there will be any other animals present on the site. This is because the proposed project area is fenced.

Photo 8: Cows observed from the proposed area. *(Singo Consulting (Pty) Ltd, 2022)*

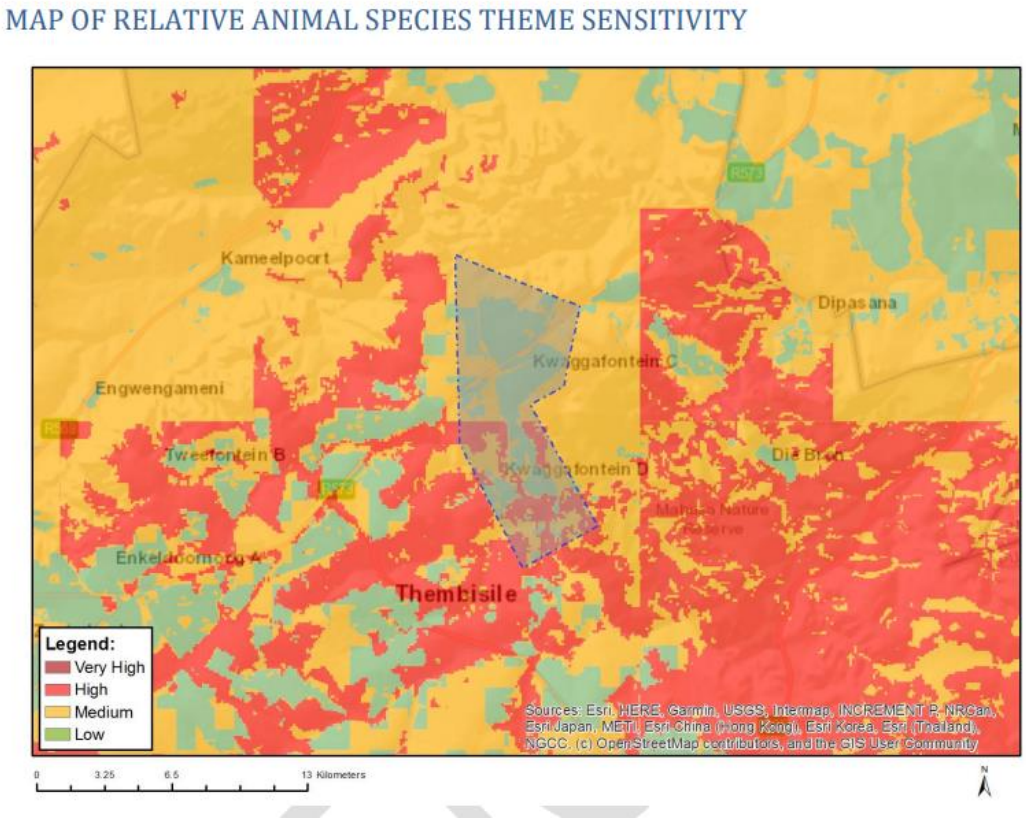


Figure 29: Animal species sensitivity. *(Source: screening report)*

18. CULTURAL AND HERITAGE

Heritage resources are, according to the National Heritage Resources Act 25 of 1999, any place or object of cultural significance. In one familiar aspect, heritage resources refer to buildings, monuments, landscapes, and artefacts. These resources are relatively permanent, though somewhat very tenuous, environmental features; if they are present, their integrity is highly susceptible to construction and ground disturbance activities like prospecting and mining activities.

With reference to the Map of Relative Archaeological and Cultural Heritage theme sensitivity below sourced from the screening report, the proposed project area has low sensitivity of Archaeological and Cultural Heritage combined. Even though the cemetery was not seen during the brief site assessment, a desktop search revealed that there are four cemeteries in the proposed prospecting area (see ***Figure 30*** below). The location of the cemetery sites it is clearly demarcated, and no borehole will be placed near this site. The South African Heritage Resources Authority (SAHRA) will be consulted regarding this matter.

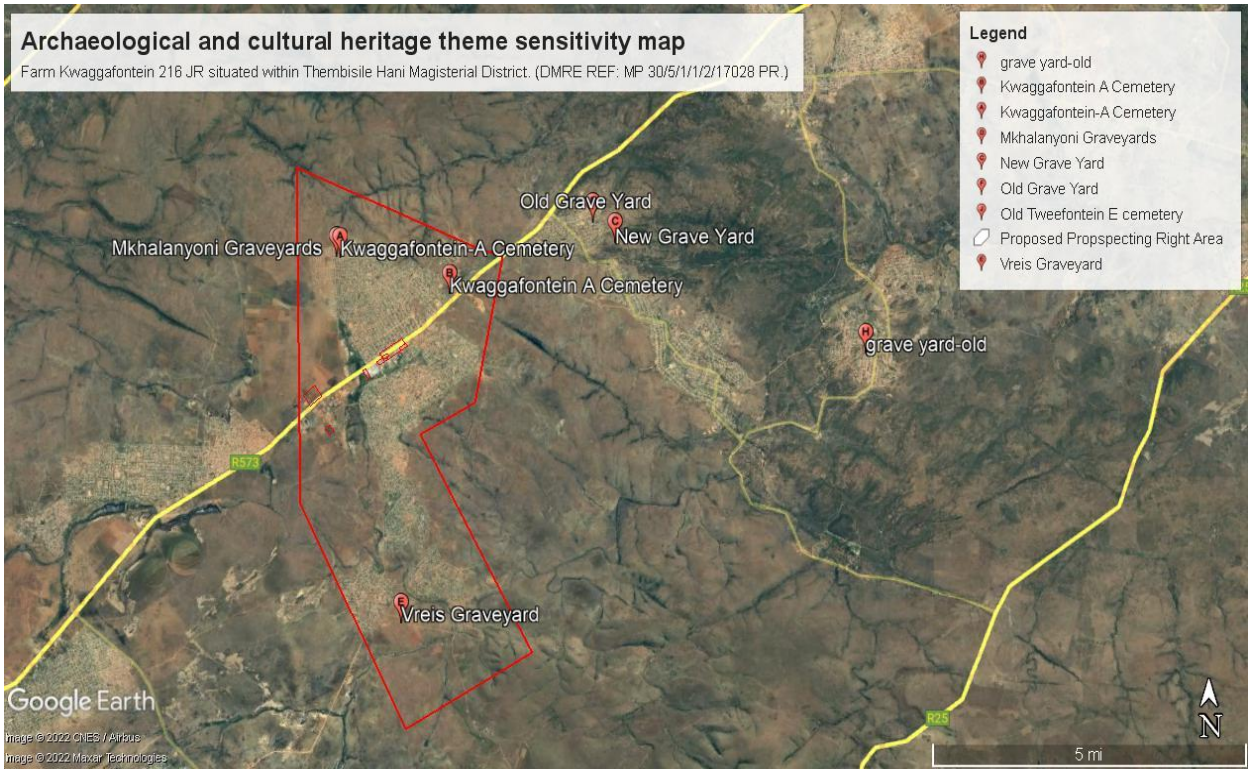
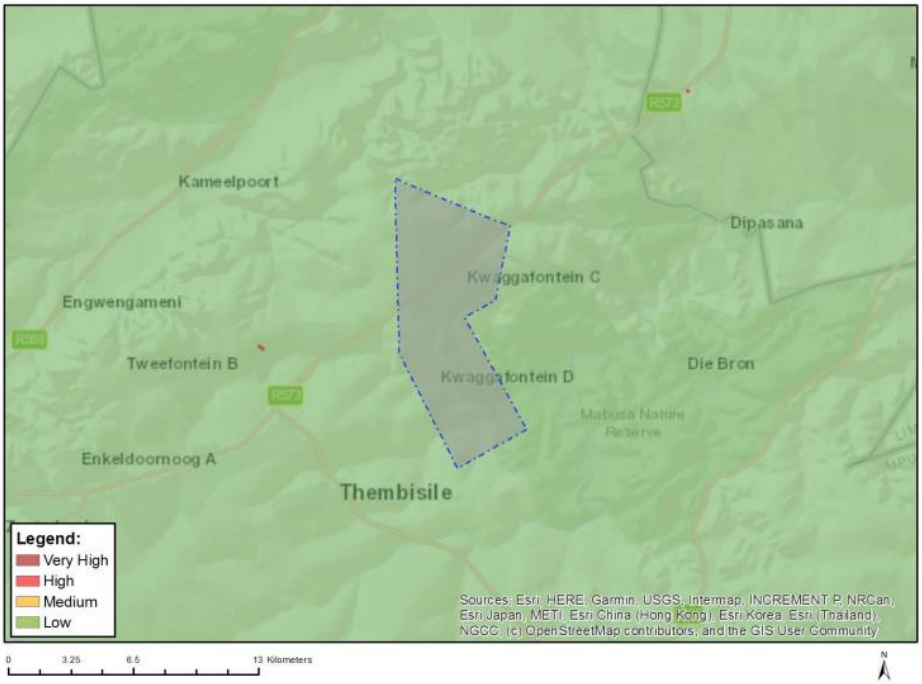


Figure 30: Google Earth view of cemeteries in and around the proposed project site. *(Singo Consulting (Pty) Ltd, 2022)*

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

Figure 31: Archaeological and cultural heritage theme sensitivity. *(Source: screening report)*

19. MITIGATION MEASURES

19.1 Noise

Prospecting and related activities frequently produce high levels of noise, which can become a nuisance or a health hazard if not adequately controlled. This has the potential to affect not just the prospecting area, but also the nearby land users and occupiers. The landowners and lawful occupiers of the study area, as well as neighbouring communities including land users and permanent small holding homesteads and villages, have been identified as the most sensitive receptors for the project area. Agricultural and residential land uses predominate in the surrounding area.

Noise generation can be expected on the proposed site because of a variety of activities & actions, such as loading and off-loading of moveable infrastructure during the rather operational phase and vehicles moving in and out of the project area. The area in its entirety is either natural or used for agricultural purposes. There are homesteads within the proposed project area who are the closest sensitive receptors. These sensitive receptors are approximately 490 m from the closest borehole (BH14). The homesteads' proximity to prospecting activities forces mitigation measures to be implemented. Mitigation techniques may include limiting noisy operations to typical working hours rather than weekends or holidays, as well as maintaining machinery and vehicles to prevent excessive noise. It is also recommended that consultations be held with affected parties to establish an acceptable schedule of noisy activities.

19.2 Environmental aspects which may require protection and/or remediation

A perennial river has been identified within the proposed project area and is approximately 995 m from the nearest proposed borehole (BH 10). A buffer of 100 m has been applied to the water bodies within and around proposed prospecting area.

In addition, no drill site will be positioned within any of these watercourses. Furthermore, no drill site will be located within 100 meters of any properties, buildings, or homes located within and around the project area's boundaries. Existing access roads will be utilised to access the drill sites. Drilling is proposed to take place along the access roads (of agricultural fields) and in the event that the agricultural fields cannot be avoided, this information must be duly communicated to the affected landowner. Drill sites will overall be aimed at avoiding sensitive areas.

20. DESCRIPTION OF THE CURRENT LAN USES

Land uses within a 3 km radius are inclusive of the following:

- Natural Vegetation (Cattle farming)
- Built-up area (Homesteads)
- Unpaved roads
- Waterbodies
- Wetlands
- Cultivated land
- Mine

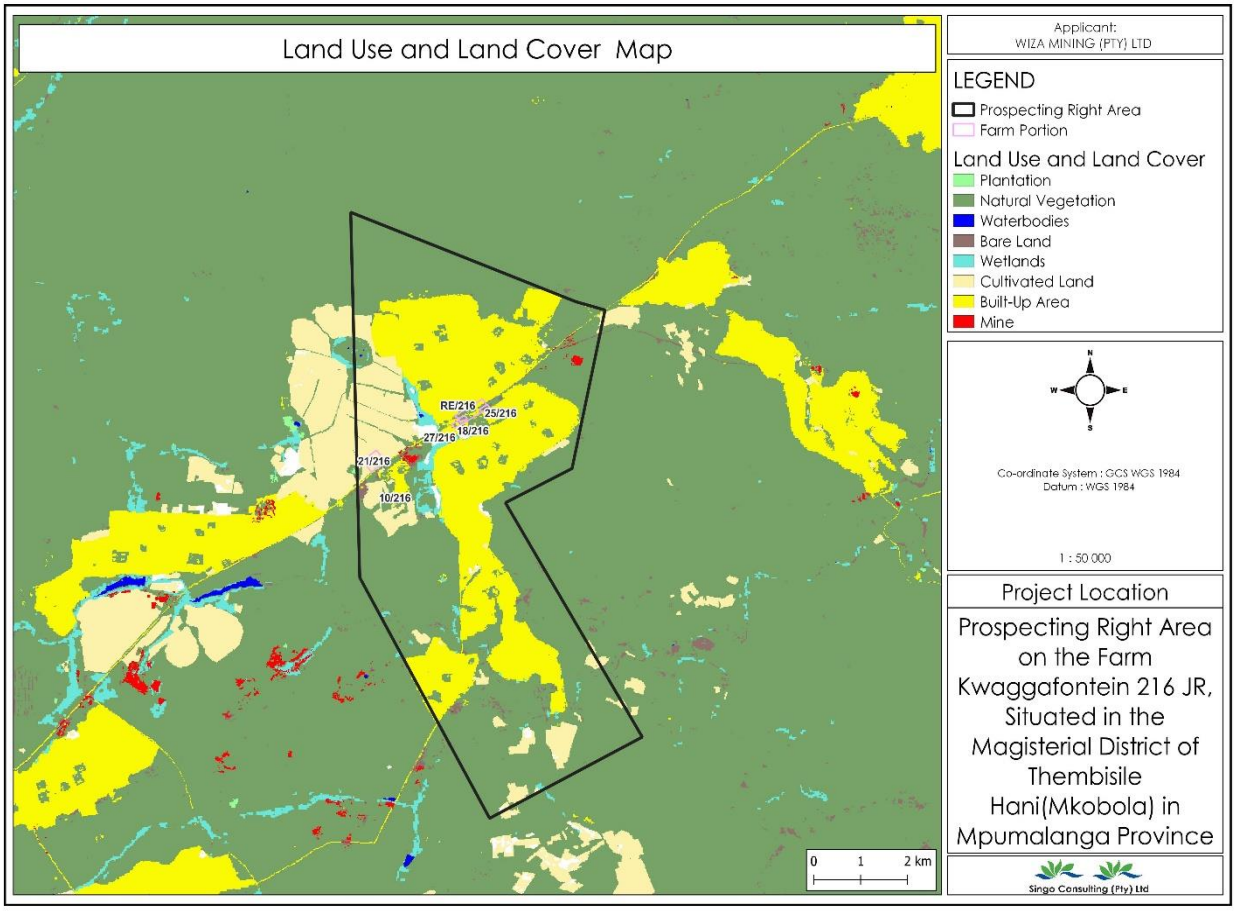


Figure 32: Land use map. *(Singo Consulting (Pty) Ltd, 2022)*

20.1 Description of specific environmental features and infrastructure on the site

The application area is served by gravel roads which are in reasonable condition. The noticeable environment features on site includes water bodies, natural scattered plants and outcrop rock and a mall, residential houses, and schools' infrastructure features. A portion of the proposed area consisted of opened borrow pits that were caused by the illegal mining of aggregate, sand general and gravel , although the area is being rehabilitated by putting the existing rubbles into the pits, the opened borrow pits had already been accumulated by water and needs to be

dewatered first because cows were observed encroaching the pits during site assessment and the area also needs fencing for the safety of the animals.

Photo 9: Current land use. *(Singo Consulting (Pty) Ltd, 2022)*

20.2 Environmental and current land use map

(Show all environmental, and current land use features)

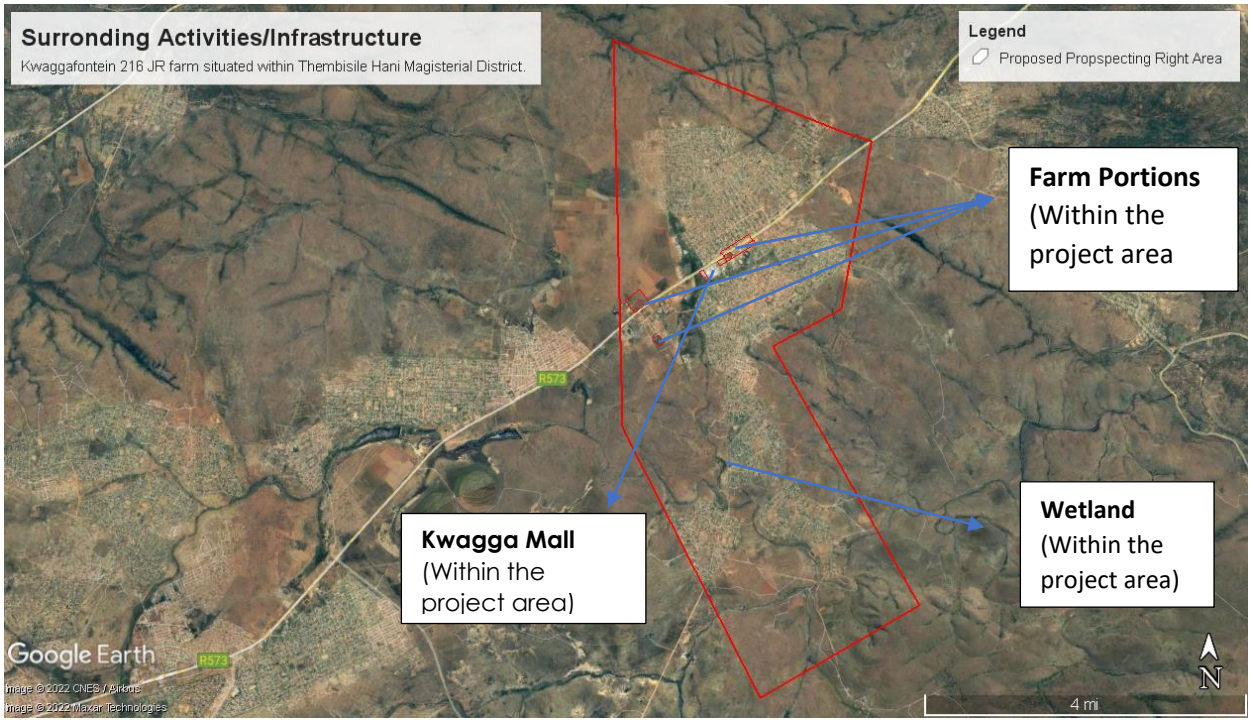


Figure 33: Google Earth view of activities in and around the proposed project site. *(Singo Consulting (Pty) Ltd, 2022)*

21. METHODOLOGY USED IN DETERMINING AND RANKING THE NATURE, SIGNIFICANCE, CONSEQUENCES, EXTENT, DURATION AND PROBABILITY OF POTENTIAL ENVIRONMENTAL IMPACTS & RISKS.

(Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which the initial site layout needs revision).

A "significant impact" as defined in the EIA Regulations (2014): "is an impact that may have notable effect on one or more aspects of the environment or may result in non-compliance with accepted environmental quality standards, thresholds or targets and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence". The objective of this EIA methodology is to serve as a framework for accurately evaluating impacts associated with current or proposed activities in the biophysical, social and socio-economical spheres. It aims to ensure that all legal requirements and environmental considerations are met in order to have a complete and integrated environmental framework for impact evaluations.

The process of determining impacts to be assessed is one of the most important parts of the environmental impact assessment process. It is of such high importance because the environmental impacts identified can and are often linked to the same impact stream. In this method all impacts on the biophysical environment are assessed in terms of the overall integrity of ecosystems, habitats, populations, and individuals affected. For example, the removal of groundcover for the sloping or scraping of an embankment, can lead to higher amounts of water runoff which increases the rate of erosion. Further down in the river the amount of sediment increases because of the increased erosion. Several fish species cannot endure the high amount of sediment and moves off. The habitat is thus changed or in the process of changing. Thus, one needs to understand that the root of the problem (removal of groundcover) is assessed in terms of the degree of change in the health of the environment and/or components in relation to their conservation value. Thus, if the impact of removal of groundcover of a definable system is high and the conservation value is also high then the impact of removal of groundcover is highly significant.

The Environmental Impact Assessment (EIA) 2014 Regulations promulgated in terms of Sections 24 (5), 24M and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) [as amended] (NEMA), requires that all identified potential impacts associated with the proposed project be assessed in terms of their overall potential significance on the natural, social and economic environments. The criteria identified in the EIA Regulations (2014) include the following:

- Nature of the impact;
- Extent of the impact;
- Duration of the impact
- Probability of the impact occurring;
- Degree to which impact can be reversed;
- Degree to which impact may cause irreplaceable loss of resources;
- Degree to which the impact can be mitigated; and
- Cumulative impacts.

The evaluation of impacts is conducted in terms of the criteria detailed in the Tables below. The various environmental impacts and benefits of this project are discussed in terms of impact status, extent, duration, probability, and intensity. Impact significance is regarded as the sum of the impact extent, duration, probability and intensity and a numerical rating system has been applied to evaluate impact significance; therefore, an impact magnitude and significance rating is applied to rate each identified impact in terms of its overall magnitude and significance.

Impact Assessment Methodology

By considering the root cause of the issue in this way, the probability that the activity undertaken does or may result in an impact, can be determined. The associated impact can then be assessed in order to determine its significance and to define mitigation measures or management measures to address the impact.

The following definitions therefore apply:

- An activity is a distinct process or task undertaken by an organization for which a responsibility can be assigned. Activities also include facilities or pieces of infrastructure that are possessed by an organization;
- An environmental aspect is an 'element of an organization's activities, products and services which can interact with the environment. The interaction of an aspect with the environment may result in an impact;
- Environmental impacts are the consequences of these aspects on environmental resources or receptors of particular value or sensitivity, for example, disturbance due to noise and health effects due to poorer air quality;
- Receptors can comprise, but are not limited to, people or human-made systems, such as local residents, communities and social infrastructure, as well as components of the

biophysical environment such as aquifers, flora and paleontology. Impacts on the environment can lead to changes in existing conditions; the impacts can be direct, indirect or cumulative;

- Direct impacts refer to changes in environmental components that result from direct cause-effect consequences of interactions between the environment and project activities. Indirect impacts result from cause-effect consequences of interactions between the environment and direct impacts; and
- Cumulative impacts refer to the accumulation of changes to the environment caused by human activities.

Assessment of Impact Significance

The accumulated knowledge and the findings of the environmental investigations form the basis for the prediction of impacts. Once a potential impact has been determined, it is necessary to identify which project activity will cause the impact, the probability of occurrence of the impact, and its magnitude and extent (spatial and temporal). This information is important for evaluating the significance of the impact, and for defining mitigation and monitoring strategies. The aspects and impacts identified are therefore described according to the following:

(a) Nature of the impact

The nature of an impact can be defined as: "a brief description of the impact being assessed, in terms of the proposed activity or project, including the socio-economic or environmental aspect affected by this impact".

(b) The status of the impact:

	Status	Description
STATUS	**Positive (+)**	**A benefit to the holistic environment.**
	Negative (-)	**A cost to the holistic environment.**
	Neutral (N)	**No cost or benefit to the holistic environment.**

(c) Magnitude of the impact

The magnitude of an impact can be defined as: "a brief description of the intensity or amplitude of the impact on socioeconomic or environmental aspects".

Determining the magnitude of an impact			
MAGNITUDE **Magnitude / intensity of impact (at the specified scale)**	**Magnitude**	**Score**	**Description**
	Zero	**1**	**Natural and/or social and/or functions processes remain unaltered.**
	Very low	**2**	**Natural and/or social functions and/or processes are negligibly altered.**
	Low	**3**	**Natural and/or social and/or functions processes are slightly altered.**
	Medium	**4**	**Natural and/or social and/or functions processes are notably altered.**
	High	**5**	**Natural and/or social and/or functions processes severely altered.**

(d) Extent of the impact

The extent of an impact can be defined as: "a brief description of the spatial influence of the impact or the area that will be affected by the impact".

Determining the extent of an impact			
EXTENT or spatial influence of impact	**Extent**	**Score**	**Description**
	Footprint	**1**	**Only as far as the activity, such as footprint occurring within the total site area**
	Site	**2**	**Only the site and/or 500m radius from the site will be affected**
	Local	**3**	**Local area / district (neighbouring properties, transport routes and adjacent towns) is affected**
	Region	**4**	**Entire region / province is affected.**
	National	**5**	**Country is affected**

(e) Duration of the impact

The duration of an impact can be defined as: "a short description of the period of time the impact will have an effect on aspects".

Determining the duration of an impact			
DURATION Duration of the impact	Extent	Score	Description
	Short term	1	Less than 2 years
	Short to medium term	2	2 – 5 years
	Medium term	3	6 – 25 years
	Long term	4	26 – 45 years
	Permanent	5	46 years or more

(f) Degree to which impact can be reversed

The reversibility of an impact can be defined as: "the ability of an impact to be changed from a state of affecting aspects to a state of not affecting aspects".

Determining the reversibility of an impact			
REVERSIBILITY	Reversibility	Score	Description
	Completely reversible	1	Impacts can be reversed through the implementation of minimal mitigation measures and rehabilitation with negligible residual effects.
	Nearly completely reversible	2	Impacts can nearly be completely reversed through the implementation of mitigation measures and rehabilitation, with marginal residual effects.
	Partly reversible	3	Impacts can be partly reversed through the implementation of mitigation measures and rehabilitation with moderate residual effects.
	Nearly irreversible	4	Impacts can be mitigated, but only marginally reversed through the implementation of mitigation measures and rehabilitation with severe residual effects.
	Irreversible	5	Impacts are permanent and can't be reversed by the implementation of mitigation measures or rehabilitation is not viable.

(g) Degree to which impact may cause irreplaceable loss of resources

The irreplaceability of an impact can be defined as "the number of resources that can/can't be replaced".

Irreplaceability = Magnitude + Extent + Duration + Reversibility

Degree to which impact may cause irreplaceable loss of resources			
IRREPLACEABILITY Irreplaceable loss of resources	**Irreplaceability**	**Score**	**Description**
	No loss	**0**	**No loss of any resources**
	Very Low	**1 - 5**	
	Low	**6 - 10**	**Marginal loss or resources**
	Medium	**11 - 15**	**Significant loss of resources**
	High	**16 - 20**	**Complete loss of resources**

(h) Probability of the impact occurring

The probability of an impact can be defined as: "the estimated chance of the impact happening".

Determining the probability of an impact			
PROBABILITY	**Probability**	**Score**	**Description**
	Unlikely	**1**	**Unlikely to occur (0 – 15% probability of impact occurring)**
	Possible	**2**	**May occur (15 – 40% chance of occurring)**
	Probable	**3**	**Likely to occur (40– 60% chance of occurring)**
	Highly Probable	**4**	**Between 60% and 85% sure that the impact will occur**
	Definite	**5**	**Will certainly occur (85 - 100% chance of occurring)**

(i) Significance of Impacts - Pre-Mitigation

The SIGNIFICANCE can be defined as:" the combination of the duration and importance of the impact, in terms of physical and socio-economic extent, resulting in an indicative level of mitigation required".

The significance of an impact is determined as follows:

Significance = Irreplaceability x Probability

The maximum value is 100 significance points (SP). Environmental impacts were rated as either of Very High (VH) High (H), Medium (M), Low (L) or Very Low (VL) significance on the following basis:

Table 17: *Significance Rating (SR) Basis*.

Score	Significance
0	Neutral
1 to 20	Very low
21 to 40	Low
41 to 60	Medium
61 to 80	High
81 to 100	Very high

(j) Degree to which the impact can be mitigated

The degree to which an impact can be mitigated can be defined as: "the effect of mitigation measures on the impact and its degree of effectiveness".

	Determining the mitigation potential of an impact		
	Degree	**Calculation**	**Description**
MITIGATION POTENTIAL	**High**	**Pre-mitigation SR / 3 = Post Mitigation SR**	**Impact 100% mitigated**
	Medium	**Pre-mitigation SR / 2 = Post Mitigation SR**	**Impact >50% mitigated**
	Low	**Pre-mitigation SR / 3 = x Then: Pre-mitigation SR – x = Post Mitigation SR**	**Impact <50% mitigated**

(k) Significance of Impacts Post-Mitigation

The significance can be defined as:" the combination of the duration and importance of the impact, in terms of physical and socio-economic extent, resulting in an indicative level of mitigation required".

The significance of an impact is determined as follows: Significance = Irreplaceability x Probability

Table 18: ***Significance Rating***

Score	Significance
0	Neutral
1 to 20	Very low
21 to 40	Low
41 to 60	Medium
61 to 80	High
81 to 100	Very high

(l) Confidence rating

Confidence in the assessment of an impact can be defined as the:" *level of certainty of the impact occurring*".

Determining the confidence rating of an impact			
CONFIDENCE RATING	CONFIDENCE	Certain	Amount of information on and/or understanding of the environmental factors that potentially influence the impact is unlimited and sound
		Sure	Amount of information on and/or understanding of the environmental factors that potentially influence the impact is reasonable and relatively sound
		Unsure	Amount of information on and/or understanding of the environmental factors that potentially influence the impact is limited

(m) Cumulative impacts

The effect of cumulative impacts can be described as:" the effect the combination of past, present and "reasonably foreseeable" future actions have on aspects".

Determining the confidence rating of an impact			
CUMULATIVE RATING	CUMULATIVE EFFECTS	Low	Minor cumulative effects
		Medium	Moderate cumulative effects
		High	Significant cumulative effects

22. IMPACTS AND RISKS IDENTIFIED INCLUDING THE NATURE, SIGNIFICANCE, CONSEQUENCE, EXTENT, DURATION AND PROBABILITY OF THE IMPACTS, INCLUDING THE DEGREE TO WHICH THESE IMPACTS

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

Table 19*: Impact Significance Calculation – Construction, Operational and Rehabilitation Phase*

ENVIRONMENTAL ASPECT	NATURE OF THE IMPACT	IMPACT STATUS	MAGNITUDE	EXTENT	DURATION	REVERSIBILITY	IRREPLACEABILITY	PROBABILITY	SIGNIFICANCE PRE-MITIGATION	MITIGATION POTENTIAL	SIGNIFICANC POST-MITIGATION	CONFIDENCE	CUMULATIVE IMPACTS
GEOLOGY AND SOILS	Minor loss and disturbance to topsoil because of clearing of vegetation and drilling. When vegetation is cleared and the topsoil is stripped, the soil's natural structure is disturbed and as a result the natural cycle is broken exposing the bare soil to erosion. Vehicles driving on these soils cause compaction of soils and reduces the soil's ability to be penetrated by root growth. Compaction	_	**4**	**2**	**4**	**2**	**12**	**5**	**60**	**High**	**20**	**Certain**	**Medium**

	also increases erosion potential. When soils are not stripped and stockpiled according to the soil stripping guidelines these soils would have lost their natural physical and chemical properties, reducing the topsoil's ability to be a plant growth medium. The above factors all contribute to a loss of the topsoil's ability to be a resource through alterations and removal.												
	Hydrocarbon spills on soils can occur where heavy machinery and vehicles are parked such as the hard park area because they contain large volumes of lubricating oils, hydraulic oils, and diesel to run. There is a chance of these breaking down and/or leaking.	–	**3**	**3**	**4**	**3**	**13**	**3**	**39**	**Low**	**26**	**Sure**	**Low**

HYDROLOGY: GROUNDWATER SURFACE WATER	Stormwater, erosion and siltation impacts due to a lack of implementing temporary measures to manage stormwater run-off quantity and quality.	–	**3**	**3**	**4**	**3**	**13**	**3**	**39**	**Low**	**26**	**Sure**	**Low**
	Contamination of stormwater runoff and groundwater, caused by chemicals such as hydrocarbon-based fuels and oils or lubricants spilled from heavy vehicles and machinery and fuel storage area.	–	**3**	**3**	**4**	**3**	**13**	**2**	**26**	**Low**	**17**	**Sure**	**Medium**
BIODIVERSITY	Minor loss of natural vegetation and destruction of habitat will result in associated loss of fauna and flora species.	–	**3**	**3**	**4**	**3**	**13**	**4**	**52**	**Medium**	**26**	**Certain**	**Medium**
	Disruption in the movement patterns of fauna species may impact on biodiversity.	–	**3**	**3**	**5**	**3**	**14**	**5**	**70**	**High**	**23**	**Certain**	**High**
	Noise, dust and potential light pollution, as well as migration of pollutants such as hydrocarbons in the soils, dust and emissions from vehicle and machinery altering air quality will all have an impact on biodiversity.	–	**3**	**3**	**3**	**3**	**12**	**4**	**48**	**Medium**	**24**	**Sure**	**Medium**

	Introduction and spread of alien invasive species. The moving of soil and vegetation resulting in opportunistic invasions after disturbance and the introduction of seed in construction materials and on vehicles. Invasion of alien plants can impact on hydrology, by reducing the quantity of water entering a watercourse through stormwater, and outcompete natural vegetation, decreasing the natural biodiversity. Once in a system, alien plants can spread throughout the catchment. If allowed to seed before control measures are implemented, alien plants can easily colonise and impact on downstream users.	–	**4**	**3**	**4**	**3**	**14**	**4**	**56**	**Medium**	**28**	**Sure**	**Medium**
ARCHAEOLOGICAL/ HERITAGE RESOURCES	Alteration of archaeological, historical, and palaeontological resources that may be discovered during earthworks and drilling.	–	**2**	**1**	**5**	**5**	**13**	**2**	**26**	**Low**	**17**	**Sure**	**Low**
VISUAL AND SENSE OF PLACE	Visibility from sensitive receptors / visual scarring of the landscape because of the prospecting activities.	–	**3**	**3**	**3**	**1**	**10**	**5**	**50**	**Medium**	**25**	**Sure**	**Low**

NOISE AND VIBRATION	For Proposed Prospecting Right nuisance and health risks caused by an increase in the ambient noise level as a result of noise and vibration impacts associated with the operation of vehicles, machinery and equipment.	–	**4**	**3**	**1**	**3**	**11**	**5**	**55**	**Low**	**28**	**Sure**	**Medium**
	The proposed projects area has the mining operation within it.	–	**5**	**3**	**3**	**2**	**13**	**5**	**65**	**High**	**22**	**Sure**	**Medium**
AIR QUALITY	Increased dust pollution due to vegetation clearance and vehicles driving on gravel roads and drilling.	–	**5**	**3**	**2**	**2**	**12**	**5**	**60**	**Medium**	**30**	**Sure**	**Low**
	Gaseous emissions from vehicles and machinery may cause an impact on ambient air quality.	–	**3**	**3**	**1**	**3**	**10**	**5**	**50**	**Medium**	**25**	**Sure**	**Low**
WASTE	Generation of additional general waste, litter and building rubble and hazardous waste.	–	**4**	**3**	**1**	**1**	**9**	**3**	**27**	**Low**	**18**	**Certain**	**Low**
SERVICES	Minor impact caused by need for services i.e. water, electricity and sewerage systems during the prospecting phase causing additional strain on natural	–	**2**	**2**	**1**	**3**	**6**	**3**	**18**	**Low**	**12**	**Certain**	**Low**

	resources and service infrastructure.												
TRAFFIC	Minor change in traffic patterns because of traffic entering and exiting the site on the surrounding road infrastructure and existing traffic.	–	**3**	**3**	**1**	**1**	**8**	**5**	**40**	**Low**	**27**	**Sure**	**Low**
	Nuisance, health and safety risks caused by increased traffic on and adjacent to the study area including cars, and heavy vehicles.	_	**4**	**3**	**4**	**5**	**16**	**3**	**48**	**Medium**	**24**	**Sure**	**Medium**
HEALTH AND SAFETY	Possibility of prospecting activities and workers causing veld fires, which can potentially cause injury and or loss of life to workers and surrounding landowners, visitors, and workers.	_	**2**	**2**	**5**	**5**	**14**	**2**	**28**	**Low**	**19**	**Sure**	**Low**
	Increased risk to public and worker safety: If not fenced off, the public and workers may fall into excavated areas and trenches.	_	**5**	**3**	**5**	**5**	**18**	**3**	**54**	**Medium**	**27**	**Sure**	**Low**
SOCIO-ECONOMIC	Potential creation of very limited extent short term employment opportunities for the local community, during the prospecting phase.	**+**	**3**	**3**	**1**	**3**	**10**	**5**	**50**	**N/A**	**25**	**Certain**	**Low**
	Multiplier effects on local economy will be positive, but	**+**	**3**	**3**	**1**	**3**	**10**	**5**	**50**	**N/A**	**25**	**Certain**	**Low**

	very limited in extent and only short term.												

23. POSITIVE AND NEGATIV E IMPACTS OF THE PROPOSED ACTIVITY (IN TERMS OF THE INITIAL SITE LAYOUT) AND ALTERNATIVES ON THE ENVIRONMENT AND COMMUNITY

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

Potential impacts that were identified during the Basic Assessment Process are discussed under environmental component headings in this section. The project will not cause adverse surface disturbances as the planned prospecting activities will be managed and rehabilitation will occur progressively per drill hole. A 100m buffer zone will be established around all water bodies, infrastructure/chicken houses.

Advantages & Disadvantages

The following impacts will result from the proposed prospecting activities:

- Job creation
- Clearing of vegetation leading to increased runoff and less infiltration.
- Diesel, oil and petrol spillages from the drill rig and site vehicles, and leaks from mobile toilets lead to soil contamination and water resource contamination (Groundwater and Surface water)
- Increase in volume of contaminated water that needs to be managed within the
- footprint.
- Increase in waste in the prospecting area (Metal and non-metal).
- Compaction of soil leading to increase in run-off, and decrease in infiltration, impacting
- groundwater quantity.

Access to the application area for the topographical and geophysical survey, prospecting drilling and resource definition drilling will be required which may interrupt the existing land uses, such as grazing and residential developments. However, this impact will be minimal as it is of short duration. Approximately 0,9 ha of vegetation will be cleared during prospecting, however, conducting prospecting activities will only be after harvest and before the seeds need to be planted. In addition, prospecting activities will be done only when livestock is safely. The proposed project area has a water body inside its boundaries. To protect the integrity of the water body, buffers have been put in place and proposed boreholes are placed a distance from the sensitive areas.

Prospecting is a short term and temporary project. In this light, there are no disadvantages of the selected site in terms of the mineral to be prospected for or the location of the boreholes and environmental issues/concerns.

24. POSSIBLE MITIGATION MEASURES THAT COULD BE APPLIED AND THE LEVEL OF RISK

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

A description and assessment of the mitigation measures for each potential impact identified in the impact assessment process is provided by the following sections.

Possible mitigation measures include:

- Avoid and control through implementation of EMPr mitigation measures (e.g., speed limit enforcement & vehicle maintenance);
- Avoidance and control through preventative measures (e.g., site security, code of conduct).
- Avoid and control through implementation of preventative measures (e.g., monitoring, communication with landowners, emergency response procedures).
- Avoid through implementation of suitable progressive rehabilitation and soil management
- Avoid and control through implementation of EMPr mitigation measures (e.g., Spill prevention, Hydrocarbon Storage);
- No invasive prospecting activities to be undertaken within 100m of a watercourse.
- Avoiding ground water pollution
- Where shallow aquifers are encountered, a survey of the drinking water/ livestock watering boreholes should be undertaken (within 100 m of the prospecting borehole sites). A detailed groundwater monitoring programme should be developed for these drinking water/ livestock watering boreholes and pre- and post-prospecting water quality samples should be taken.
- Where drinking water/ livestock watering boreholes are to be affected then the advice of a geohydrologist should be sought with regards to the need for plugging and casing of the prospecting boreholes.
- Remedy through clean-up and waste disposal; and
- Avoid and control through implementation of preventative measures (e.g., location of toilets, spill prevention, waste management).

25. STATEMENT MOTIVATING THE ALTERNATIVE DEVELOPMENT LOCATION WITHIN THE OVERALL SITE

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

The specific locations of intrusive drilling activities will be confirmed during Phase 1 of the Prospecting Work Programme. All infrastructure to be developed will be mobile and temporary. It is recommended that all activities take place away from the waterbodies, ESA 30m buffer to be maintained and there should be no clearing of sensitive vegetation. Negotiations and agreements will be made with the landowner to use any existing infrastructure like access roads. Negative impacts identified above will be mitigated through implementation of the proposed mitigation measures as detailed in the EMPr. Where negative impacts cannot be avoided, rehabilitation will be undertaken.

The proposed prospecting area is close to a geological formation that is known to contain the required mineralization (gravel, sand, and aggregate), as well as several mines that presently produce those minerals.

Photo 10: Availability of the minerals. *(Singo Consulting (Pty) Ltd, 2022)*

The impacts of the development alternative are considered of medium to low significance and would be further reduced to low should the implementation of the proposed mitigation measures be done accordingly.

26. 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

(Including (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures).

- **Approach to the EIA**

An Environmental Impact Assessment (EIA) is a good planning tool. It identifies the environmental impacts of a proposed development and assists in ensuring that a project will be environmentally acceptable and integrated into the surrounding environment in a sustainable way.

The Basic Impact Assessment for this project complies with the National Environmental Management Act (1998) (as amended) and the NEMA EIA Regulations (2014) and guidelines of the Department of Environmental Affairs (DEA). The guiding principles of an EIA are listed below.

- **Guiding principles for an EIA**

The EIA must take an open participatory approach throughout. This means that there should be no hidden agendas, no restrictions on the information collected during the process and an open-door policy by the proponent. Technical information must be communicated to stakeholders in a way that is understood by them and that enables them to meaningfully comment on the project.

There should be ongoing consultation with interested and affected parties representing all walks of life. Sufficient time for comment must be allowed. The opportunity for comment should be announced on an on-going basis. There should be opportunities for input by specialists and members of the public. Their contributions and issues should be considered when technical specialist studies are conducted and when decisions are made.

- **Information gathering**

Early in the Basic Assessment process, the Environmental Assessment Practitioner (EAP) identified the information that would be required for the impact assessment and the relevant data were obtained. In addition, available information about the receiving environment was gathered from reliable sources, interested, and affected parties, previous documented studies in the area and

previous EIA Reports. The project team visited the site to gain first-hand information and an understanding of the existing operations and the proposed project.

- **Baseline Specialist Assessments**

The following baseline studies have been conducted:

- Hydrogeology study
- Soil study
- Hydrological study

The findings and recommendations identified by the various specialist studies undertaken, were incorporated into the Basic Impact Assessment.

- **Legislative Framework**

The legal requirements were described and assessed in detail.

- **Alternatives**

Prospecting is conducted in phases, where the activities and location of drilling are dependent on the previous phase. Therefore, the specific locations and extent of soil sampling and core drilling cannot be as yet confirmed.

- **Description and assessment of impacts identified**

A comprehensive list of all potential impacts of the prospecting as identified by the EAP and the specialists, are provided and are assessed.

- **Environmental Management Programme**

An Environmental Management Programme containing mitigation, management and monitoring measures and specifying roles and responsibilities was compiled with specialist input and are included in this report.

- **Stakeholder engagement**

Registered interested and affected parties including relevant organs of state, are consulted with during the process. All their comments will be formally responded to and incorporated into the Final Basic Assessment Report and Environmental Management Programme that will be submitted to the competent authority.

27. ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK

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

Potential impacts that may be caused by the proposed development will be identified using input from the following:

- Views of I&Aps;
- Existing information;
- Baseline Specialist investigations;
- Site visit with the project team; and
- Legislation.

The following potential major direct, indirect, and cumulative impacts were identified:

- Air pollution (dust, gaseous emissions), Land pollution;
- Water pollution (surface water, groundwater and wetlands)
- Land degradation, land-use and capability impacts;
- Ecological degradation;
- Land pollution;
- Aesthetic, pollution;
- Increased noise levels;

Table 20: Potential environmental impacts and mitigation measures.

Prospecting right impact assessment Table						
Name of the company: Singo Consulting (Pty) Ltd				**Sector: Environmental Consulting**		
Department: Land and water division						
CAUSE/ SOURCE OF THE IMPACT	**RECOMMENDED MEASURES/REMARKS FOR MITIGATION**	**IMPACT RISK BEFORE MITIGATION**	**IMPACT RISK AFTER MITIGATION**	**RESPONSIBLE PERSON(S)**	**WHEN MITIGATION SHOULD BE IMPLEMENTED**	**POTENTIAL IMPACT/ EFFECTS**
Oil, petrol, and diesel due to drill rigs, trucks, and cars.	➢ Diesel, petrol, and oil spill absorbent material available onsite. ➢ No machinery repairs onsite. ➢ Vehicle condition checklist available. ➢ No storage of diesel, oil, and petrol onsite. •			➢ The project management team	Before and during the prospecting activities commence.	➢ Respiratory illness. ➢ Risk of cancer in humans. ➢ Reduce photosynthetic ability of plants.
Overflow of waste chamber and leakage of waste with toilet chemicals.	➢ Regular maintenance of the mobile toilets on site to avoid leakage and overflow.			➢ Toilets Hiring Company. ➢ Project management team	Throughout the prospecting phase, from when they start to when they finish.	➢ Biocides used are toxic can cause endocrine disrupting and reproductive effects if ingested.
Clearing of vegetation leading to increased runoff and less infiltration.	➢ Rehabilitate the site by using a hoe to dig the compacted soil, this will allow infiltration.			➢ The project management team	After pegging and drilling	➢ Destroying local ecosystem. ➢ Decrease the availability of water in an area, Groundwater, and surface water.
Vehicles wash wastewater (VWW)	➢ No washing of Machinery or vehicles on site			The project management team	During prospecting period	➢ Harm surface water aquatic ecosystem. ➢ Degrade the quality of surface and groundwater quality. ➢ Muscle cramping or nausea.

Soil compaction during constructing gravel roads to access the site.	➢ Rehabilitate these roads by digging with tractors and ploughing vegetation			The project management team	After the prospecting phase	➢ Destruction of ecosystem. ➢ Increase run-off, decrease groundwater recharge.
Core logging	➢ The core logs of borehole should be cleared immediately after logging.			The project management team	After the prospecting phase	➢ Leaching of core logs into nearby wetlands (Seep and Valley bottom) and compromise water quality.
Disposal of waste such as metals E.g., Iron, around the prospecting area	➢ There will be waste management bins all around the site, to ensure there are no metals on the ground, or any other waste.			The project Management team	Before the prospecting phase commences.	➢ Rust from metals causes tetanus which affects nervous system. ➢ Degrades the quality of groundwater and surface water.

Table 21: Activity and potential impact in each phase.

Activity	Description	Affected environment	Potential impact
Prospecting phase			
Uploading of access roads	Access roads that already exist will be upgraded.	Soil	Increased erosion of soils due to the removal of vegetation.
		Natural vegetation	Destruction and removal of natural vegetation during site clearance.
		Surface water	Siltation of surface run-off due to soil erosion.
		Air quality	Dust emission due to wind erosion.
Transportation of equipment	The drilling operation will involve transportation of equipment to the project area.	Soil	Soil compaction due to the repetitive movement on gravel roads.
		Interested and Affected Parties	Damage to roads caused by movement of heavy vehicles and continual use of vehicles moving to and from the site.
		Air quality	Increased dust emissions due to entrainment of dust particles by the movement and operation of construction equipment.
Construction of surface infrastructure.	This will involve vegetation clearing and topsoil removal to construct a site office, a change house, toilet, etc.	Soil	Permanent compaction of soil in areas of infrastructure construction
		Land capability	Decreased land capability due to damage to the natural soil structure, soil loss through wind and water erosion and leaching of soil nutrients.
		Natural vegetation	Disturbance of vegetation could result in soil erosion due to exposed soils.
		Surface water	Altered surface flow dynamics around surface infrastructure and potential contamination of surface water due to fluid spillage.

		Groundwater	Groundwater contamination due to infiltration of contaminated water.
		Air quality	Dust from construction vehicles on gravel and secondary roads.
Soil Removal and Stockpile	It is assumed that the topsoil thickness averages 1.4 m over the disturbed area.	Topography	Alteration of local topography and disturbance of natural drainage lines.
		Visual	Creation of stockpiles alters the visual quality of the landscape.
		Soil	Damage to the natural soil structure due to soil handling, removal and mixing of soil types and horizons. Removal of vegetation causes a change in the water runoff characteristics of the site and increases probability of soil erosion. This leads to the loss of topsoil and an increase of siltation in the streams and rivers with the runoff carrying sediment. Leaching of soil nutrients during long-term stockpiling.
		Land capability	Decreased land capability due to damage to the natural soil structure, soil loss through wind and water erosion and leaching of soil nutrients.
		Natural vegetation	Damage to natural vegetation due to deposition of dust emitted during the tipping and stockpiling, restricting photosynthesis.
		Animal life	Direct impacts on threatened fauna species, habitat disturbance and destruction, and disruption of birds nesting, foraging or roosting in the area.
		Surface water	Altered surface flow dynamics due to alterations in the onsite topography and increase of siltation in the streams and rivers with the runoff carrying sediment.
		Air quality	Dust emissions due to wind erosion during tipping of soil onto trucks and stockpiles, and exposure of stockpiles to wind erosion, and increased dust generation.

		Noise	Increase of noise of hauling trucks to topsoil stockpile site.
Placement of a fence	A temporary perimeter fence will be constructed around the exploration site which will be limited to the demarcated area to protect operations and prevent people and domestic animals from harm.	Animal life	Limitation of movement for domestic animals to grazing areas. This will prevent movement of domestic animals to demarcated areas, preventing injury.
		Interested and Affected Parties	The temporary fence could prevent access to communal agricultural fields. The fence will also serve as a safety measure, preventing access to possibly hazardous areas.
Storage of fuel	Diesel fuel use for drilling will be determined and the storage capacity will not be triggered by the NEMA list of activities.	Soil	Soil contamination.
		Land capability	Decreased land capability due to contaminated soil.
		Natural vegetation	Damage to natural vegetation and loss due to hydrocarbon and chemicals spills.
		Animal life	Injury or loss of animals due to spillages of hydrocarbons, chemicals.
		Surface water	Contamination of surface water due to the spillage of hydrocarbons, chemicals or contaminated run- off sourced from contaminated soil.
		Groundwater	Groundwater contamination due to the infiltration of surface water contaminated with spilled hydrocarbons, chemicals.
	The use of hydrocarbons, chemicals will take place,	Soil	Soil contamination.
		Land capability	Decreased land capability due to contaminated soil.

Use of hydrocarbons, chemicals	and these will be stored on site in designated storage areas.	Natural vegetation	Damage due to natural vegetation and loss due to hydrocarbon and chemical spills.
		Animal life	Injury or loss of animals due to spillages of hydrocarbons, chemicals.
		Surface water	Contamination of surface water due to the spillage of hydrocarbons, chemicals or contaminated run-off sourced from contaminated soil.
		Groundwater	Groundwater contamination due to the infiltration of surface water contaminated with spilled hydrocarbons, chemicals.
Access roads	Existing access roads will be used to access the site and transport equipment onto and off-site. If need be, they will be upgraded.	Soil	Upgrading of existing roads to processing plant may result in soil erosion and loss.
		Land capability	Decreased agricultural and grazing potential of surrounding land due to deposition of dust emitted by vehicle entrainment on haul roads
		Natural vegetation	Decreased agricultural and grazing potential of surrounding land due to deposition of dust emitted by vehicle entrainment on haul roads. Site clearing and removal of topsoil could lead to soil erosion and soil loss.
		Surface water	Altered surface flow dynamics due to topsoil removal, topographical alterations and increased surface runoff from cleared areas. Surface water runoff overhaul roads will cause erosion and siltation of surface water resources. Surface water runoff contamination due to hydrocarbon spills from vehicles travelling on haul roads.
		Air quality	Dust pollution caused by construction vehicles
		Noise	Elevated noise levels due to continuous vehicular movement on haul roads.

		Interested and Affected Parties	Damage to roads could impact safety of people and animals.
Decommissioning and closure			
Rehabilitation	All areas disturbed will be rehabilitated to its original state with the waste rock and topsoil stockpiles. Roads should be ripped or ploughed and fertilised, if necessary, to promote re-growth of vegetation.	Soil and vegetation	Positive impact as topsoil will be replaced to enhance vegetation growth.
		Animal life	Positive impact as vegetation will re-establish itself and the natural Fauna will gradually return to the rehabilitated sites.

28. SUMMARY OF SPECIALIST REPORTS

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

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
Hydrogeological study	➢ On site there should be regular maintenance of the mobile toilets. ➢ Once drilling, the team should rehabilitate the area and ensure the core is out of site. ➢ Drilling within 100 meters of water resources should be avoided ➢ The drilling machine used should be of minimum vibrations to avoid creating fissures in underlying rocks which could influence groundwater migration and leads to water contamination ➢ Clearing of vast amount of vegetation should be avoided, this is to preserve infiltration. ➢ Constant availability of waste bins; Compliance of National Environmental Management: Waste Management Act 59 of 2008. ➢ Compliance of GN 704 4(b) and 7(a) and National Water Act 36 of 1998 (Chapter 3 – Part 4, Section 1 (a)(b).	X	Section 6.1.6 of this report

	➢ No onsite vehicle or machinery repairs such as changing oil. ➢ No onsite storage of oil, diesel, or petrol.		
Hydrological study	➢ Vegetation clearance and the exposure of soils must be kept to an absolute minimum. ➢ Temporary erosion control measures (e.g., sediment nets, berms, etc.) must be employed around working areas. ➢ The recommended water quality monitoring programme is implemented at least a year prior to construction, to obtain a suitable baseline for the wet and dry seasons. ➢ The proposed SWMP is implemented. Erosion and sediment control, as well as the containment and management of dirty water runoff, are the most important aspects to prevent negative impacts on the Blosbokspruit River. ➢ Energy dissipation measures are implemented at steep sections as well as at the exits of the proposed stormwater channels. ➢ The river must be appropriately diverted around working areas, and the generation of sediment must be controlled through suitable measures. ➢ Sufficient freeboard in the PCDs and other dirty water dams must be ensured at all times. The dams must be strictly managed in accordance with GN704 regulations.	X	Section 6.1.6 of this report

	➢ Dirty water must not be discharged to the environment. Excess water within the mine water circuit, must be appropriately dealt with, in agreement with the DWS. ➢ Abstractions from the Blosbokspruit River during the dry season months should be avoided as far possible. The use of water from flooded surrounding historical adits, or the construction of suitably sized PCDs should be investigated. ➢ Stormwater management and erosion control along the proposed mine roads must be ensured. It is recommended that runoff is diverted off the roads through suitably spaced berms. ➢ Exemption from GN704 is obtained for infrastructure that is located within the floodlines or watercourses, or 100 m horizontal distance from a watercourse. ➢ Suitably sized culverts are placed where linear infrastructure crosses the minor non-perennial drainage lines. ➢ Post mine closure, rehabilitation must ensure that erosion prevention is adequate for the long-term. ➢ The recommended mitigation measures and monitoring plans are implemented.		
Soil study	➢ The exploration geologist must be advised to drill and sample more than 500m away from the waterbody on site. ➢ The prospecting boreholes must be cased after drilling and properly rehabilitated by cap sealing the borehole after drilling.	X	Section 6.1.6 of this report

	➢ The core of aggregate on the drilled boreholes, should be cleared from the ground immediately after logging by a geologist, to prevent washing and leaching on the water resource during precipitation events. ➢ Absorbent kits should be made available near the drill rigs during drilling activities.		

29. ENVIRONMENTAL IMPACT STATEMENT

a) Summary of the key findings of the environmental impact assessment.

Key findings for the Basic Assessment

- The possible environmental impacts associated with the proposed prospecting area considered insignificant when mitigations are applied accordingly. A diamond core drill rig will be used for drilling.
- The main impacts are associated with the waterbodies particularly the perennial & non perennial rivers traversing the project area. The affected areas will be buffered to prevent any activities from taking place that may result in detrimental effects upon these denoted sensitive areas.
- The Ecological Support areas (ESAs) will be avoided

b) Final Site Map

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

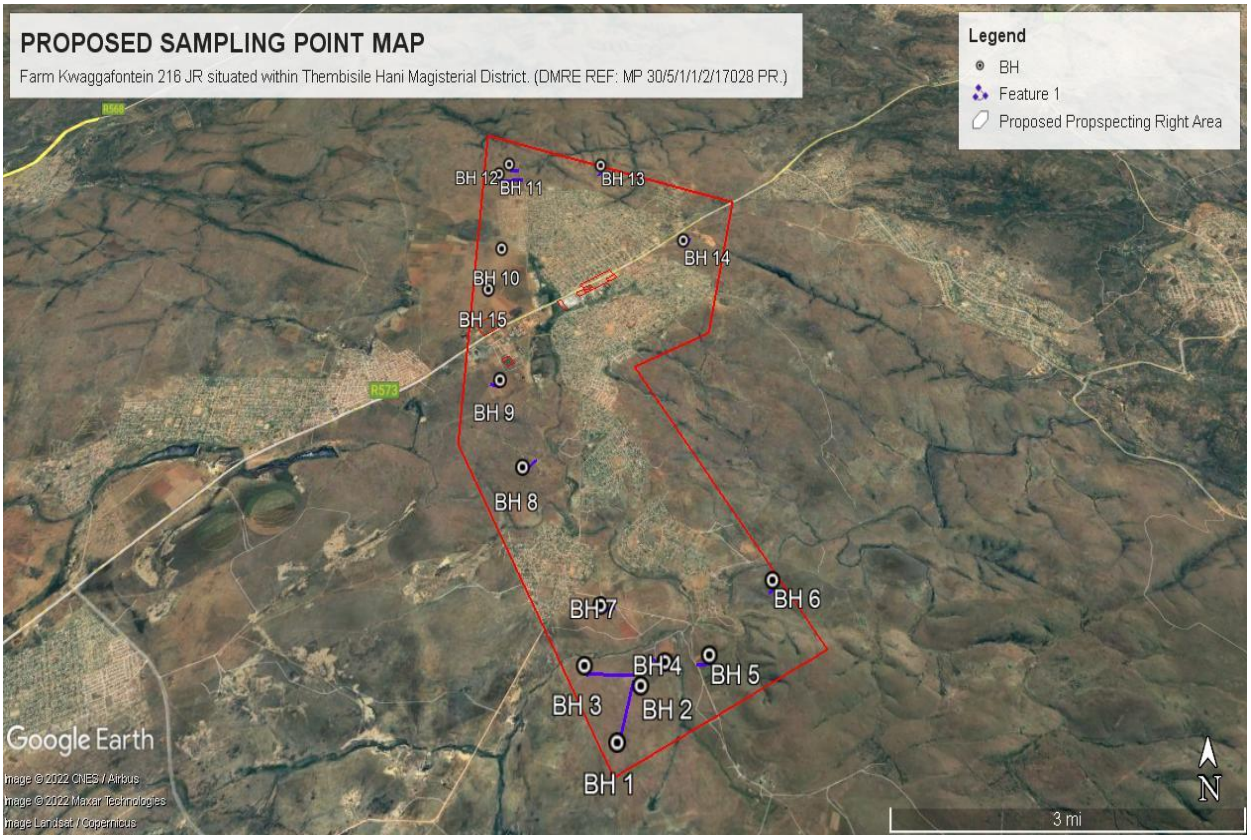


Figure 34: Proposed borehole map. *(Singo Consulting (Pty) Ltd, 2022)*

c) SUMMARY OF THE POSITIVE AND NEGATIVE IMPACTS AND RISKS OF THE PROPOSED ACTIVITY AND IDENTIFIED ALTERNATIVES.

Table 22: Summary of positive and negative impacts

Negative	No concerns in terms of community health as all possible traces of waste and ore will be disposed of appropriately during prospecting. The following negative impacts may occur: • Noise: State-of-the-art drilling equipment will be used to minimise noise. Drilling will be conducted during office hours to limit disturbance of nearby residences. Invasion of privacy: Land access agreements will be signed before prospecting commences. This will limit unnecessary invasion.
Positive	• Discovery of an economically viable mineral resources • Employment contributing to the economy • Positive contribution to the South African Gross Domestic Product • Concurrent rehabilitation during Prospecting Activities

30. PROPOSED IMPACT MANAGEMENT OBJECTIVES AND THE IMPACT MANAGEMENT OUTCOMES FOR INCLUSION IN THE EMPR.

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

- The objective of the EMPr include:
    - Providing enough information for the prospecting activities to prevent and avoid unnecessary social and environmental impact.
    - Providing a prospecting plan, guidance, and guidelines to conduct prospecting with little to no impact on the environment.
    - Reducing impacts by implementing realistic operational management measures like imposing restrictions on the time of day when drilling can take place.

- The desired outcomes of the aforementioned objectives include:
    - Implementing a drilling programme that does not impact sensitive environmental feature
    - Implementing a drilling programme with the consent of the landowner
    - Ensuring that all temporary impacts are reduced.
    - Rehabilitating the area after drilling to its original (or better) state.

- Reducing noise by operating during office hours and giving the nearby residence peace and quiet.
- Managing water and soil pollution through containment.
- Managing ecological degradation by implementing pollution prevention measures, minimising land clearing and restricting working hours.
- Identifying impacts to inform planning, execution, and rehabilitation. During the planning phase, identifying of such impacts is vital to implement and mitigate during construction of the site office and accommodation, as well as during drilling, rehabilitation, and closure.

Impact management objectives

Soils: Prevent soil degradation by establishing effective rehabilitation measures.

Dust: Establish cost-effective measures like spraying of working areas to reduce dust.

Vegetation: Limit flora removal to the footprint area and mitigate against it as far as possible.

Animal life: Limit fauna removal to the footprint area and mitigated against it as far as possible.

Visual impacts: Limit the visual impact of the proposed activity and mitigate against it as far as possible.

31. ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION

(Any aspects which must be made conditions of the Environmental Authorisation)

The following aspects are recommended to be included as conditions in the Environmental Authorization:

- The EMPR is a contractual document and must be implemented at all times during the prospecting phase;
- An independent environmental control officer (ECO) must be appointed to monitor the implementation of the EMPR and audit reports to be kept by the applicant;
- All contractors and employees of Wiza Mining (Pty) Ltd must be made aware of the EMPR and its requirements as well as the impact of not implementing the measures of the EMPR.
- Copies of the EMPR, Integrated Environmental Authorisation and any emergency procedures and method statements, must be kept on site and be available on request of the Competent Authority.

32. DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE.

(Which relate to the assessment and mitigation measures proposed)

- All information provided to the environmental team, by the applicant and I&APs was correct and valid at the time that it was provided.
- The investigations undertaken by specialists during the BA process, indicate the development site as suitable and technically acceptable, except for the wetland (perennial river) site, which is sensitive and recommended that prospecting not take place
- It is not always possible to involve all I&APs individually, however, every effort has been made to involve as many affected stakeholders as possible
- The information provided by the applicant and specialists was accurate and unbiased; and
- The scope of this investigation is limited to assessing the environmental impacts associated with the prospecting activity.

33. REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

a) Reasons why the activity should be authorised or not

In general, it is recognized that the proposed prospecting activities have the potential to pose various risks to the environment as well as to the residents or businesses in the surrounding area. However, based on the findings of this BA documented in this report, all impacts can be mitigated to insignificant levels.

This report shows that the proposed development has the potential to provide socio-economic benefits to the local and regional communities. The EAP therefore recommends that the proposed activities be approved on condition that the EMPr is strictly implemented and monitored for compliance and that the wilderness portions of the study area are excluded from prospecting.

Not implementing the prospecting activities will result in a loss of information on mineral reserves present on the study area. Should economically feasible reserves exist on the study area and the applicant cannot prospect, the opportunity to utilize the reserves for future mining and the minerals will be sterilized and resultant socio-economic benefits will be lost.

The proposed prospecting activities have the potential to have a negative impact on the ecological environment as well as the social environment of the area. These impacts, however, can potentially be prevented, minimized, mitigated and managed to low and very low levels, as shown through the impact assessment.

b) Conditions that must be included in the authorisation

- The EMPr is a contractual document and must be implemented at all times during the prospecting phase.
- An independent environmental control officer (ECO) must be appointed to monitor the implementation of the EMPR and audit reports to be kept by the applicant;
- All contractors and employees of Wiza Mining c(Pty) Ltd must be made aware of the EMPr and its requirements as well as the impact of not implementing the measures of the EMPr;
- Copies of the EMPr, Environmental Authorisation and any emergency procedures and method statements, must be kept on site and be available on request of the Competent Authority.

34. PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

This Environmental Authorisation is required for a period of 3 years

35. UNDERTAKING

(Confirm that the undertaking required to meet the requirements of this section is provided at the end of the EMPR and is applicable to both the Basic assessment report and the Environmental Management Programme report).

Please refer to the EMPR in Part B of this document.

36. FINANCIAL PROVISION

(State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation).

An amount of R39 563.00 is required to manage and rehabilitate the environment. The financial provision amount was calculated utilising the methodology as prescribed by the Guideline Documents for the Evaluation of the Quantum of Closure Related Financial Provision Provided by a Mine issued by the DMRE.

Table 23: Quantum Calculation

CALCULATION OF THE QUANTUM

Applicant: **WIZA MINING (Pty) Ltd**

Evaluator: **Makhubela Dineo**

Ref No.: **MP 30/5/1/1/2/17028 PR**
Date: **28/06/2022**

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	19	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	271	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	400	1	1	0
3	Rehabilitation of access roads	m2	11101.25	49	0.03	1	16318.8375
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	471	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	257	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	542	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0	284292	1	1	0
7	Sealing of shafts adits and inclines	m3	0	146	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0	189528	1	1	0
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	236054	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	685612	1	1	0
9	Rehabilitation of subsided areas	ha	0	158701	1	1	0
10	General surface rehabilitation	ha	0.9	150138	0.1	1	13512.42
11	River diversions	ha	0	150138	1	1	0
12	Fencing	m	0	171	1	1	0
13	Water management	ha	0	57087	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0	19980	1	1	0
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
					Sub Total 1		29831.2575

1	Preliminary and General	3579.7509	weighting factor 2: 1	3579.7509
2	Contingencies	2983.12575		2983.12575
			Subtotal 2	36394.13
			VAT (15%)	3168.52
			Grand Total	**39563**

SIGN Makhubela Dineo

DATE 28/06/2022

36.1 Explain how the aforesaid amount was derived

Confirm that this amount can be provided for from operating expenditure. Confirm that the amount is anticipated to be an operating cost and is provided for as such in the PWP.

The applicant will be responsible for rehabilitating the proposed area once activities have been completed. The financial guarantee was calculated using the DMRE official financial quantum calculator. This information has been provided in the PWP that was submitted to the DMRE.

It must be noted that an Environmental Management Plan is being compiled by the consultant of Singo Consulting Pty Ltd, and therefore costs have been included in the cost estimate of expenditure. Similarly, the prefeasibility studies will be conducted by consultant personnel of **WIZA MINING (PTY) Ltd.** Please refer to ***Table 24*** for a breakdown of the estimated costs. It must be noted that although amounts have been indicated for salaries, these have not been included in the costs, as the geologists are employed **WIZA MINING (PTY) Ltd** on a contractual basis.
As indicated in below, an amount of **R 1 617 747.00** is required to finance the PWP over the three-year period.

Table 24: Cost estimate for the proposed prospecting

ACIVITY	YEAR 1 Expenditure (R`)	YEAR 2 Expenditure (R`)	YEAR 3 Expenditure (R`)
Phase 1 (Months 0 to 12)			
Literature surveys	R 2 500.00	R1 500.00	
Desk top studies	R 10 000.00	R 5 000.00	
Geophysical or geotechnical work	R 10 000.00	R 4 000.00	
Research and target identification		R 5 000.00	
Invasive work, (Drilling 05 boreholes a depth of 110m)	R48 024 9.00		
Phase 2-3 (Months 13 to 36)			
Invasive work, (Drilling 05 boreholes a depth of 110m)		R48 024 9.00	R48 024 9.00
Sampling work		R 25 000.00	R 15 000.00
Laboratory work		R 22 800.00	R 11 200.00
Analytical and modelling work			R 40 000.00
Infill work			R 25 000.00
Bulk sampling and testing to be carried out			
Annual Total	**R 502 749.00**	**R 543 549.00**	**R 571 449.00**
		Total Budget	**R 1 617 747.00**

36.2 Method of assessment.

Singo Consulting (Pty) Ltd used the Guideline Document for the Evaluation of Financial Provisions published by the mining industry. Table presents the step-by-step details on how the financial provision was derived. For the purpose of determining the quantum for closures, it is assumed that the infrastructure will have no salvage value.

Table 25: DMRE Financial Provision Methodology.

Step	Description	DMRE applicable table	Outcomes
1	Determine primary mineral and saleable mineral by-products	Table B.12	Mineral: Aggregate, Gravel and Sand General.
2	Determine Risk Class	Table B.12	Primary Risk Class: C (Small operation, no waste, no processing). Risk Class C is considered a low risk with a low probability of occurrence of the impact with a negligible consequence.
3	Determine the Area Sensitivity	Table B.4	Medium to High Sensitivity. The area is largely being disturbed by cattle farming; however, the natural state is still present in good condition. The river systems in this area are non-perennial and they fall under Olifants Sub Catchment. The landowners are near the proposed prospecting activities, although the area is not densely inhabited, and no well-established communities are present. The land in question is arable and Wilderness. The area can be considered sensitive to further development past the prospecting application, should the prospecting activities prove that the area is economically viable for the purposes of a mining right application, which will compromise the existing economic activity.
4.1	Determine the level of information	N/A	Limited information is available and is based on desktop investigations and stakeholder consultation.
4.2	Determine the closure components	Table B.5	See Table 23 of this report.
4.3	Determine the unit rates for closure components	Table B.6	See Table 23 of this report. The multiplication factor for all components is 1.00.
4.4	Determine and apply the weighting factors	Table B.7 Table B.8	Weighting factor 1 (Nature of the terrain): 1 (generally flat terrain) Weighting factor 2 (Peri-urban, less than 150km from a developed urban area)): 1 .05(Rural/Urban).
4.5	Identify areas of disturbance	N/A	No areas of disturbance are considered in this assessment. The area in which the prospecting activities are planned is considered to be undisturbed.
4.6	Identify closure costs from specialist studies	Table B.9	Due to the fact that the operation in question is only a prospecting operation, no residual impacts should take place. During the Life of Prospecting and ongoing rehabilitation, the self-succession results should be assessed and monitored. If self-succession does not take place satisfactorily the client may be subjected to additional specialist investigations (ecological and pedology) to determine seeding and re-vegetation requirements.
4.7	Calculate Closure Costs	Table B.10	See the following section.

36.3 Quantity estimation

For the purpose of this assessment, Singo Consulting (Pty) Ltd can confirm that the method adopted to obtain and compile the schedule of quantities is sound, correct, and provides detail that is required by the DMRE. The information will allow for continued monitoring and updating of quantities and provides the ideal platform to manage and monitor the actual on-site rehabilitation measures and costs incurred.

36.4 Determination of rates

The method of determining the applicable rehabilitation rates is based on practical experience and information by third party contractors.

Table 26: Quantum Calculation.

CALCULATION OF THE QUANTUM

Applicant: **WIZA MINING (Pty) Ltd**

Ref No.: **MP 30/5/1/1/2/17028 PR**

Evaluator: **Makhubela Dineo**

Date: **28/06/2022**

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
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2 (A)	Demolition of steel buildings and structures	m2	0	271	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	400	1	1	0
3	Rehabilitation of access roads	m2	11101.25	49	0.03	1	16318.8375
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	471	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	257	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	542	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0	284292	1	1	0
7	Sealing of shafts adits and inclines	m3	0	146	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0	189528	1	1	0
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	236054	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	685612	1	1	0
9	Rehabilitation of subsided areas	ha	0	158701	1	1	0
10	General surface rehabilitation	ha	0.9	150138	0.1	1	13512.42
11	River diversions	ha	0	150138	1	1	0
12	Fencing	m	0	171	1	1	0
13	Water management	ha	0	57087	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0	19980	1	1	0
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
					Sub Total 1		29831.2575

1	Preliminary and General	3579.7509	weighting factor 2 1	3579.7509
2	Contingencies	2983.12575		2983.12575
			Subtotal 2	36394.13
			VAT (15%)	3168.52
			Grand Total	**39563**

SIGN Makhubela Dineo

DATE 28/06/2022

37. SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

a) 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: -

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

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

Potential impacts on landowners, land occupiers, communities or individuals or competing land uses in the area include:

- Potential soil pollution which may result from any hydrocarbon spills where heavy machinery and vehicles are parked such as the hard park area because they contain large volumes of lubricating oils, hydraulic oils, and diesel to run. There is always a chance of these breaking down and/or leaking.
- Contamination of stormwater runoff and groundwater, caused by chemicals such as hydrocarbon-based fuels and oils or lubricants spilled from heavy vehicles and machinery and fuel storage area.
- Visual impacts: Visibility from sensitive receptors / visual scarring of the landscape as a result of the prospecting activities.
- Nuisance and health risks caused by an increase in the ambient noise level as a result of noise and vibration impacts associated with the operation of vehicles, machinery and equipment.
- Increased dust pollution due to vegetation clearance and vehicles driving on gravel roads and drilling.
- Gaseous emissions from vehicles and machinery may cause an impact on ambient air quality.
- Generation of additional general waste, litter and building rubble and hazardous waste.
- Minor impact caused by need for services i.e., water, electricity and sewerage systems during the prospecting phase causing additional strain on natural resources and service infrastructure.
- Minor change in traffic patterns as a result of traffic entering and exiting the site on the surrounding road infrastructure and existing traffic.

- Nuisance, health, and safety risks caused by increased traffic on and adjacent to the study area including cars, and heavy vehicles.
- Possibility of prospecting activities and workers causing veld fires, which can potentially cause injury and or loss of life to workers and surrounding landowners, visitors, and workers.
- Increased risk to public and worker safety: If not fenced off, the public and workers may fall into excavated areas and trenches.
- Potential creation of very limited extent short term employment opportunities for the local community, during the prospecting phase.
- Multiplier effects on local economy will be positive, but very limited in extent and only short term.

Mitigation measures are included in this report, as well as the EMPR.

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

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

Whilst there is knowledge of heritage resources within the proposed prospecting area, care will be taken to avoid any sensitive heritage resources. As there are graves in the area, the buffers will be placed on identified proposed boreholes 100m away from features of this type. The relevant authorities will also be notified.

38. OTHER MATTERS REQUIRED IN TERMS OF SECTIONS 24(4)(A) AND (B) OF THE ACT

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

The proposed drilling activities requested as part of this authorization is the only current viable manner in which a mineral resource can be identified and used to generate a SAMREC and/or JORC- compliant resource which is a minimum requirement to determine whether it is viable to invest in a future mine.

PART B: ENVIRONMENTAL MANAGEMENT PROGRAMME

39. DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

39.1 Details of the EAP

(Confirm that the requirement for the provision of the details and expertise of the EAP are already included in PART A, section 1(1.1) herein as required).

Herewith, it is confirmed that the requirement for the provision of the details and expertise of the EAP are already included in PART A, Section 1(1.1) of this report.

39.2 Description of the Aspects of the Activity

(Confirm that the requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section (4) (4.1) herein as required).

Herewith, it is confirmed that the requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section (4) (4.1) herein as required.

39.3 Composite Map

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

Refer to section 11 above

39.4 Description of Impact management objectives including management statements

(g) Determination of closure objectives

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

The prospecting activities are dependent on the preceding phase (non-invasive). Prospecting is conducted in phases, where the activities and location of drilling are dependent on the previous phase. Therefore, the specific locations and extent of soil sampling and diamond core drilling cannot as yet be confirmed. Mapping of prospecting activities can also not be conducted.

The closure objectives include:

- Ensure that there are no safety risks associated with the drill boreholes through drill hole capping and backfilling;
- Rehabilitate any pollution that occurred through hazardous spills or waste materials and remove the source of the pollution;
- Establish an area that is not susceptible to soil erosion;
- Re-vegetate disturbed areas with endemic plant species that occur naturally within the area.

(h) Volumes and rate of water use required for the operation

A total of 1000L of water will be used per day on maximum drilling production day and a total of approximately R30 000 L will be used for all the proposed 15 boreholes.

(i) Has a water use licence been applied for?

Water Use Licence has been not applied , since no water extraction and diversion will be done from any water source. All water used on site will be transported to site by a water tank for the sole purpose of this project. This water will be bought from the municipality or licenced water supplier that sells potable water or treated industrial water for which a water sale agreement will be provided before work commences and is submitted to the DMRE.

40. IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

Table 27: Impacts to be mitigated

Activities	Phase	Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
Site clearance	Construction Operation	0.9 ha, short term and localized	• Demarcation of sensitive areas in consultation with relevant specialists and ECO; • Utilise local labour if possible; • Minimise removal of vegetation as far as possible; • Identification and relocation of protected species by a qualified ecologist (and application or the relevant biodiversity permits where required); • Minimize dust generation; • Limit vehicle access; • Implement alien vegetation management; • Ongoing identification of risks and impacts; • Emergency preparedness; • Monitoring and review; and • Avoid disturbance of fauna as much as possible, especially bird nesting sites.	NEMA MPRDA NEMBA NEMAQA Dust regulations NWA DWAF Best Practice Guidelines	Throughout Construction and operation

Site access	Construction Operation	5 088.770 ha short term and localized	• All employees and visitors to the site must undergo a site induction which shall include basic environmental awareness and site-specific environmental requirements (e.g., site sensitivities and relevant protocols/procedures). This induction should be presented or otherwise facilitated by the Contractors EO/Mine EO wherever possible. • Landowners/lawful occupiers must be notified prior to accessing properties. A date and time that is suitable to landowners/lawful occupiers and is reasonable to the applicant should be negotiated and agreed upon. • The number, identity of workers, work location and work to be done must be provided to the landowner/lawful occupier prior to going on site. • Consideration must be taken by the applicant and/or contractors when on site not to interfere with the existing land uses and practices.	NEMA OHS & MHSA	Throughout Construction and operation
Establishment of site infrastructure	Construction	short term and localized	• Minimise physical footprint of construction; • Ensure construction is consistent with occupational health and safety requirements; • Minimise vegetation clearance; • Ensure proper and adequate drainage; • Minimise waste and control waste disposal;	NEMA MPRDA NEMBA NEMAQA Dust regulations	Throughout Construction and operation

			• Fencing of all drill sites with security access control and warning signs; • Establish waste storage areas for recycling; • Ensure adequate containment of waste to prevent pollution; • Minimise dust generation; • Limit vehicle access to approved access roads; • Prepare contingency plans for spillage	NWA DWAF Best Practice Guidelines NHRA	
Storage of construction vehicles	Construction and Operation	short term and localized	• Any equipment that may leak, and does not have to be transported regularly, must be placed on watertight drip trays to catch any potential spillages of pollutants. The drip trays must be of a size that the equipment can be placed inside it; • Drip trays must be cleaned regularly and shall not be allowed to overflow. All spilled hazardous substances must be collected and adequately disposed of at a suitably licensed facility; and Compacting of soil must be avoided as far as possible, and the use of heavy machinery must be restricted in areas outside of the proposed exploration sites to reduce the compaction of soils.	NWA DWAF BPG	Throughout Construction and operation

Transportation/ access to and from drill sites	Construction and Operation	short term and localized	• Where possible, drill sites should be located along existing access roads to reduce the requirement for additional access roads; • Any new temporary access routes to a drill site should result in minimal disturbance to existing vegetation; • Prior to accessing any portion of land, the Applicant must enter into formal written agreements with the affected landowner. This formal agreement should additionally stipulate landowners special conditions which would form a legally binding agreement; • All farm gates must be closed immediately upon entry/exit; • Under no circumstances may the contractor damage any farm gates, fences, etc.; • On-site vehicles must be limited to approved access routes and areas on the site so as to minimize excessive environmental disturbance to the soil and vegetation on site, and to minimize disruption of traffic (where relevant); • All construction and vehicles using public roads must be in a roadworthy condition and their loads secured. They must adhere to the speed limits and all local, provincial and national regulations with regards to road safety and transport;	NEMA NEMBA CARA NEMAQA Dust Regulations Road Traffic Act	Throughout Construction and operation

			• Damage caused to public roads as a result of the construction activities must be repaired in consultation with the relevant municipal authorities; and • All measures should be implemented to minimize the potential of dust generation.		
Storage of hazardous substances	Construction and Operation	short term and localized	All hazardous substances (e.g. fuel, grease, oil, brake fluid, hydraulic fluid) must be handled, stored and disposed of in a safe and responsible manner so as to prevent pollution of the environment or harm to people or animals. Appropriate measures must be implemented to prevent spillage and appropriate steps must be taken to prevent pollution in the event of a spill; and way that does not pose any danger of pollution even during times of high rainfall.	NWA NEMWA DWAF BPG NEMA	Throughout Construction and operation
Prospecting boreholes: **15 sites ,with a footprint of 600 m^2 each**	Construction and Operation Decommissioning	0,9 ha, short term	• Vegetation clearing for prospecting sites should be kept to a minimum in order to reduce the disturbance footprint; • Compaction of soil must be avoided as far as possible, and the use of heavy machinery must be restricted in areas outside of the proposed prospecting sites to reduce the compaction of soils; • All measures should be implemented to minimize the potential of dust generation; • Noise attenuation on engines must be adequate, and the noisy activities must be		

			restricted as far as is possible to times and locations whereby the potential for noise nuisance is reduced; • When working near to a potential sensitive area, the contractor must limit the number of simultaneous activities to the minimum; • Ensure proper storage of fuels; • On-site vehicles must be limited to approved access routes and areas on the site so as to minimize excessive environmental disturbance to the soil and vegetation on site, and to minimize disruption of traffic; • Workforce should be kept within defined boundaries and to agreed access routes. • No invasive prospecting activities to be undertaken within 100m of a watercourse. • Should any watercourse be affected, then the necessary water use licences should be obtained from the Department of Water and Sanitation. • No ablution of site laydown areas is to be located within 100m of a watercourse. • Where drinking water/ livestock watering boreholes are to be affected, and where a pollution event occurs at a particular borehole, then the advice of a geohydrologist should be sought with regards to the need for plugging and casing of the prospecting boreholes.		

Prospecting	Construction and Operation	0,9 ha, short term	Workers must be easily identifiable by clothing and ID badges. Workers should carry with them, at all times a letter from the applicant stating their employment, title, role and manager contact details.	OHS and MHSA	Throughout Construction and operation
Resource definition drilling	Planning Phase Construction and Operation	short term	Local residents (landowners and directly adjacent landowners) should be notified of any potentially noisy activities or work and these activities should be undertaken at reasonable times of the day. This work should not take place at night or on weekends; • The contractor must attempt to restrict noisy activities as far as is possible to times and locations whereby the potential for noise nuisance is reduced; • Dust suppression methods must be applied when necessary to restrict the visual impact of dust emissions. • Any spills of hydrocarbons or fluids used during operation, must be cleaned up immediately; • An above ground drilling sump must be used to contain drilling mud in order to reduce surface and groundwater contamination. No earthen mud sumps are to be constructed and utilized;	MPRDA Regulations GN R527 SANS 10103 ECA Noise Regulations NEMAQA Dust Regulations NWA DWAF BPG NHRA	Planning Phase Throughout Construction and operation

			• No prospecting boreholes should be drilled in the immediate vicinity of existing private boreholes. • Soils will be collected in drilling areas where disturbances will be encountered and must be stripped and stockpiled outside affected areas for use after completion of the drilling program. • Topsoil must be adequately stripped to the correct depth and stored separately from subsoils. • A liner should be placed over the drill pad and drip trays must be used in all areas where hydrocarbons are handled; • On-site vehicles must be limited to approved access routes and areas on the site so as to recording, sampling or collection) can be taken by a professional palaeontologist • The Final BAR and appendices must be submitted to SAHRA for record purposes • 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 must be alerted. If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit, must be alerted immediately. A		

			professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase2 rescue operation may be required subject to permits issued by SAHRA; and • If the development receives an Environmental Authorisation (EA), SAHRA must be informed and all documents pertaining to the EA must be uploaded to the SAHRIS Case file.		
Refuelling	Construction and Operation	Short term and localized	• Refuelling may only take place within demarcated areas that is subject to appropriate spill prevention and containment measures refuelling and transfer of hazardous chemicals and other potentially hazardous substances must be carried out so as to minimize the potential for leakage and to prevent spillage onto the soil; • Drip trays should be utilized in relevant locations during transfer so as to prevent such spillage or leakage. Any accidental spillages must be contained and cleaned up promptly.	NWA DWAF BPG	Throughout Construction and operation

Maintenance and repair	Construction and Operation	Short term and localized	• Trucks, machinery and equipment must be regularly serviced to ensure they are in proper working condition and to reduce risk of leaks. All leaks must be cleaned up immediately using spill kits or as per the emergency response plan. For large spills a hazardous materials specialist shall be utilized; • Accidental hydrocarbon spillages must be reported immediately, and the affected soil should be removed, and rehabilitated or if this is not possible, disposed of at a suitably licenced waste disposal facility.	NWA DWAF BPG NEMA	Throughout Construction and operation
Borehole Closure	Decommissioning and Closure	Short term and localized	• Where groundwater is encountered during drilling, all affected prospecting boreholes that will not be required for later monitoring or other useful purposes should be plugged and sealed with cement to prevent possible cross flow and contamination between aquifers; • Cement and liquid concrete are hazardous to the natural environment on account of the very high pH of the material, chemicals contained. Therein. As a result, the contractor shall ensure that: • Concrete shall not be mixed directly on the ground; • The visible remains of concrete, either solid, or from washings, shall be physically removed immediately and disposed of as	NWA DWAF BPG	Throughout Decommissioning and Closure

			waste, (Washing of visible signs into the ground is not acceptable); and o All excess aggregate shall also be removed.		
Removal of surface infrastructure	Decommissioning	Short term and localized	• All infrastructure, equipment, and other items used during prospecting will be removed from the site. • Compaction of soil must be avoided as far as possible. The use of heavy machinery must be restricted in areas outside of the proposed prospecting sites to reduce the compaction of soils.	MPRDA Rehab Plan	Decommissioning
Removal of waste	Decommissioning	Small scale and localized	• Any excess or waste material or chemicals, including drilling muds etc. must be removed from the site and must preferably be recycled (e.g. oil and other hydrocarbon waste products). Any waste materials or chemicals that cannot be recycled must be disposed of at a suitably licensed waste facility.	NWA DWAF BPG	Decommissioning

Rehabilitation	Rehabilitation	All disturbed areas	• Restoration and rehabilitation of disturbed areas must be implemented as soon as prospecting activities are completed; • Sites must be restored to the original condition with vegetation cover (where applicable) equalling the surrounding vegetation cover; • All debris and contaminated soils must be removed and suitably disposed of; • Contours and natural surrounding must be reformed; • Natural drainage patterns must be restored; • All surface infrastructure on site must be removed; • Temporary access routes/roads must be suitably rehabilitated; and • Sites must be monitored by the ECO (including relevant specialist's inputs if, necessary) for adequate rehabilitation until the desired rehabilitation objectives have been achieved.	MPRDA Rehab Plan NEMA	Rehabilitation
Consultation	Planning Phase Construction and Operation	Medium term, local	• Stakeholder engagement will continue throughout the prospecting activities to ensure the community and landowners are kept informed and allowed to raise issues.	NEMA OHS and MHSA	Planning Phase Throughout Construction and Operation

Monitoring	Post-Operational	All rehabilitated areas	The post-operational monitoring and management period following decommissioning of prospecting activities must be implemented by a suitable qualified independent party for a minimum of one (1) year unless otherwise specified by the competent authority. The monitoring activities during this period will include but not be limited to: • Biodiversity monitoring; and • Re-vegetation of disturbed areas where required. Provision must be made to monitor any unforeseen impact that may arise as a result of the proposed prospecting activities and incorporated into post closure monitoring and management.	MPRDA Rehab Plan	Post-operation

41. IMPACT MANAGEMENT ACTIONS AND OUTCOMES

Table 28: Summary of impact management actions and outcomes

Activity	Potential Impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
Site clearance	• Deterioration and damage to existing access roads and tracks; • Dust generation; • Clearance of vegetation; • Invasion by alien species; • Sedimentation • Erosion	• Topography • Soil • Air Quality • Surface Water • Groundwater • Transportation	• Construction • Operation	Avoid and control through implementation of EMP mitigation measures (e.g. speed limit enforcement, vehicle maintenance)	NEMA NEMBA CARA Threatened or Protected Species (TOPS) regulations NEMAQA Dust regulations NWA DWAF best Practice Guidelines

Establishment of base camps and access	• Interference with existing land uses • Safety and security risks to landowners and lawful occupiers; • Deterioration and damage to existing access roads and tracks; • Dust generation; • Clearance of vegetation; • Pollution of soils • Contamination on surface and ground	• Topography; • Landform; • Soil disturbance; • Fauna and • Flora; • Air Quality; • Surface Water; • Groundwater; • Socioeconomics	• Construction • Operation	Avoidance and control through preventative measures (e.g. communication with landowners, site access control) Remedy through application of mitigation measures in EMP	NEMA MPRDA NEMBA CARA Threatened or Protected Species (TOPS) regulations NEMAQA Dust regulations NWA DWAF best Practice Guidelines

Storage of construction vehicles	• Pollution of surface and groundwater resources from potential hydrocarbon spills; and • Compaction of soils	• Surface water • Groundwater • Soils.	• Construction • Operation	Avoid through implementation of EMP mitigation measures (e.g., communication with landowners) Control through implementation of ESMS	Protected Species (TOPS) regulations NEMAQA Dust regulations NWA DWAF best Practice Guidelines
Transportation to and from drill sites	• Soil compaction • Disturbance and loss of fauna and flora, Wearing and tearing of existing roads and Dust generation from increased traffic.	• Soil disturbance • Fauna and Flora • Air quality.	• Construction • Operation	Avoid and control through implementation of EMP mitigation measures (e.g., speed limit enforcement, vehicle maintenance)	NEMA NEMBA CARA Threatened or Protected Species (TOPS) regulations NEMAQA

Storage of hazardous substances	• Potential hydrocarbon spills that could pollute surface and ground water resources.	• Surface water • Groundwater.	• Construction • Operation	Avoid and control through implementation of EMPr mitigation measures (e.g., speed limit enforcement, vehicle maintenance)	NEMA NEMBA NWA DWAF best Practice Guidelines
Waste management	• Pollution of habitats and surrounding areas.	Pollution	• Construction • Operation	Avoid and control through implementation of EMP mitigation measures (e.g., speed limit enforcement, vehicle maintenance	DWAF minimum requirement for waste disposal

Prospecting boreholes	• Vegetation clearance • Possible erosion • Changes in drainage and surface hydrology • Soil disturbance and compaction • Emissions from vehicles • Land use conflict • Noise disturbance due to acoustic sources • Dust generation • Disturbance or damage of palaeontological resource • Potential spills of hydrocarbons • Influx of people • Impact on groundwater	• Ecology • Topography • Access/footprint • Soil disturbance • Noise • Air Quality • Socioeconomics • Groundwater	• Construction • Operation • Decommissioning	Control through implementation of EMPR mitigation measures	SANS10103 ECA Noise Regulations NEMAQA Dust regulations NWA

Resource definition drilling	• Vegetation clearance • Removal of topsoil; • Changes in drainage and surface hydrology; • Drainage and soil contamination; • Land use conflict; • Dust generation; • Disturbance of wildlife and communities in close vicinity; • New access roads; • Increased transportation; • Damage to local infrastructures; • Disturbance or damage of palaeontological resources; • Influx of people; • Wastewater discharge; • Spillage and leaks of hydrocarbons; Pollution or interplay between groundwater aquifers; Waste disposal.	• Air Quality • Noise • Surface water • Groundwater,	Operation	Control through implementation of EMPR mitigation measures	SANS10103 ECA Noise Regulations NEMAQA

Refuelling	• Potential hydrocarbon spills that could pollute soil or surface and/or groundwater resources.	• Pollution • Surface water • Groundwater	• Construction • Operation	Control through implementation of EMPr mitigation measures	NWA DWAF best Practice Guidelines
Maintenance and repair	• Potential hydrocarbon spills that could pollute surface and groundwater resources.	Pollution; • Surface water • Groundwater	• Construction • Operation	Control through implementation of EMPr mitigation measures	NWA

Borehole closure	• Pollution of groundwater resources • Potential pollution of habitats with cement residue that may be exposed to runoff etc.	Pollution; • Groundwater	Decommissioning	Control through implementation of EMPr mitigation measures	NWA
Removal of surface infrastructure	• Soil compaction • Pollution of soil and surrounding vegetation.	• Landform • Topography • Soils.	Decommissioning	Control through implementation of EMPr mitigation measures	MPRDA In accordance with Rehab plan

Rehabilitation	• Soil compaction • Soil and Water contamination • Erosion • Change drainage and surface hydrology • Loss of habitat; and • Disturbance to wildlife and communities in close vicinity	• Topography • Land use • Soil disturbance • Ecology • Surface water • Groundwater	Rehabilitation	Control through implementation of EMPr mitigation measures	MPRDA In accordance with Rehabilitation plan
Monitoring of rehabilitated sites	• Soil compaction • Soil and Water contamination • Erosion • Disturbance to wildlife; and communities in close vicinity.	• Topography • Land use • Soil disturbance • Ecology • Surface water • Groundwater	Post-operation	Control through adhering to monitoring requirements	MPRDA and regulations

42. FINANCIAL PROVISION

- Determination of the amount of Financial Provision

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

The closure objectives include:

- Ensure that there are no safety risks associated with the drill boreholes through drill hole capping and backfilling;
- Rehabilitate any pollution that occurred through hazardous spills or waste materials and remove the source of the pollution;
- Establish an area that is not susceptible to soil erosion;
- Re-vegetate disturbed areas with endemic plant species that occur naturally within the area.

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

This Basic Assessment Report and Environmental Management Programme will be subjected to a public consultation period, whereby I&APs are given 30 days to comment.

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

The prospecting activities are dependent on the preceding phase (non-invasive). Prospecting is conducted in phases, where the activities and location of drilling are dependent on the previous phase. Therefore, the specific locations remain proposed. Mapping of prospecting activities can also not be conducted.

Due to the small extent and short-term period of the prospecting activities and as shown in the Environmental Impact Assessment, the impacts will be of a low or very low significance. Rehabilitation will be conducted progressively and will include borehole capping and re-vegetation.

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

Due to the small extent and fairly short-term period of the prospecting activities and as shown in the Environmental Impact Assessment, the impacts will be of a low or very low significance. Rehabilitation will be conducted progressively and will include borehole capping and re-

vegetation. Detailed mitigation measures are provided in the EMPR to ensure the closure objectives are met.

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

CALCULATION OF THE QUANTUM

Applicant: **WIZA MINING (Pty) Ltd**

Ref No.: **MP 30/5/1/1/2/17028 PR**

Evaluator: **Makhubela Dineo**

Date: **28/06/2022**

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	19	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	271	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	400	1	1	0
3	Rehabilitation of access roads	m2	11101.25	49	0.03	1	16318.8375
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	471	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	257	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	542	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0	284292	1	1	0
7	Sealing of shafts adits and inclines	m3	0	146	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0	189528	1	1	0
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	236054	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	685612	1	1	0
9	Rehabilitation of subsided areas	ha	0	158701	1	1	0
10	General surface rehabilitation	ha	0.9	150138	0.1	1	13512.42
11	River diversions	ha	0	150138	1	1	0
12	Fencing	m	0	171	1	1	0
13	Water management	ha	0	57087	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0	19980	1	1	0
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
					Sub Total 1		29831.2575

1	Preliminary and General	3579.7509	weighting factor 2 1	3579.7509
2	Contingencies	2983.12575		2983.12575
			Subtotal 2	36394.13
			VAT (15%)	3168.52
			Grand Total	**39563**

SIGN Makhubela Dineo

DATE 28/06/2022

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

Wiza Mining (Pty) Ltd herewith confirms both its capacity and willingness to make the financial provision required should the prospecting right be granted. Work will be approved on a phase-by-phase basis, dependent on the results obtained in the previous phase i.e., although prospecting work may be provided for financially in the budget for a specific year, it will only take place if justified.

43. MECHANISMS FOR MONITORING COMPLIANCE WITH AND PERFORMANCE ASSESSMENT AGAINST THE ENVIRONMENTAL MANAGEMENT PROGRAMME AND REPORTING THEREON, INCLUDING H) MONITORING OF IMPACT MANAGEMENT ACTIONS

- Monitoring of Impact Management Actions
- Monitoring and reporting frequency
- Responsible persons
- Time period for implementing impact management actions
- Mechanism for monitoring compliance

Table 29: Mechanisms for monitoring compliance

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
PROSPECTING PHASE				
➢ Clearing of vegetation and topsoil. ➢ Stockpiling of overburden positioned for later rehabilitation.	Surface Water	➢ A Stormwater Management Plan (SMP) to be developed for the collective area where prospecting will occur, (or the existing SMP updated, where applicable for present and future activities) and should include the management of stormwater during excavation, as well as the installation of temporary stormwater and	Applicant Engineer	After rain / storm events; and Weekly

		erosion control measures during prospecting, followed up by rehabilitation of the area. This Stormwater Management Plan needs to be monitored for implementation.		
➢ Prospecting including diamond core drilling, logging and sampling of the borehole core, trenching will involve the digging of excavation trenches down to approximately 3 metres below surface using graders and excavators. ➢ Dust Suppression. ➢	Dust and air quality pollution	➢ Visual inspections shall be done on a weekly basis regarding the stability of the temporary water control structures, erosion, and siltation ➢ A minimum of eight dust buckets must be erected around the site in the eight main wind directions. ➢ Monthly air quality report will be required as per the regulations to: ▪ Ensure that the environmental mitigation and control measures are implemented; ▪ Monitor environmental performance of the mining operations;	Applicant Environmental Specialist	Monthly

		▪ Tracking of progress due to pollution control measure implementation;. ▪ Verify compliance with all relevant legal and statutory requirements; ▪ Promote environmental education and protection; and ▪ Determine sources of significant pollution.		
➢ Spreading of alien invasive vegetation and impacts on habitat and vegetation.	Specialist monitoring on Faunal and Floral aspects include the monitoring of effects operational processes have on vegetation and accompanied animal life within the immediate or surrounding areas of the operations.	➢ Environmental Specialist	Visual inspections during all phases of the activities.	

	• Alien vegetation control and management. • Habitat and vegetation management; • Rehabilitation services include the rehabilitation of operational disturbed areas and hydrocarbon spill areas. • Sloping and re-vegetation of disturbed area to surrounding landscape; and Remediation of soil at spill sites.			

44. INDICATE THE FREQUENCY OF THE SUBMISSION OF THE PERFORMANCE ASSESSMENT/ ENVIRONMENTAL AUDIT REPORT.

A Performance Assessment Review of the EMPr should be conducted annually and the environmental audit report will be submitted annually.

45. ENVIRONMENTAL AWARENESS PLAN

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

The environmental awareness plan will include the following:

- Induction of all staff and workers;
- Monthly 'toolbox' talks (awareness talks)
- Risk assessments for specific tasks with supervisors and staff involved in the task on a daily basis, or as often as the task is taking place.

The following principles and training will apply to the Environmental Awareness Plan (safety, health and environmental (SHE) training and the Environmental Management System (EMS) training):

- All personnel, including contactors, will as a minimum undergo general SHE induction and awareness training;
- The Safety, Health, Environmental and Quality (SHEQ) Manager will identify the SHE training requirements for all personnel and contractors. The training requirements will be recorded in a training needs matrix indicating particular training that must be undertaken by identified personnel and contractors. The training matrix will be administered by the Training Department; and Development of the Training Programme, which will include:

    - Job specific training – training for personnel performing tasks which could cause potentially significant environmental impacts
    - Assessment of extent to which personnel are equipped to manage environmental impacts
    - Basic environmental training
    - EMS training
    - Comprehensive training – on emergency response, spill management, etc
    - Specialised skills
    - Training verification and record keeping; and
    - Periodic re-assessment of training needs, with specific reference to new developments, newly identified issues and impacts and associated mitigation measures.

45.2 General Awareness Training

- The HR Manager, together with the SHEQ Manager, will be responsible for the development of, or facilitating the development of, the required general SHE induction and awareness training. A general environmental awareness training module will be developed and integrated into the general induction programme. The general awareness

- training must include the Environmental Policy, a description of the environmental impacts and aspects and the importance of conformance to requirements, general responsibilities of personnel and contractors with regard to the environmental requirements and a review of the emergency procedures and corrective actions; and
- A Training Practitioner will conduct the general awareness training. The training presenter will keep a record of the details of all persons attending general awareness training. Such attendance registers shall indicate the names of attendants and their organisations, the date and the type of training received.

45.3 Specific Environmental Training

- Specific environmental training will be in line with the requirements identified in the training matrix; and
- Personnel whose work tasks can impact on the environment will be made aware of the requirements of appropriate procedures/work instructions. The SHEQ Manager will communicate training requirements to responsible supervisors to ensure that personnel and contractors are trained accordingly.

45.4 Training Evaluation and Re-training

- Effectiveness of the environmental training will be reflected by the degree of conformance to EMPR requirements, the result of internal audits and the general environmental performance achieved;
- Incidents and non-conformances will be assessed through the Internal Incident Investigation and Reporting System, to determine the root cause, including the possible lack of awareness/training;
- Should it be evident that re-training is required, the SHEQ Manager will inform the managers of the need and take the appropriate actions;
- General awareness training of all personnel shall be repeated every year; and
- The re-induction shall take into consideration changes made in the EMPR, changes in legislation, current levels of environmental performance and areas of improvement.

45.5 Emergency Procedures

- Emergency procedures, as relevant to this project, shall be implemented

- The SHEQ Manager shall define emergency reporting procedures for the project;
- All personnel shall be made aware of emergency reporting procedures and their responsibilities
- Any spills will be cleaned up immediately in accordance with relevant legislation; and
- Telephone numbers of emergency services, including the local firefighting service, shall be conspicuously displayed.

46. MANNER IN WHICH RISKS WILL BE DEALT WITH IN ORDER TO AVOID POLLUTION OR THE DEGRADATION OF THE ENVIRONMENT

There are several ways to avoid and minimize pollution, including environmental awareness, training, dust suppression, buffer zones, hunting avoidance and veld fire prevention.

Environmental awareness and training	Drilling teams must be trained and any other person who will be based on-site or come to site for the prospecting project must be briefed and inducted on site regulations, especially with regard to health, safety, and environmental aspects.
Dust suppression	During construction, preparation and drilling, dust suppression must be exercised on the roads, drill holes and areas being excavated. The right amount of water must be applied to get the desires results.
Buffer zone	Roads, railway lines, water ways, ponds, rivers and wetlands must be avoided to minimise negative impact. Establishing a minimum buffer zone of 100 m around such a feature will reduce pollution and destruction thereof.
Avoid hunting	Hunting of any animals on site will be strictly prohibited
Avoid veld fires	Veld fires will not be permitted, as they easily get out of control and can destroy vegetation, livestock, and property.

SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

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

No specific information has been required by the Competent Authority at this point in time.

UNDERTAKING

The EAP herewith confirms

a) the correctness of the information provided in the reports ☒

b) the inclusion of comments and inputs from stakeholders and I&APs; ☒

c) the inclusion of inputs and recommendations from the specialist reports where relevant; ☒; and

d) that the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein. ☒

Signature of the environmental assessment practitioner:

Singo Consulting (Pty) Ltd

Name of company:

Date: June 2022

APPENDICES

Appendix 1: Screening report

SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED DEVELOPMENT FOOTPRINT ENVIRONMENTAL SENSITIVITY

EIA Reference number: MP 30/5/1/1/2/17028 PR

Project name: PROSPECTING RIGHT APPLICATION FOR AGGREGATE, GENERAL SAND AND GRAVEL ON THE FARM KWAGGAFONTEIN 216 JR

Project title: PROSPECTING RIGHT APPLICATION FOR AGGREGATE, GENERAL SAND AND GRAVEL ON THE FARM KWAGGAFONTEIN 216 JR

Date screening report generated: 20/06/2022 08:01:31

Applicant: Wiza Mining (Pty) Ltd

Compiler: Singo Consulting (Pty) Ltd

Compiler signature:

.....

Application Category: Mining|Prospecting rights

Appendix 2: Competent Authority Letters.

mineral resources & energy

Department
Minerals Resources and Energy
REPUBLIC OF SOUTH AFRICA

Private Bag X7279, Witbank, 1035, Tel: 013 653 0500, Fax 013 690 3288, Saveways Centre, First Floor, Mandela Drive, Witbank, 1035, **From:** Directorate: Mineral Regulation: Mpumalanga Region, **Enquiries:** Lucky Mugagadeli Email Address: lucky.mugagadeli@dmre.gov.za Manager **Ref:** MP 30/5/1/1/2/17028PR.

BY EMAIL/FAX

ntulit@stha.co.za

THE DIRECTOR/S

WIZA MINING (PTY) LIMITED

P.O BOX 234

WITBANK

1035

Dear Sir/Madam

ACCEPTANCE OF AN APPLICATION FOR PROSPECTING RIGHT IN TERMS OF SECTION 16(4) OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (ACT 28 OF 2002) [HEREIN AFTER REFERRED TO AS THE ACT] AS AMENDED BY SECTION 12(d) OF THE MINERALS AND PETROLEUM RESOURCES DEVELOPMENT AMENDMENT ACT, 2008 (ACT 49 OF 2008) [HEREINAFTER REFERRED TO AS THE AMENDMENT ACT]

1. Please be informed that your application for prospecting of **RM (Aggregate), QY (Sand)(General) and Gravel on the farm Kwaggafontein 216 JR, Magisterial District of Carolina** is hereby accepted in terms of section 16(2) of the Act as amended by section 12(b) of the Amendment Act.

2. Please take notice that in terms of section 16(4) of the Act as amended by section 12(d)(a) and 12(d)(b) of the Amendment Act, you are required to:-

2.1. to consult in the prescribed manner with the landowner, lawful occupier and any interested and affected party, the Land Restitution Commission and submit the result of such consultation within 30 working days from the date of the signature below.

3. You are in terms of section 17(1) of the Act as amended by section 13(c) of the Amendment Act required to give effect to the objects referred to in section 2(d) of the Act **to ensure that you are BBBEE compliant**. Therefore, please submit on or before .... to this office for the attention of the writer hereon any documentation proving such including but not limited to: -
   3.1. Certified copies of share certificates and share holders register
   3.2. Certified copies of Shareholders agreements
   3.3. Certified copies articles and memorandum of association of the company
   3.4. Trust deed documents and letters of authority for any trust holding shares
   3.5. Details relating to funding (all relevant agreements)
   3.6. Any other information that may be necessary to explain and serve as evidence that the applicant meets the appropriate HDSA ownership and/or compliance requirements of the aforesaid Act and Mining Charter; **thereby including women and communities in your structure.**

4. Please submit **within 14 days** from date of this letter for the attention of ***Mr Ntshele Phasha 3 copies of a complete prospecting work programme prepared in terms of regulation 7 of the Mineral and Petroleum Resources Development Act, 2002 (Act no 28 of 2002): Mineral and Petroleum Development Regulation.***

5. **Your attention is also drawn to the provisions of Section 17(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. You are therefore reminded to ensure that payment of all prospecting fees for all the prospecting right that you hold, are up to date, failing which this may have a negative impact on the outcome of your current application.**

Acceptance of a prospecting right under file reference number 17028PR.

6. ***In light of the minimum requirements as stipulated on Regulation 16 (1) and 16(2) of the EIA Regulations, your application for an Environmental Authorisation was 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 as stipulated on Regulation 19 (1) to 19(8) of the EIA Regulations (Only in cases where Basic Assessment Report is applicable) or Regulations 21 (Scoping Report) and Regulation 23 (EIR and EMPr) (In case of Scoping and Environmental Impact Report). All timeframes are effective from the date of this letter.***

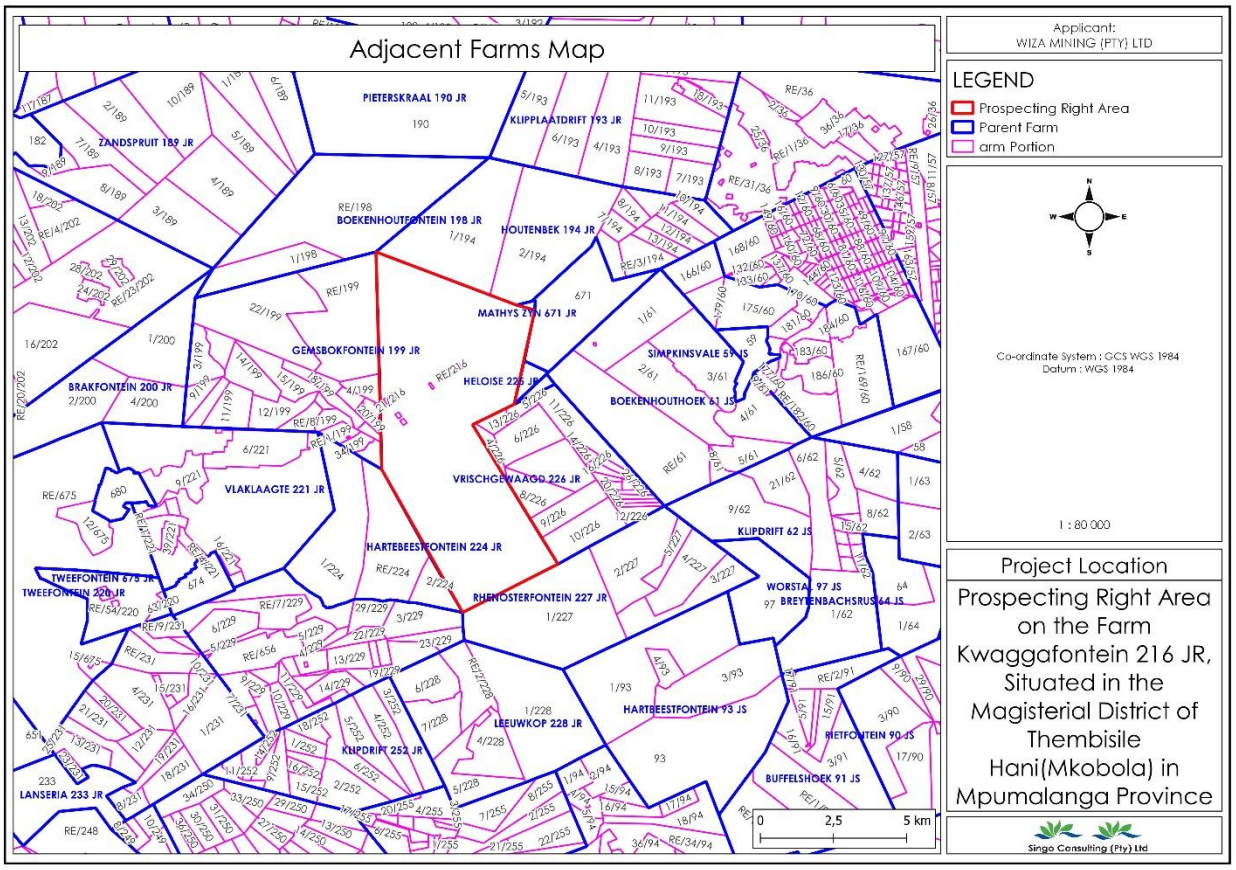
7. Please take note that failure to adhere to the timeframe stipulated above and to submit any documentation required in terms of this notice will result into non-compliance with the provision of the Act and the Amendment Act and will result in your application being processed for refusal

Yours faithfully:

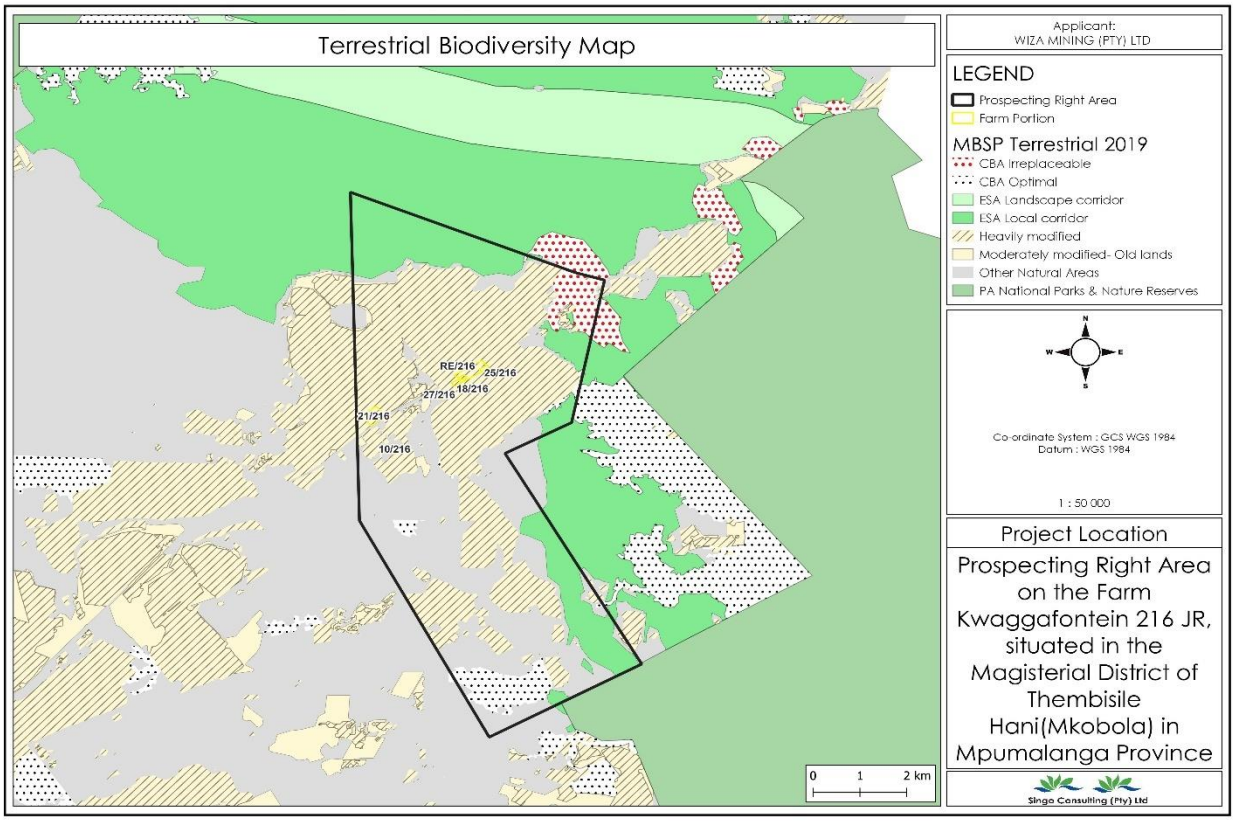
REGIONAL MANAGER
MPUMALANGA REGION
DATE: 22/03/2022

Acceptance of a prospecting right under file reference number 17028PR.

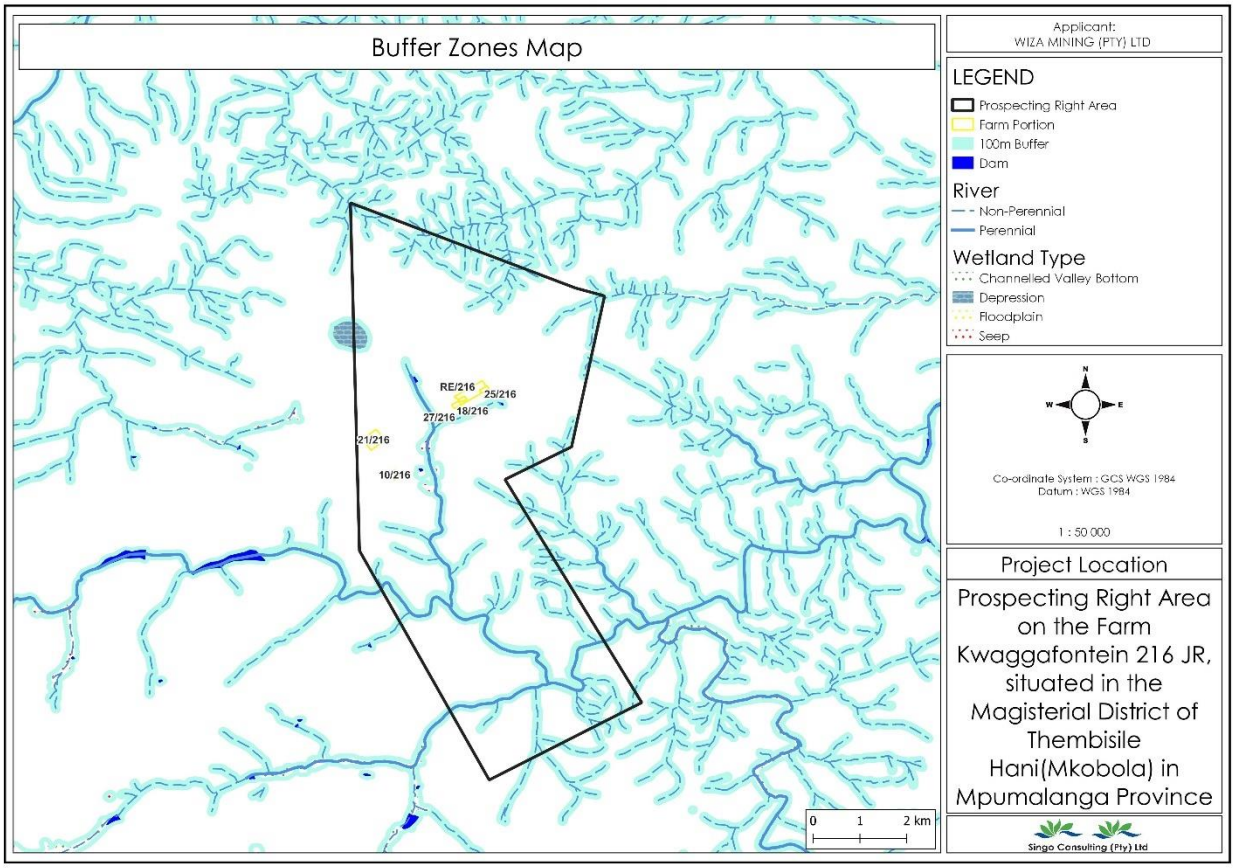
Appendix 3: Project Maps



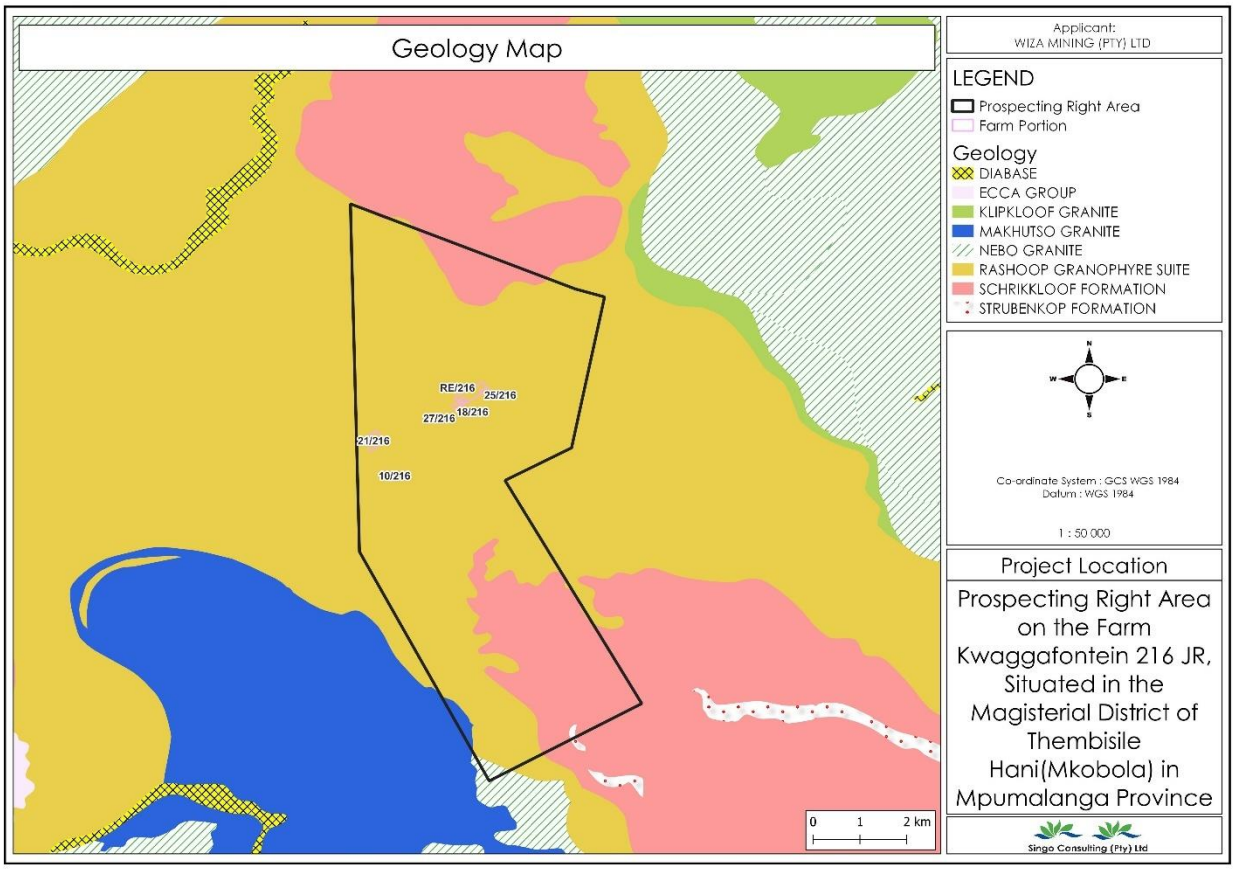
Adjacent Farm Map



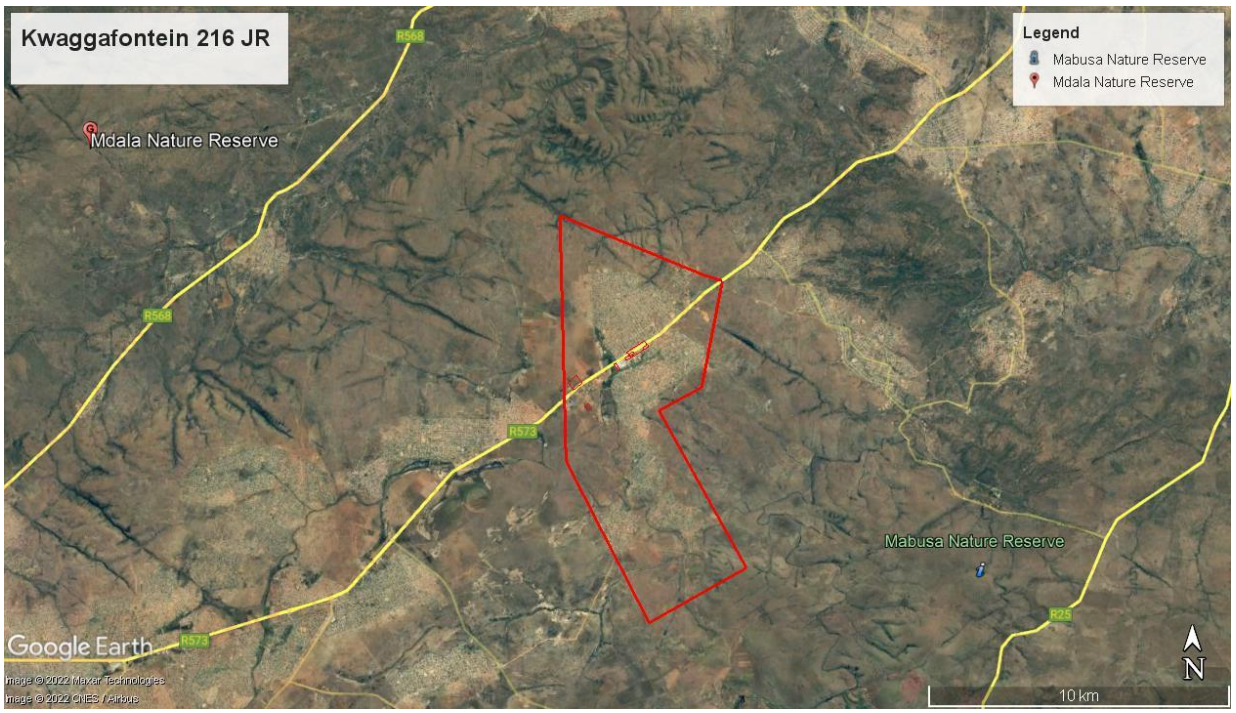
Biodiversity Map



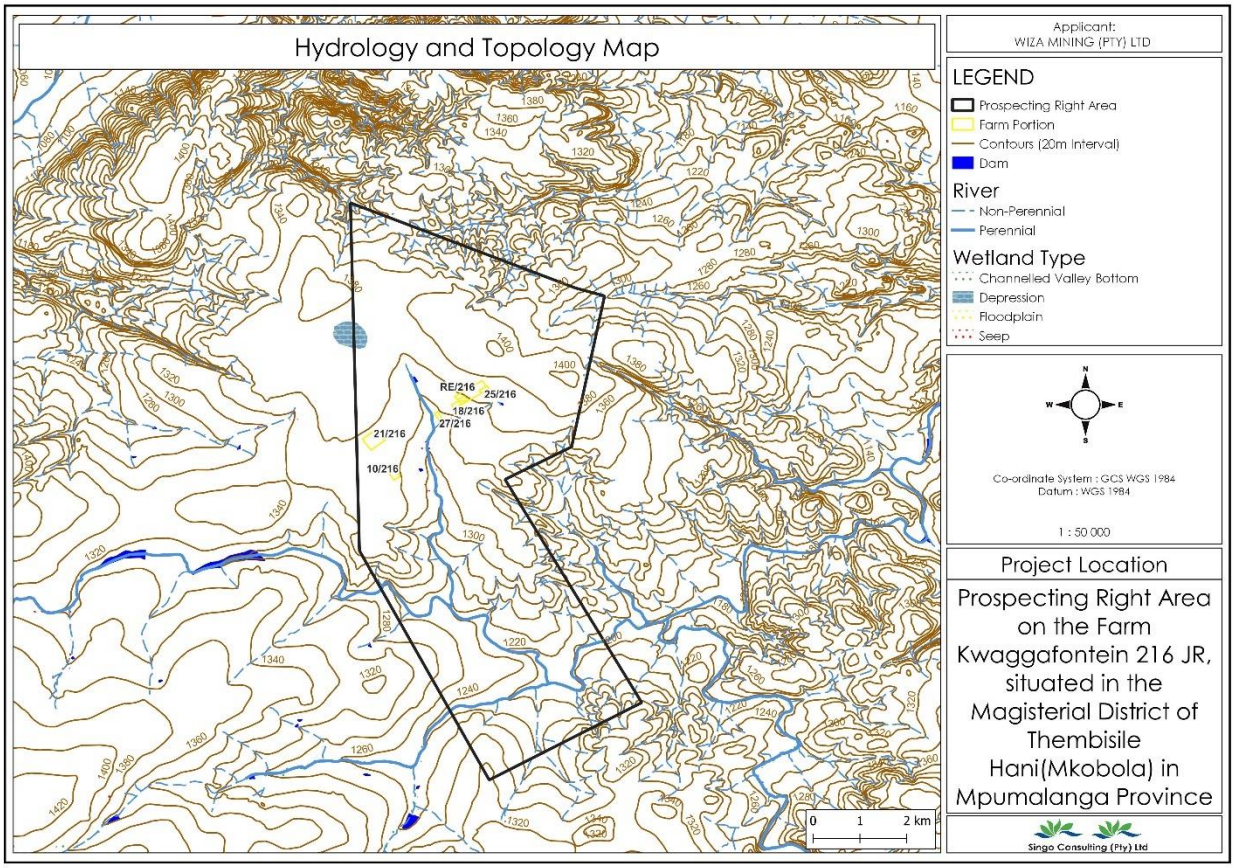
Buffer Map



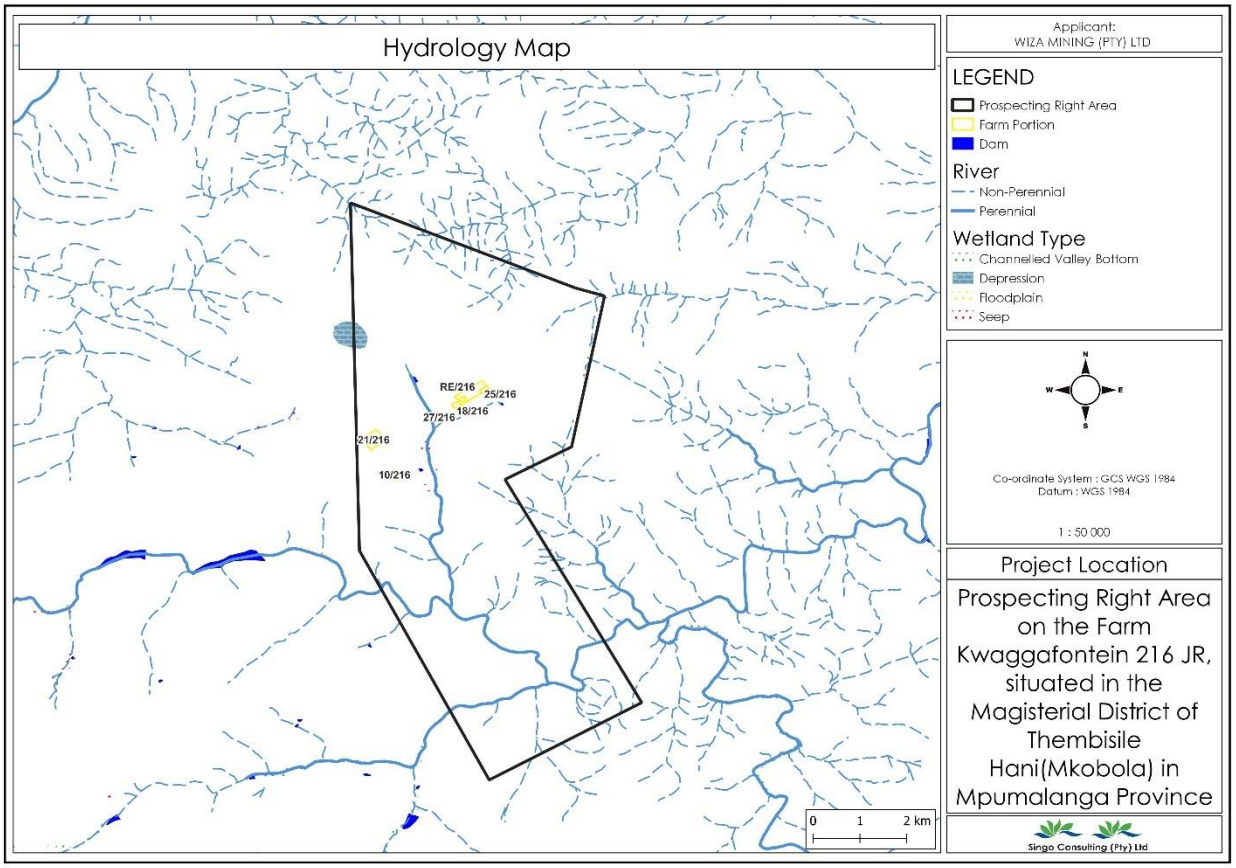
Geology Map



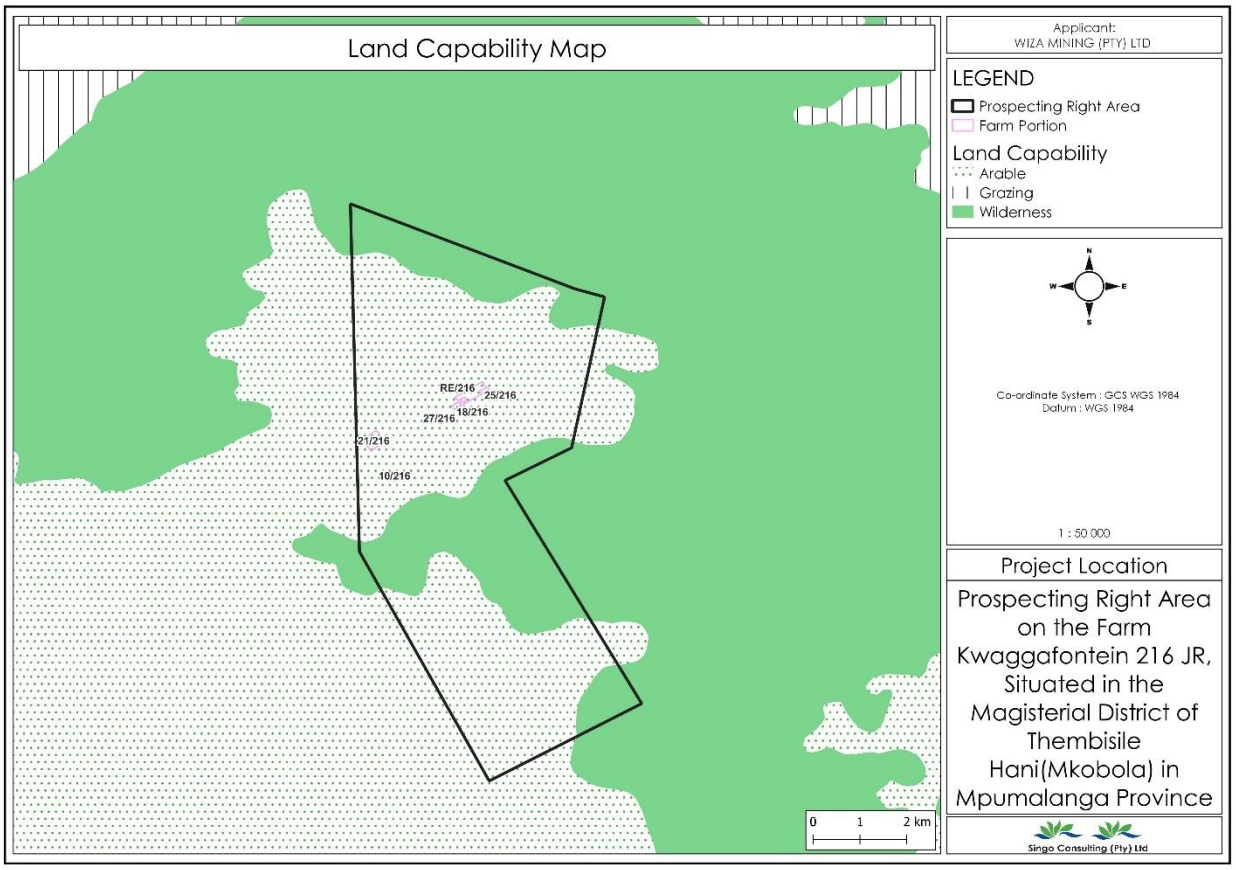
Google Earth View Map



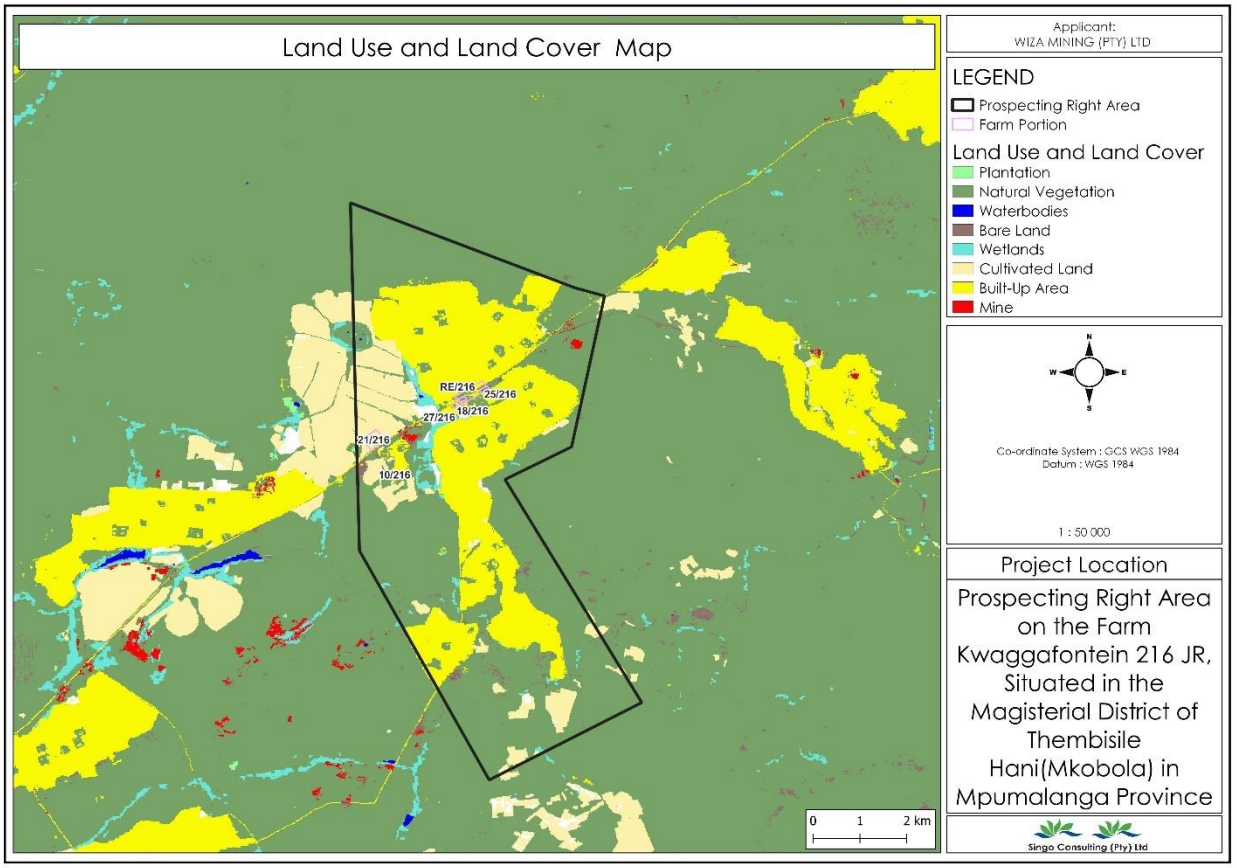
Hydrology and Topology Map



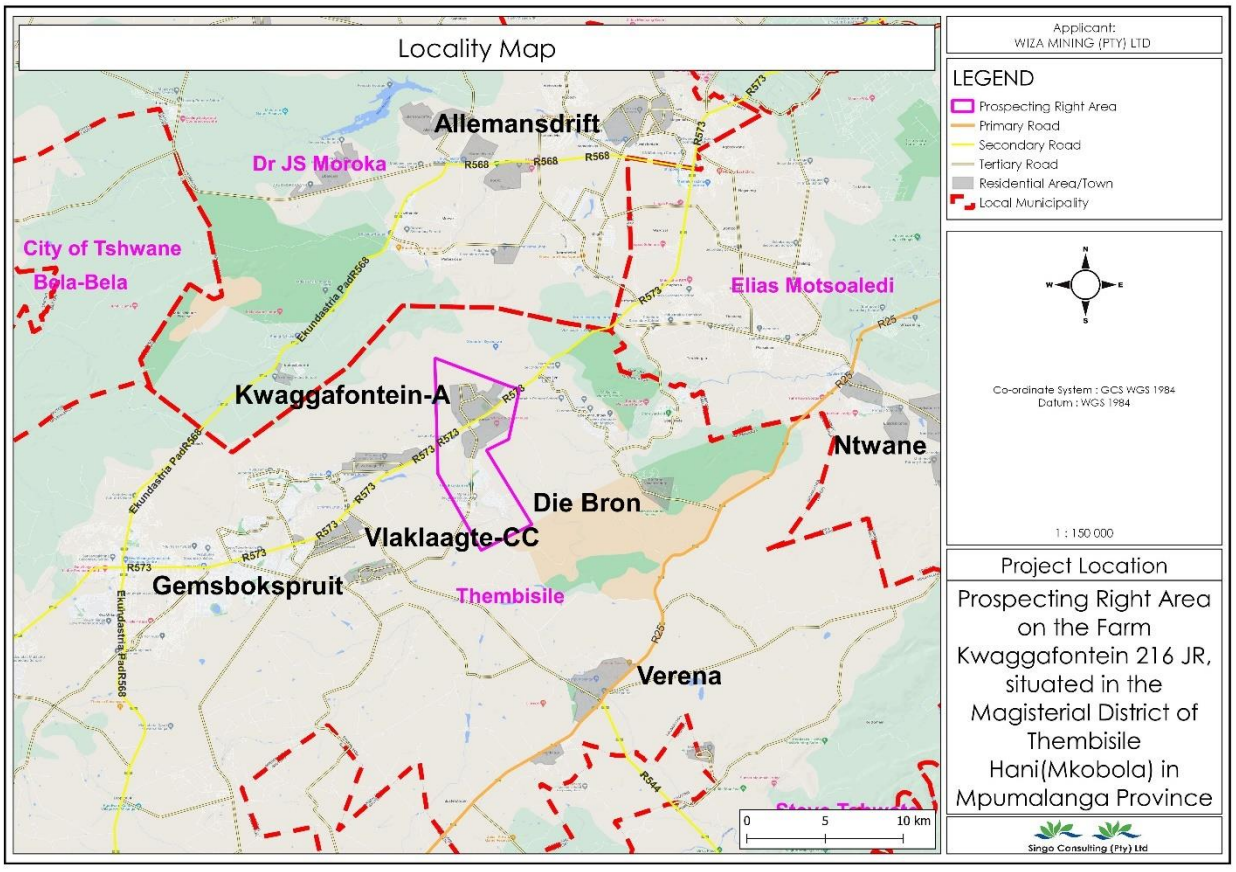
Hydrology Map



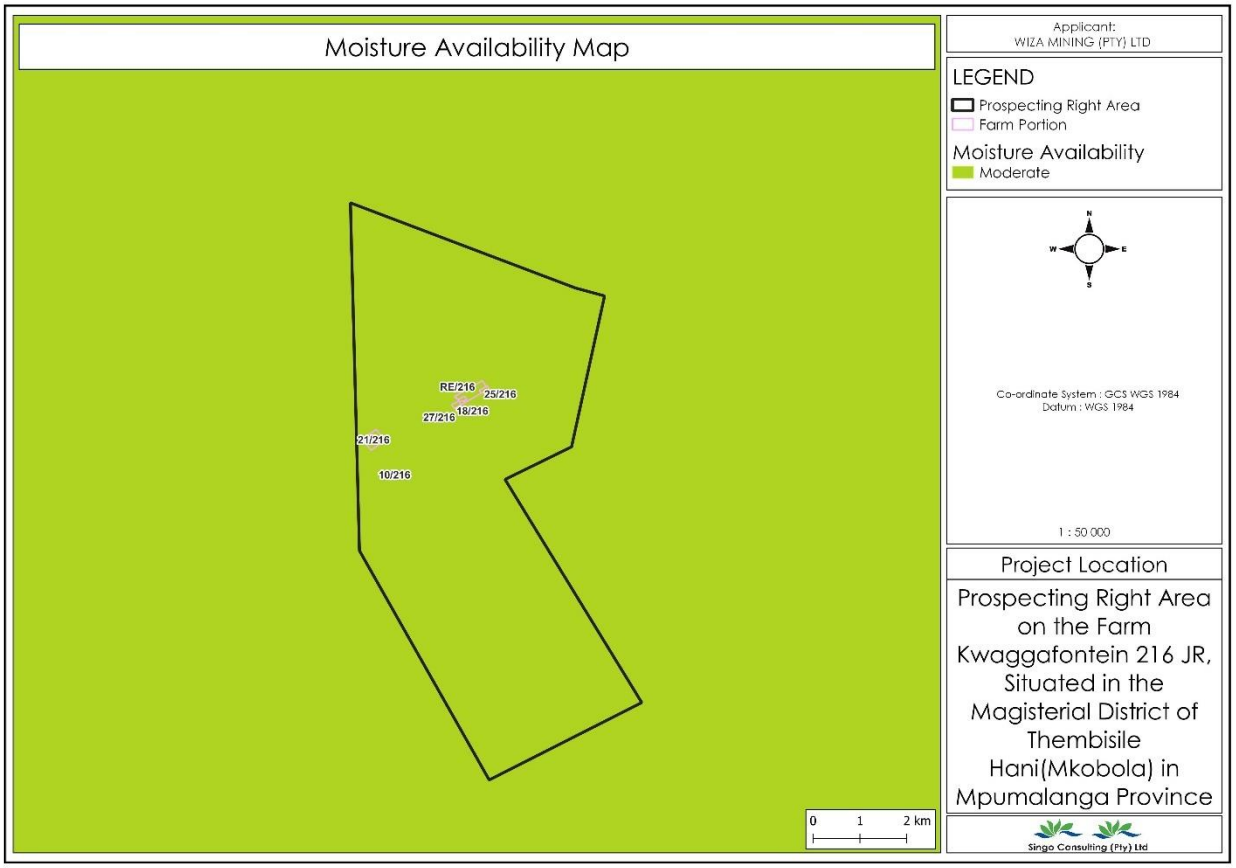
Land Capability Map



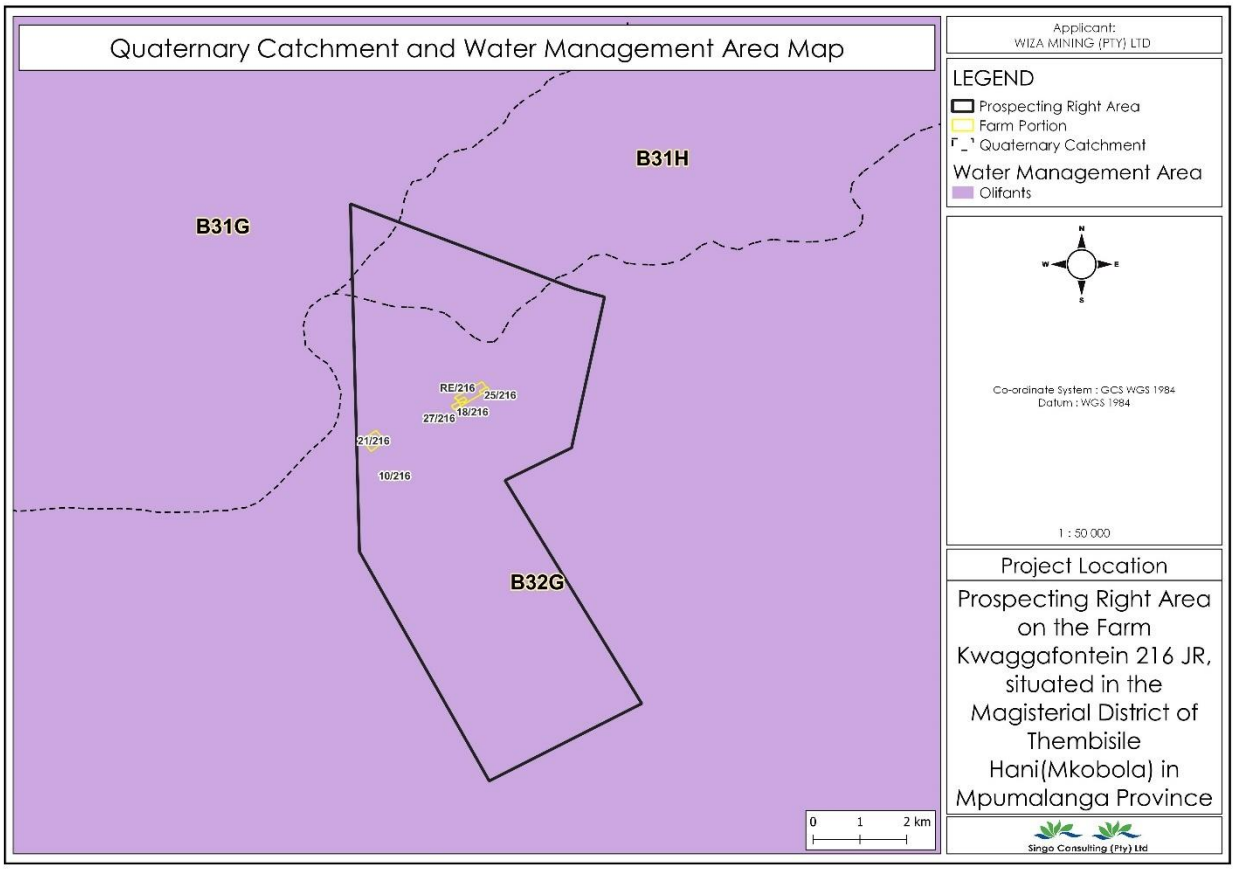
Land Use and Land Cover Map



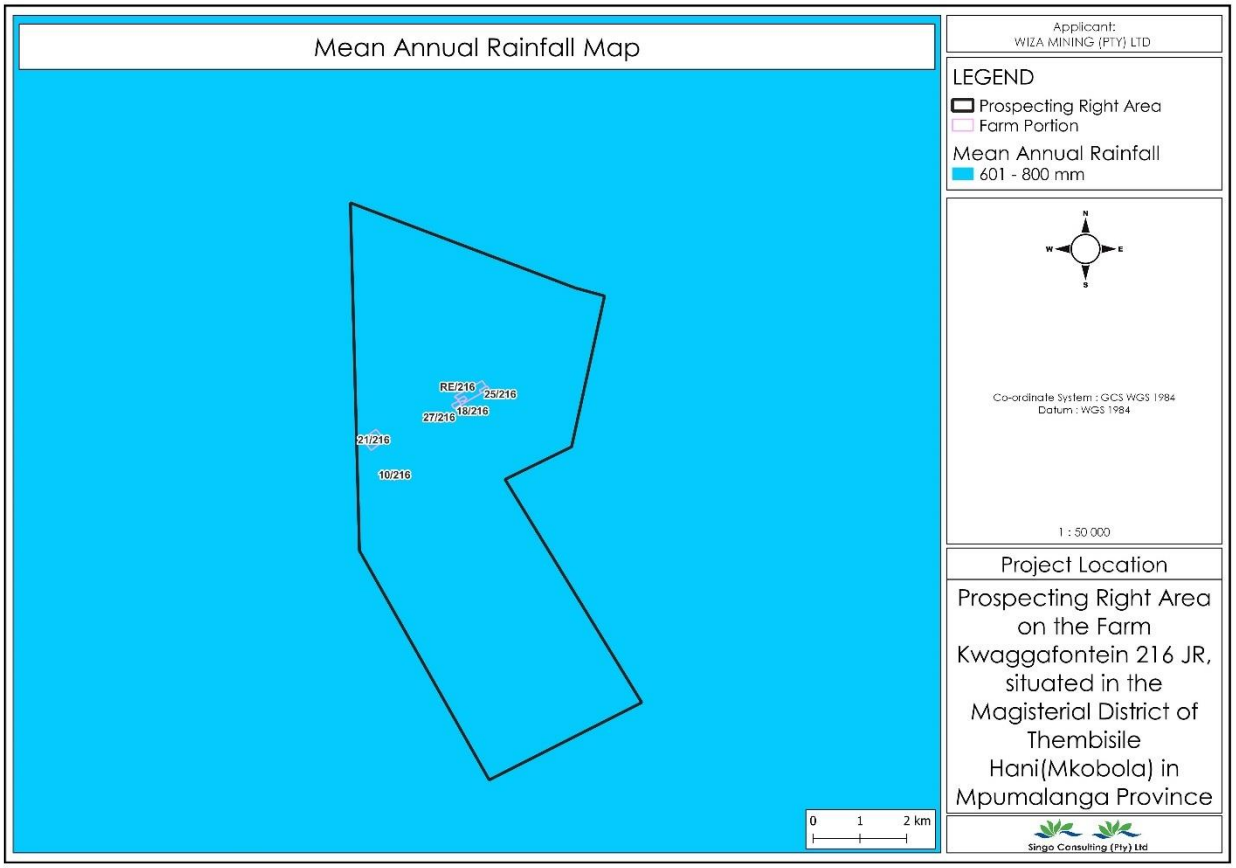
Locality Map



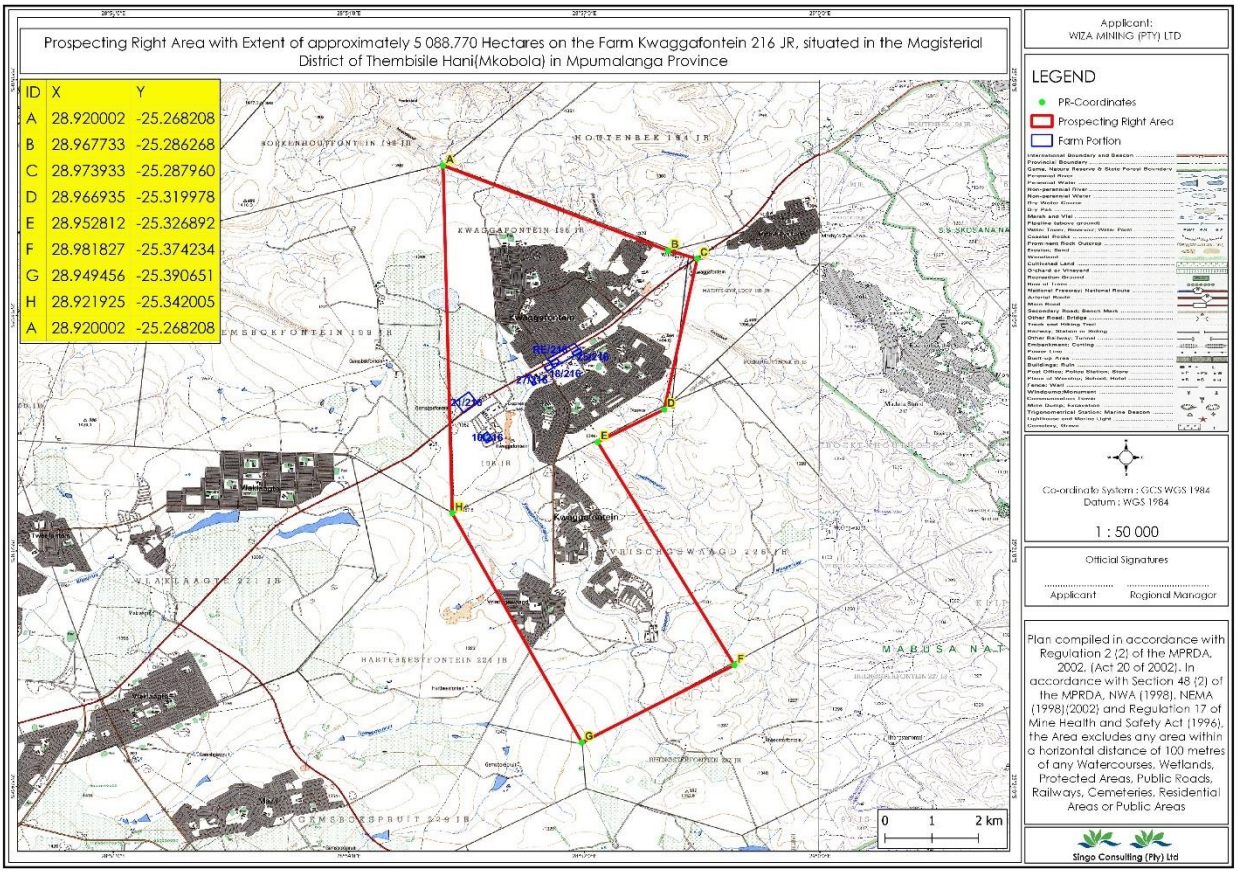
Moisture Availability Map



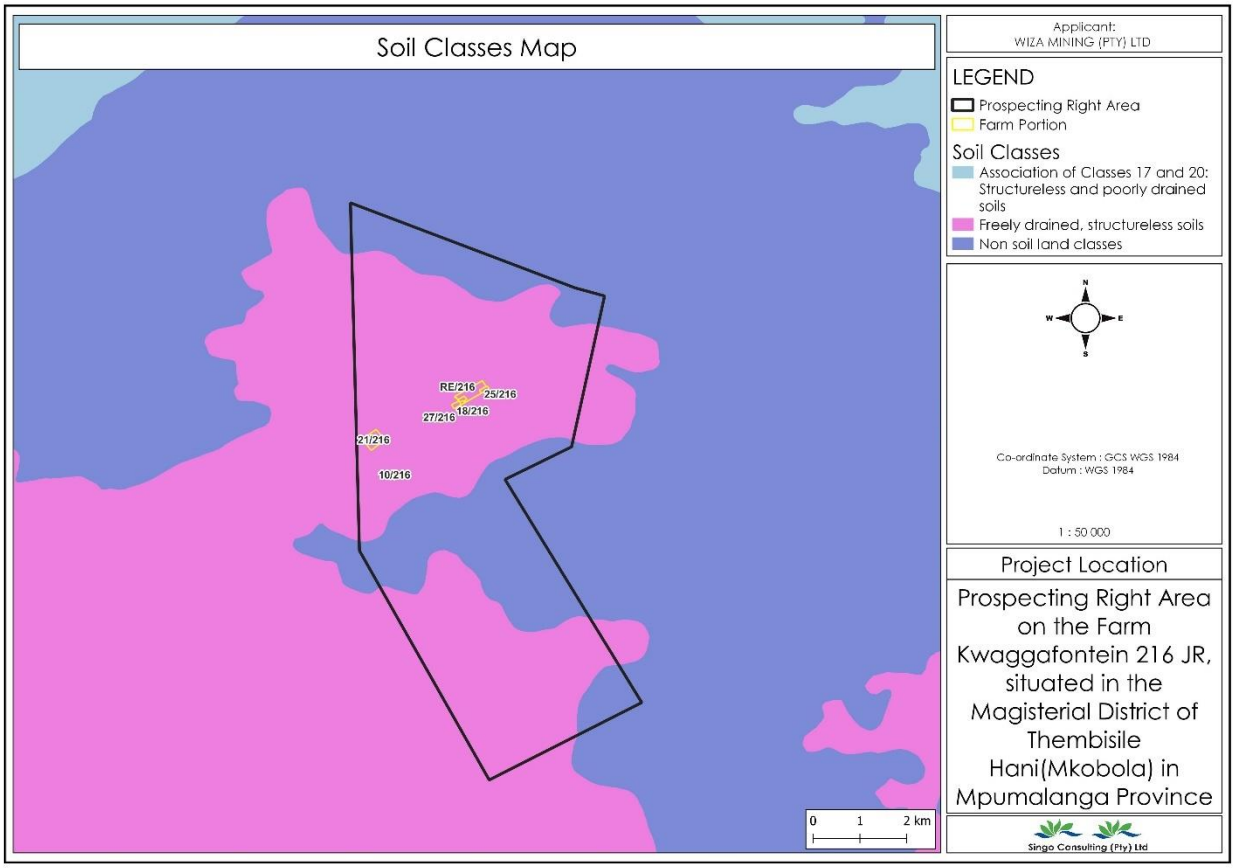
Quaternary Catchment and Water Management Area Map



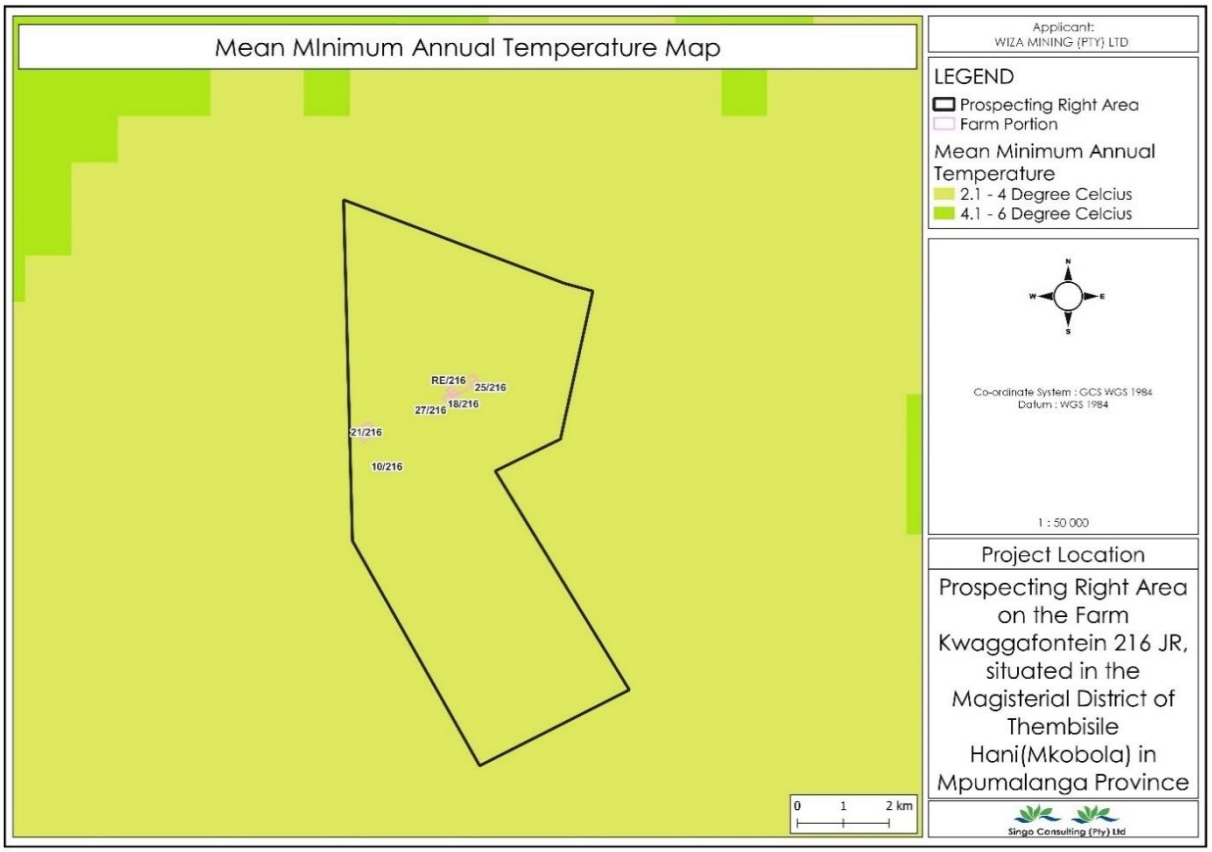
Mean Annual Rainfall Map



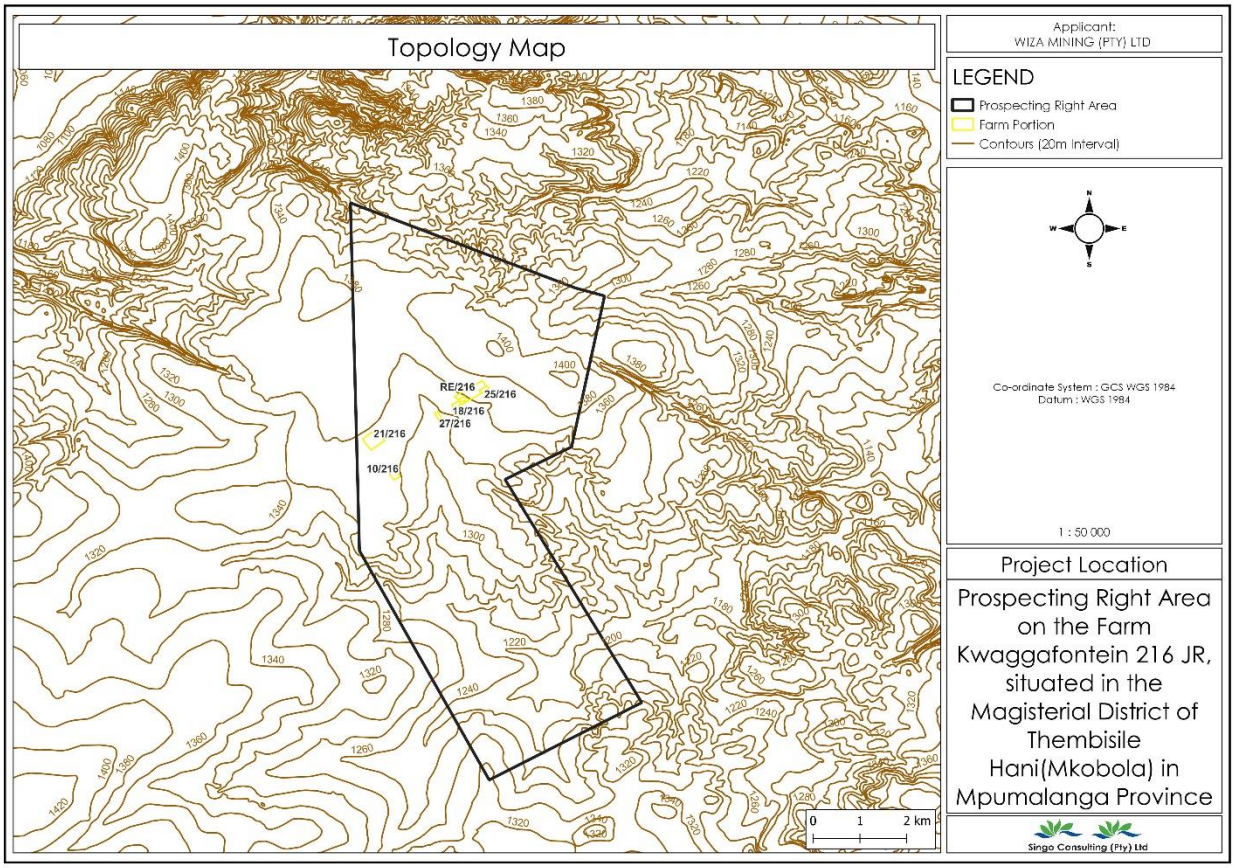
Regulation Map



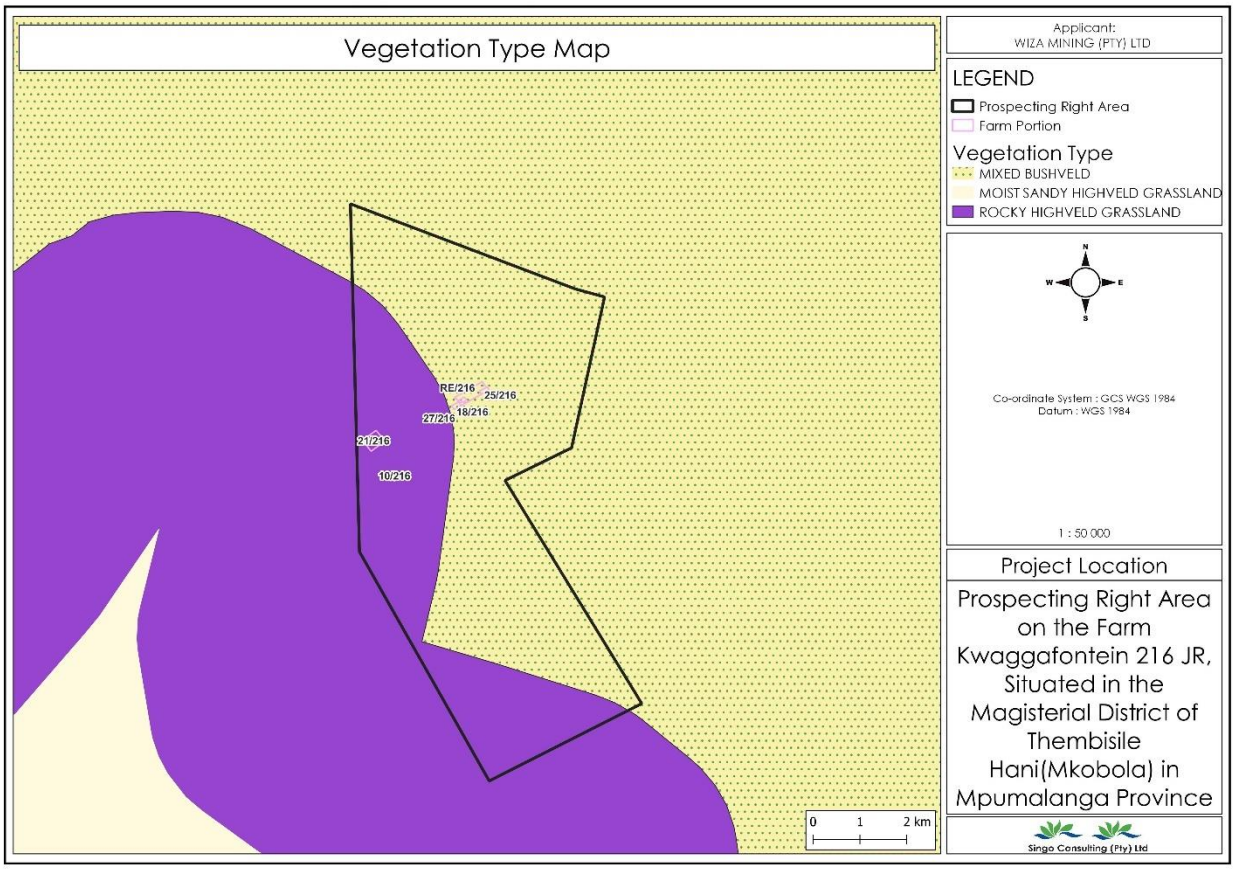
Soil Classes Map



Mean Minimum Annual Temperature Map

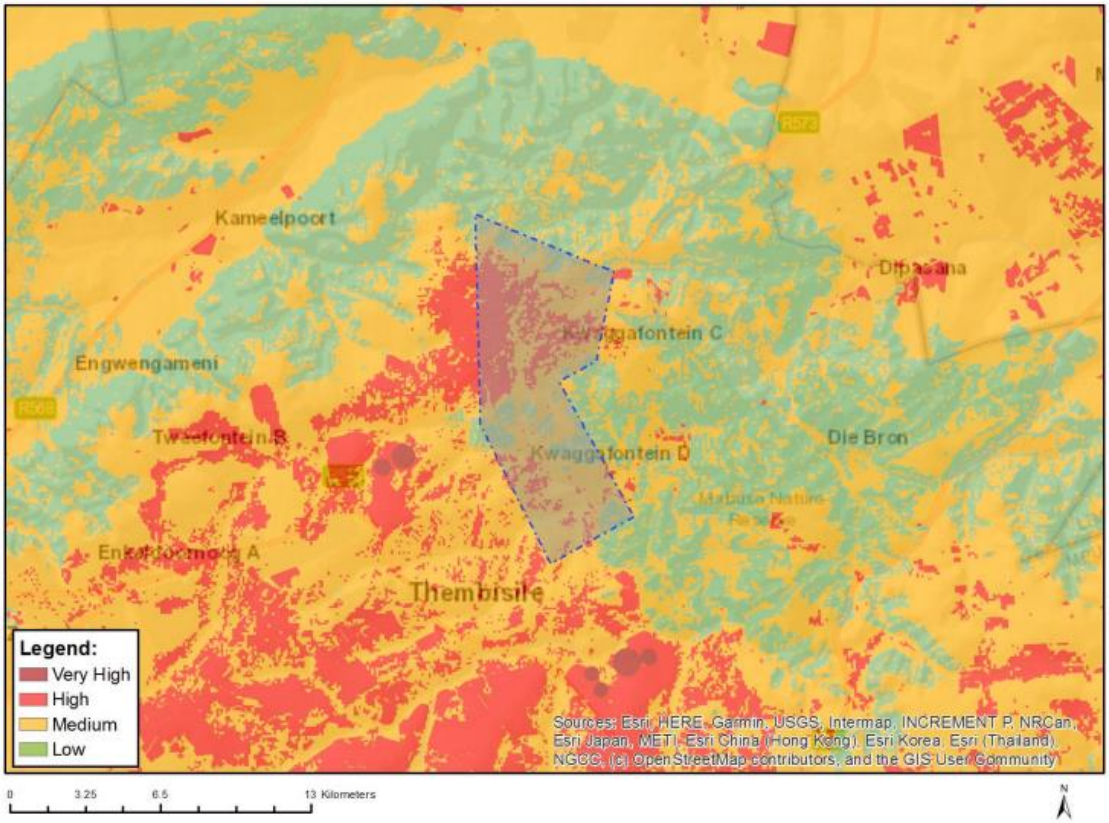


Topology Map



Vegetation Map

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

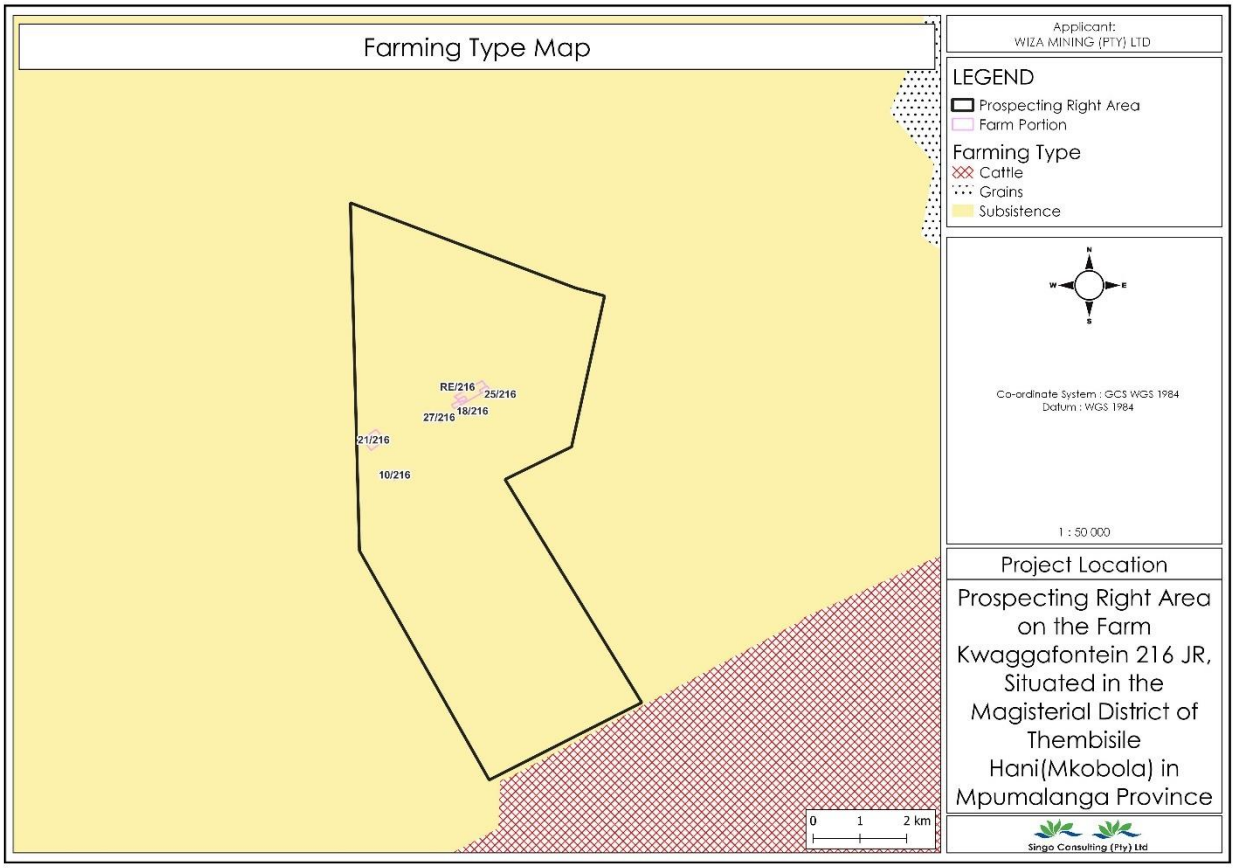


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

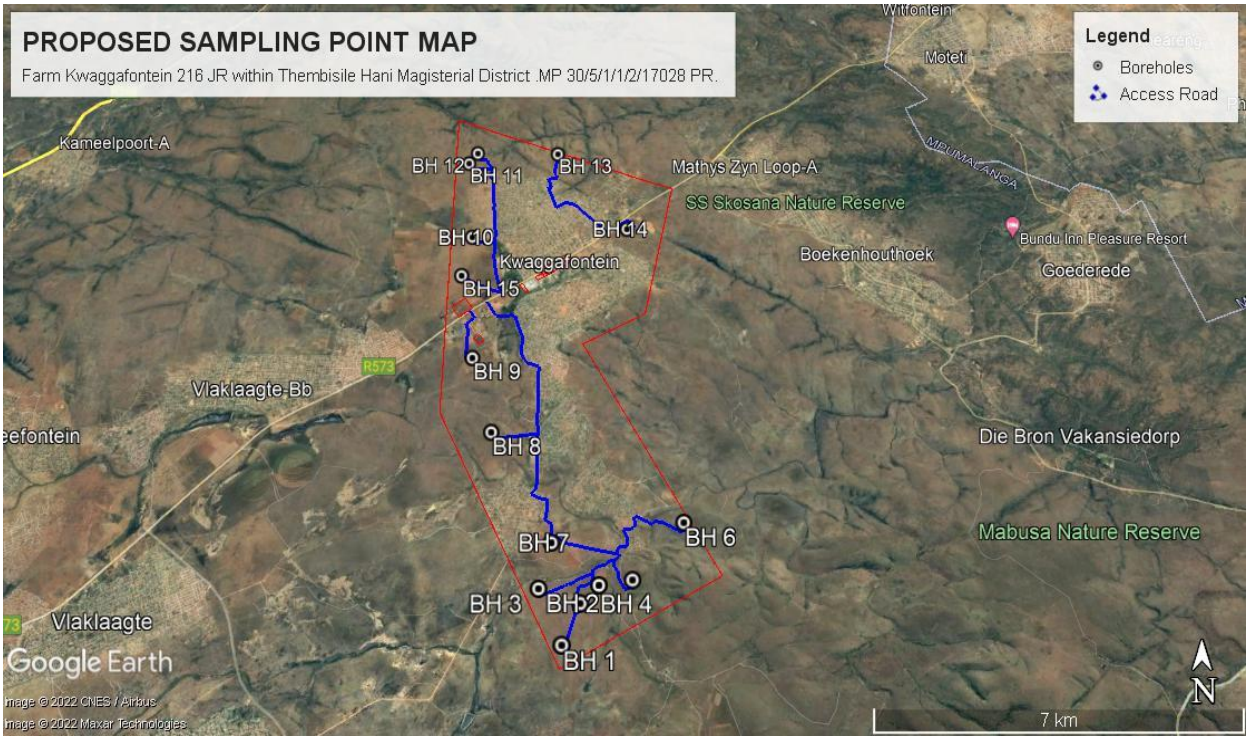
Sensitivity Features:

Sensitivity	Feature(s)
High	Land capability;09. Moderate-High/10. Moderate-High
High	Subsistence Farming 1;Land capability;09. Moderate-High/10. Moderate-High
High	Subsistence Farming 1;Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate
High	Subsistence Farming 1;Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
Low	Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
Medium	Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate

Map of relative agriculture theme sensitivity

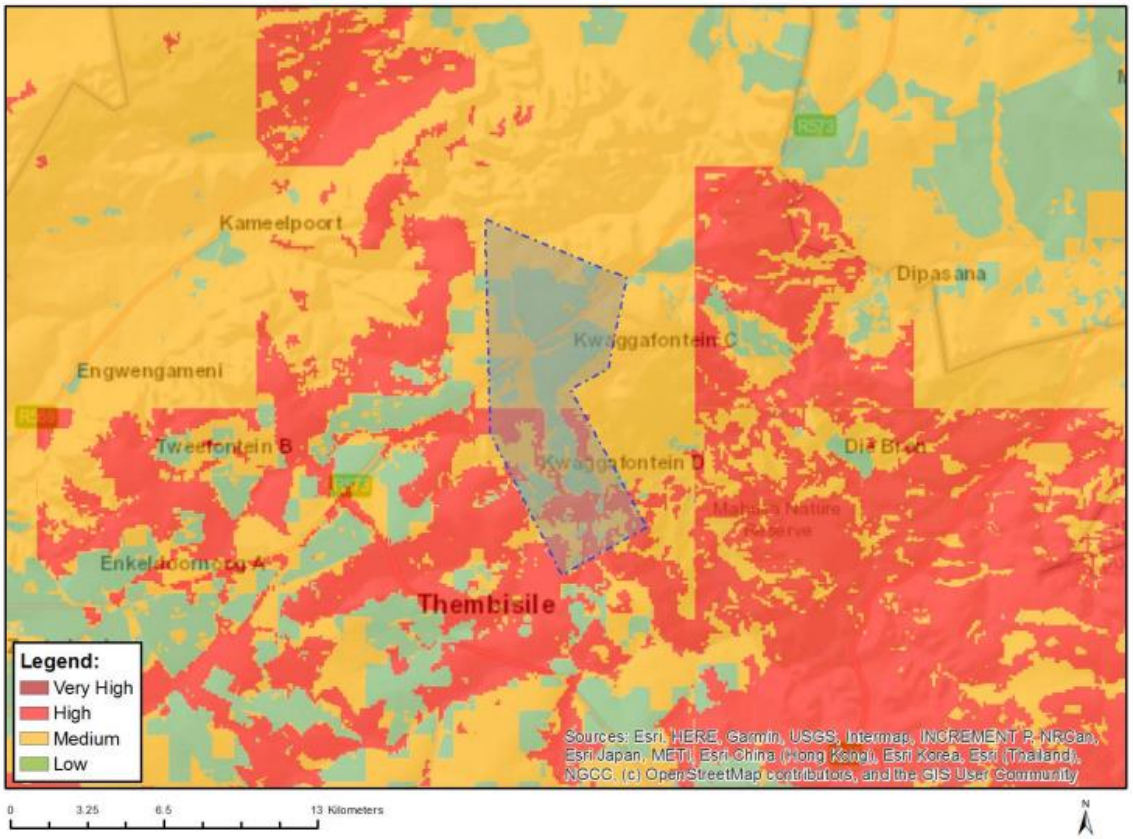


Farming Type Map



Proposed sampling points map

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY

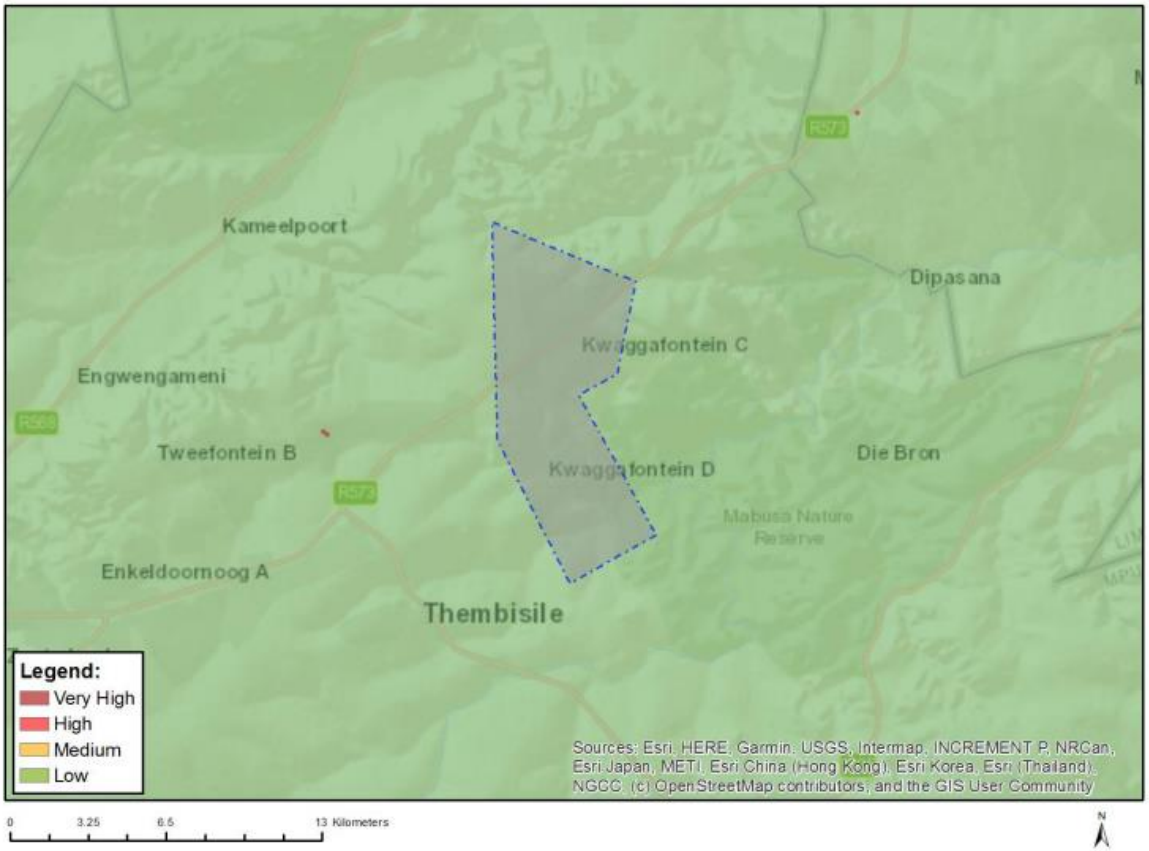


Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Map of relative animal species them sensitivity

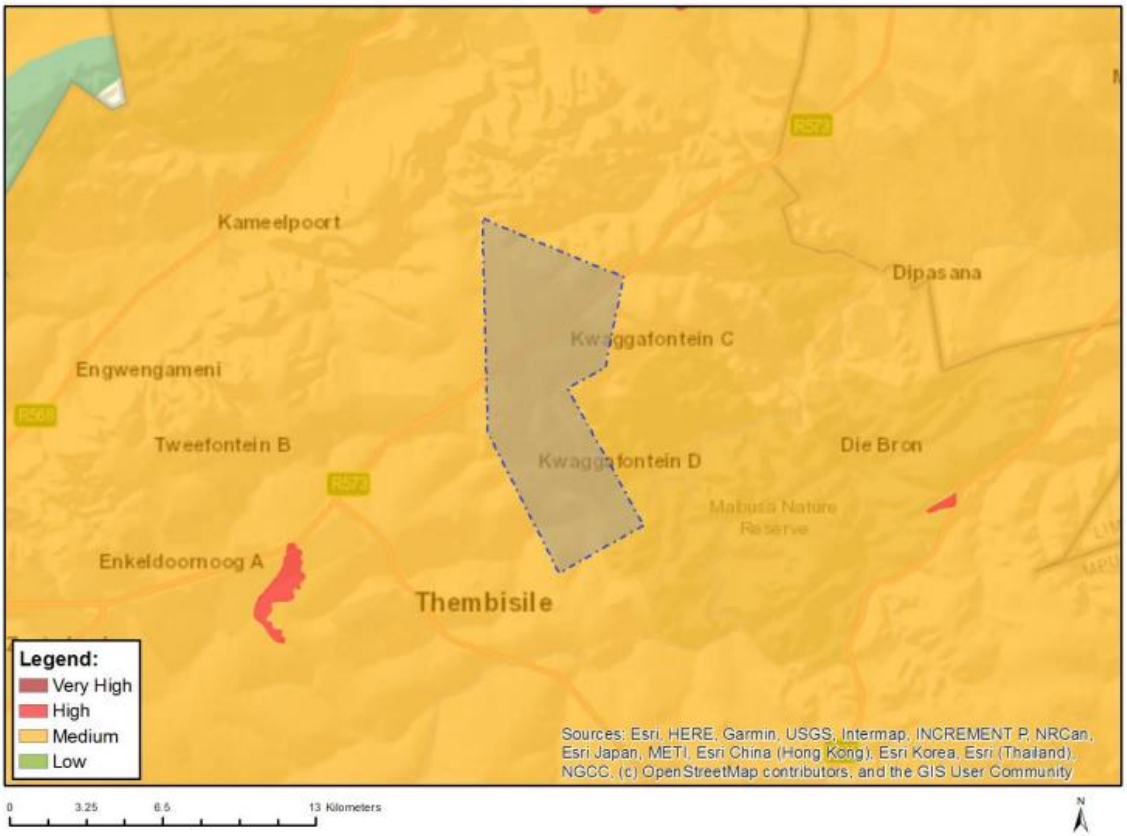
MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Map of relative archaeological and cultural heritage theme sensitivity

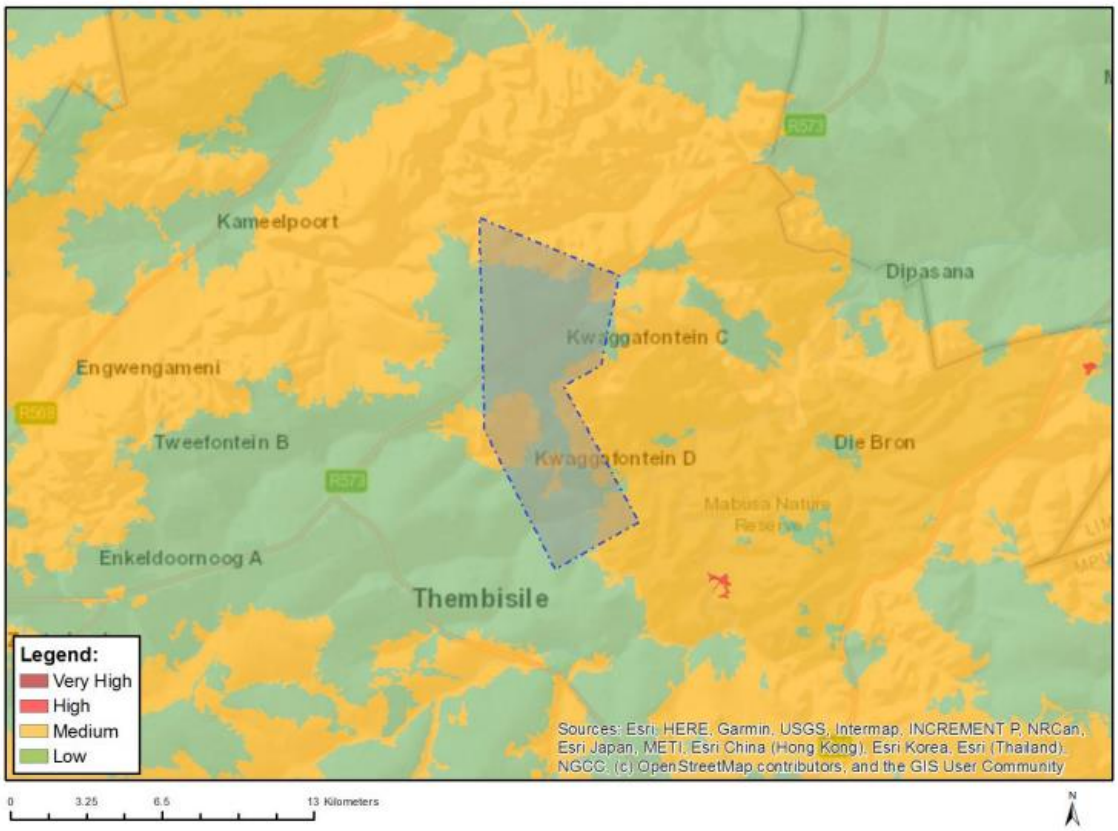
MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Map of relative Palaeontology theme sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Map of relative plant species theme sensitivity.

Appendix 4: EAP'S CV and Qualification

Due to POPI Act sensitive information will not be disclosed to the public

Appendix 5: Financial Provision.

CALCULATION OF THE QUANTUM

Applicant: **WIZA MINING (Pty) Ltd**

Evaluator: **Makhubela Dineo**

Ref No.: **MP 30/5/1/1/2/17028 PR**
Date: **28/06/2022**

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	19	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	271	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	400	1	1	0
3	Rehabilitation of access roads	m2	11101.25	49	0.03	1	16318.8375
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	471	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	257	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	542	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0	284292	1	1	0
7	Sealing of shafts adits and inclines	m3	0	146	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0	189528	1	1	0
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	236054	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	685612	1	1	0
9	Rehabilitation of subsided areas	ha	0	158701	1	1	0
10	General surface rehabilitation	ha	0.9	150138	0.1	1	13512.42
11	River diversions	ha	0	150138	1	1	0
12	Fencing	m	0	171	1	1	0
13	Water management	ha	0	57087	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0	19980	1	1	0
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
						Sub Total 1	29831.2575

1	Preliminary and General	3579.7509	weighting factor 2 1	3579.7509
2	Contingencies	2983.12575		2983.12575
			Subtotal 2	36394.13
			VAT (15%)	3168.52
			Grand Total	**39563**

SIGN Makhubela Dineo

DATE 28/06/2022

Appendix 6: Basic Studies

Appendix 7: Consultation Process

Landowner Consultation for Government Properties

Dineo, Makhubela

From: Dineo, Makhubela <dineo@singoconsulting.co.za>
Sent: Monday, August 1, 2022 8:52 AM
To: 'humbulani.netshakhuma@dalrrd.gov.za'
Cc: 'Dr Singo, Kenneth'; 'nokuthula@singoconsulting.co.za'; 'boitumelo@singoconsulting.co.za'; 'Rudzani, Shonisani'
Subject: PROPERTY MANAGEMENT
Attachments: Landowner Notification_Portion 0.pdf; Landowner Notification_Portion 3.pdf; Windeed Results 301186917.Pdf

Good morning Mr Netshakhuma,

My name is Makhubela Dineo and am an Environmental assessment Practitioner(EAP) intern at Singo Consulting(Pty) Ltd and I was referred to you by Ms. Happy Motha from Department of Agriculture, Land Reform and Rural Development.

Singo Consulting (Pty) Ltd in most cases is appointed by different companies as an independent Environmental Assessment Practitioner (EAP) to manage the environmental authorisation process by conducting an Environmental Impact Assessment, Public Participation Process (PPP) for the proposed project and compile a Basic Assessment Report & Environmental Management Programme Report (BAR & EMPr). As a result, during the processes we use Windeed Search to find the rightful landowners of the area, and when the area is owned by the Government, we would consulted with Mr Nyoni, who will tell us who the right managers are and who to contact regarding the proposed area .

Now that he has passed away, I am requesting your assistance in directing me to the appropriate people to consult when the landowner is the government, as well as how we will proceed with the consultations. Also, Ms Motha stated that you have different project managers for different locations throughout Mpumalanga; it would be greatly appreciated if you could share the list.

For your convenience : Here is my current project

A Windeed search was conducted to find out who the landowner of **Kwaggafontein 216 JR farm** which is situated under Magisterial District of **Thembisile Hani , Mpumalanga Province** with **DMRE REF.: MP 30/5/1/1/2/17158 PR** is, and the outcomes showcased that National Government of the Republic of South Africa, and the Provincial Government of the Mpumalanga Province are the landowners. Please see the attached Landowner Notification Letters and the Title Deed Search Results for detailed description of the proposed project.

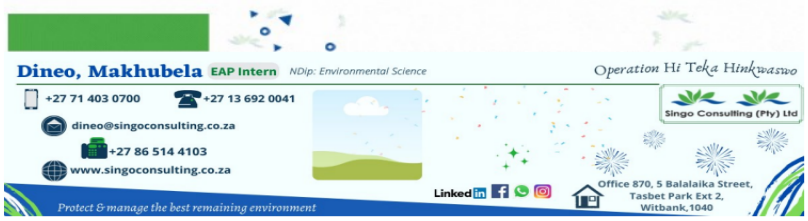
This Notification is being given in compliance with the terms of: Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA), National Environmental Management Act, 1998 (Act No. 107 of 1998), and EIA Regulations (as amended, 07 April 2017) which requires that landowners and people in control of the land must be notified of **Wiza Mining (Pty) Ltd.'s** intentions to obtain a prospecting right for the above-mentioned minerals.

Kindly forward **your comments through the attached comment form which is on the notification letters** to this email address

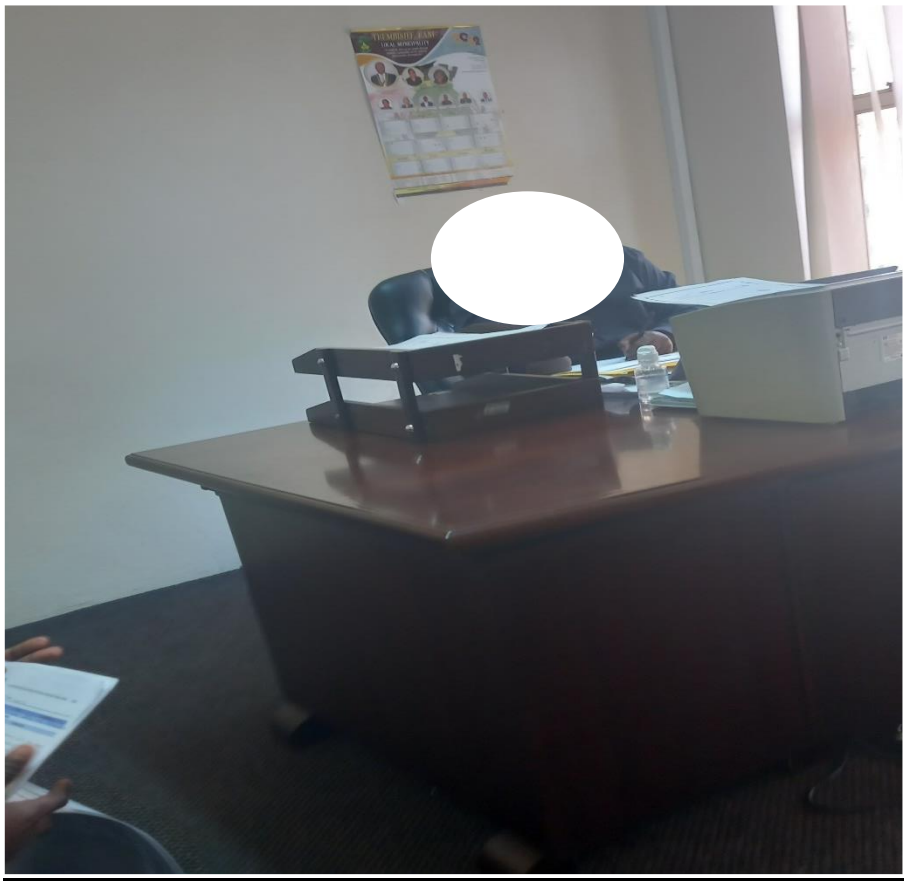
1

Should you need any clarity please do not hesitate to contact me.

Please find the attachments for referral.



Landowner Consultation for Thembisile Hani Local Municipality



Landowner consultation for Kwagga Mall

Dineo, Makhubela

From:	Dineo, Makhubela <dineo@singoconsulting.co.za>
Sent:	Wednesday, August 3, 2022 2:47 PM
To:	'Kwaggaplazza@gmail.com'
Cc:	'Dr Singo, Kenneth'; 'Rudzani, Shonisani'; 'Nokuthula Nkosi'; 'luyolo@singoconsulting.co.za'; 'kwagga-cm@examplarreit.co.za'
Subject:	LANDOWNER ENGAGEMENT FOR A PROSPECTING RIGHT APPLICATION ON THE FARM KWAGGAFONTEIN 216 JR SITUATED WITHIN THE MAGISTERIAL DISTRICT OF THEMBISILE HANI .
Attachments:	Windeed Results 301186917.Pdf; Landowner Notification_Portion 13.pdf

Good afternoon Ms. Mahlangu,

Singo Consulting (Pty) Ltd on behalf of **Wiza Mining (Pty) Ltd**, hereby wish to inform you that it has applied for a Prospecting Right (PR) together with an Environmental Authorization (EA) to the **Mpumalanga Department of Mineral Resources and Energy (DMRE)** for the proposed project of prospecting **Aggregate, Sand General and Gravel** on the farm **Kwaggafontein 216 JR** which is situated under Magisterial District of **Thembisile Hani , Mpumalanga Province** with **DMRE REF.: MP 30/5/1/1/2/17158 PR** which has been accepted.

A Windeed search was conducted in order to find out who the landowner of **Kwaggafontein 216 JR farm** is, and the outcomes showcased that National Government of the Republic of South Africa, and the Provincial Government of the Mpumalanga Province is the landowner. Please see the attached Landowner Notification Letters and the Title Deed Search Results for detailed description of the proposed project.

This Notification is being given in compliance with the terms of: Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA), National Environmental Management Act, 1998 (Act No. 107 of 1998), and EIA Regulations (as amended, 07 April 2017) which requires that landowners and people in control of the land must be notified of **Wiza Mining (Pty) Ltd.'s** intentions to obtain a prospecting right for the above-mentioned minerals.

Kindly forward **your comments through the attached comment form which is on the notification letters** to this email address

We are looking forward to hearing from you

Dineo, Makhubela EAP Intern NDip: Environmental Science
+27 71 403 0700 +27 13 692 0041
dineo@singoconsulting.co.za
+27 86 514 4103
www.singoconsulting.co.za
Operation Hi Teka Hinkwaswo
Singo Consulting (Pty) Ltd
Office 870, 5 Balalaika Street, Tasbet Park Ext 2, Witbank,1040
Protect & manage the best remaining environment

1

Request for the MTPA Studies

Dineo, Makhubela

From:	Dineo, Makhubela <dineo@singoconsulting.co.za>
Sent:	Monday, June 20, 2022 2:20 PM
To:	Mervyn.Lotter@mtpa.co.za
Cc:	'Dr Singo, Kenneth'; rudzani@singoconsulting.co.za; buhle@singoconsulting.co.za
Subject:	REQUEST FOR SENSITIVITY MAPS FOR THE PROPOSED PROJECT
Attachments:	REG 2.2.pdf

Good day Mervyn,

I hope this email finds you well.

Kindly assist with sensitivity maps for the attached proposed prospecting area.
Should you need any clarity please do not hesitate to contact me.

Your assistance will be highly appreciated.

Kind regards,
Makhubela Dineo

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SAHRA Results