Prospecting Right Application for Coal on portions 1, 2 and the Remaining Extent of the Farm Stroomwater 96 JS, situated in the Magisterial District of Thembisile Hani in the Mpumalanga Province.

DMRE REF: MP 30/5/1/1/2/17897 PR.

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PREPARED FOR:

mineral resources & energy

Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

2023

mineral resources & energy

Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

(DMRE REF: MP 30/5/1/1/2/17897 PR)

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS UNDER THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 IN RESPECT OF LISTED ACTIVITIES TRIGGERED BY APPLICATIONS UNDER THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED)

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File reference number SAMRAD: MP 30/5/1/1/2/17897 PR

IMPORTANT NOTICE

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

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

In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1) (c) the competent Authority must check whether the application 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 authorisation for listed activities triggered by an application for a right or a permit are submitted in the exact format of and provide all the information required in terms of this template. Furthermore, please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

It is furthermore an instruction that the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order,

and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

(a) determine the policy and legislative context within which the proposed activity is located and how the activity

complies with and responds to the policy and legislative context.

(b) identify the alternatives considered, including the activity, location, and technology alternatives.

(c) describe the need and desirability of the proposed alternatives.

(d) through the undertaking of an impact and risk assessment process, inclusive of cumulative impacts which focused

on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine:

(i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and

(ii) the degree to which these impacts—

(aa) can be reversed.

(bb) may cause irreplaceable loss of resources; and

(cc) can be managed, avoided or mitigated.

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the

	DOCUMENT CONTROL			
Document Title		Draft Basic Assessment Report and Environmental Management Programme report for Coal on portions 1, 2 and the Remaining Extent of the Farm Stroomwater 96 JS situated in the Magisterial District of Thembisile Hani in Mpumalanga Province with **DMRE REF: MP 30/5/1/1/2/17896 PR.**		
Version	Version 1:	Draft Basic Assessment Report and Environmental Management Programme (13th of March 2023 – 14th of April 2023)		
	Version 2:	Basic Assessment Report and Environmental Management Programme (16th of May 2023)		
	QUALITY CONTROL			
	EAP	**EAP Manager**	**Principal EAP**	**Distribution**
Name	K Mathako	R. Shonisani Radebe	Dr NK Singo	Stakeholders (Library, municipality, landowners and postnet)

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.

DISCLAIMER

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

Singo Consulting acts as an advisor to the client 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.

Where site inspections, testing or fieldwork have taken place, the report is based on the information made available by Singo Consulting during the visit, visual observations and any subsequent discussions with regulatory authorities. The data and information used in this report were provided to Singo Consulting by the client and also referred to other outside sources (includes historical site investigation information and third-party expert research).

Singo Consulting (Pty) Ltd ("Singo Consulting") takes reasonable care and diligence when providing services and preparing documents, but it has been assumed that the information provided to Singo Consulting (Pty) Ltd ("Singo Consulting") is accurate.

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.

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LIST OF ABBREVIATIONS

BAR	**: Basic Assessment Report**
BID	**: Background Information Document**
CA	**: Competent Authority**
CBA	**: Critical Biodiversity Area**
DAFF	**: Department of Agriculture, Forestry and Fisheries**
DFFE	**: Department of Forestry, Fisheries, and the Environment**
DMRE	**: Department of Mineral Resources and Energy**
DWS	**: Department of Water and Sanitation**
EA	**: Environmental Authorisation**
EAP	**: Environmental Assessment Practitioner**
EIA	**: Environmental Impact Assessment**
EIMS	**: Environmental Impact Management Services**
EMPr	**: Environmental Management Programme Report**
GIS	**: Geographic Information System**
I&AP	**: Interest and Affected Party**
MPRDA	**: Mineral and Petroleum Resources Development Act**
NEMA	**: National Environmental Management Act**
NEMWA	**: National Environmental Management Waste Act**
NWA	**: National Water Act**
PPP	**: Public Participation Process**
PRA	**: Prospecting Right Application**
PWP	**: Prospecting Works Programme**

PART A

1. SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

INTRODUCTION AND EXECUTIVE SUMMARY

Chipo Holdings (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 coal mineral.

The proposed project will aim to ascertain if economically viable mineral deposit exists within the application area. To undertake prospecting activities, Chipo Holdings (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). Singo Consulting (Pty) Ltd has been appointed by Chipo Holdings (Pty) Ltd to compile a BAR (this report) in support of the Prospecting Right application, 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.

Locality Description: The proposed Prospecting Right Application covers portions 1, 2 and the Remaining Extentsof the Farm Stroomwater 96 JS encircling a total of 3 186,18 Hectares. It is situated under the Magisterial District of Thembisile Hani, Mpumalanga Province. It is within Olifants Rivers which has its origin between Breyten and Bethal, Mpumalanga Province.

According to the Windeed search, the Farm Stroomwater 96 JS, portions 1, 2 and the Remaining Extent are owned by the National Government of the Republic of South Africa.

- Site assessment was conducted on the 21st of February 2023, portions 1, 2, and the remaining extent are owned by the National Government of the Republic of South Africa. During site assessment, we consulted with Mr. Rakwena, who is a lessee of the land from the government. Mr. Rakwena is a lessee for portions 1 and the remaining extent of the farm Stroomwater 96 JS.

- On portion 2 of the farm Stroomwater 96 JS, we consulted with the residents who were available at the time; they shared the contact details of Mr. Masango, and BIDs were shared with them. On Friday, February 24, 2023, we made contact with Mr Masango via phone. Mr. Masango stated that he is the lessee of all the portions that are in Stroomwater 96 JS, which are portions 1, 2, and the remaining extent.

- George Mhlanga of Department of Agriculture, Land. Reform and Rural Development. (DALRRD) has been consulted about the issue.

Singo Consulting is an independent consulting company and it is currently running 400+ applications in Mpumalanga Province, so there is high probability that some of the projects/ applications might be in close proximity to each other.

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 Kwaggasnek formation which forms part of the upper Rooiberg Group in the Western Transvaal Supergroup.

1.1 Details of the Environmental Assessment Practitioner

Singo Consulting (Pty) Ltd was appointed by Chipo Holdings (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 Public Participation Process (PPP) Officer

Name of the Practitioner	Mazithi Mangcu
Designation	PPP Officer
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Fax No.	+27 86 515 4103
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Table 2: Details of the Environmental Assessment Practitioner that prepared the report.

Name of Practitioner	Khodani Mathako
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Cell No.	+27 76 054 1408
Fax No.	+27 86 515 4103
Email	khodani@singoconsulting.co.za

Table 3: Details of the EAP Manager who reviewed the Report

Name of the Practitioner	Rudzani Shonisani Radebe
Designation	EAP Manager
Tel No.	+27 13 692 0041
Cell No.	+27 78 548 1244
Fax No.	+27 86 515 4103
Email	rudzani@singoconsulting.co.za

Table 4: Details of the Principal EAP who reviewed the Report

Name of the Practitioner	NK Singo
Designation	Principal EAP
Tel No.	+27 13 692 0041
Cell No.	+27 78 2727 839
Fax No.	+27 86 515 4103
Email	*kenneth@singoconsulting.co.za*

1.2 Summary of EAP's Past Experience

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.

For carried out Environmental Impact Assessments, request from consultant

2. Locality of the Overall Activity

Table 5: Location of the Overall Activity

Farm Name:	Portions 1, 2 and the Remaining Extent of the Farm Stroomwater 96 JS.
Application area (Ha)	3 186,18 Hectares
Magisterial district:	Thembisile Hani Magisterial district
Distance and direction from nearest town	Approximately 11,12 km eastern side of Mabusa natural reserves and 4.1 km west of Reitfontein.
21-digit Surveyor General Code for each farm portion	T0JS00000000009600002 T0JS00000000009600001 T0JS00000000009600000

2.1 Locality map

The proposed prospecting area is located on portions 1, 2 and the Remaining Extent of the Farm Stroomwater 96 JS, which falls within Thembisile Hani Magisterial District in Mpumalanga Province. It is situated approximately 11,12 km eastern side of Mabusa natural reserves and 4.1 km west of Reitfontein. It is within Olifants Rivers which has its origin between Breyten and Bethal, Mpumalanga Province. It can be accessed via a gravel road that extents from the R544 national road. see Figure 1 and Figure 2 below.

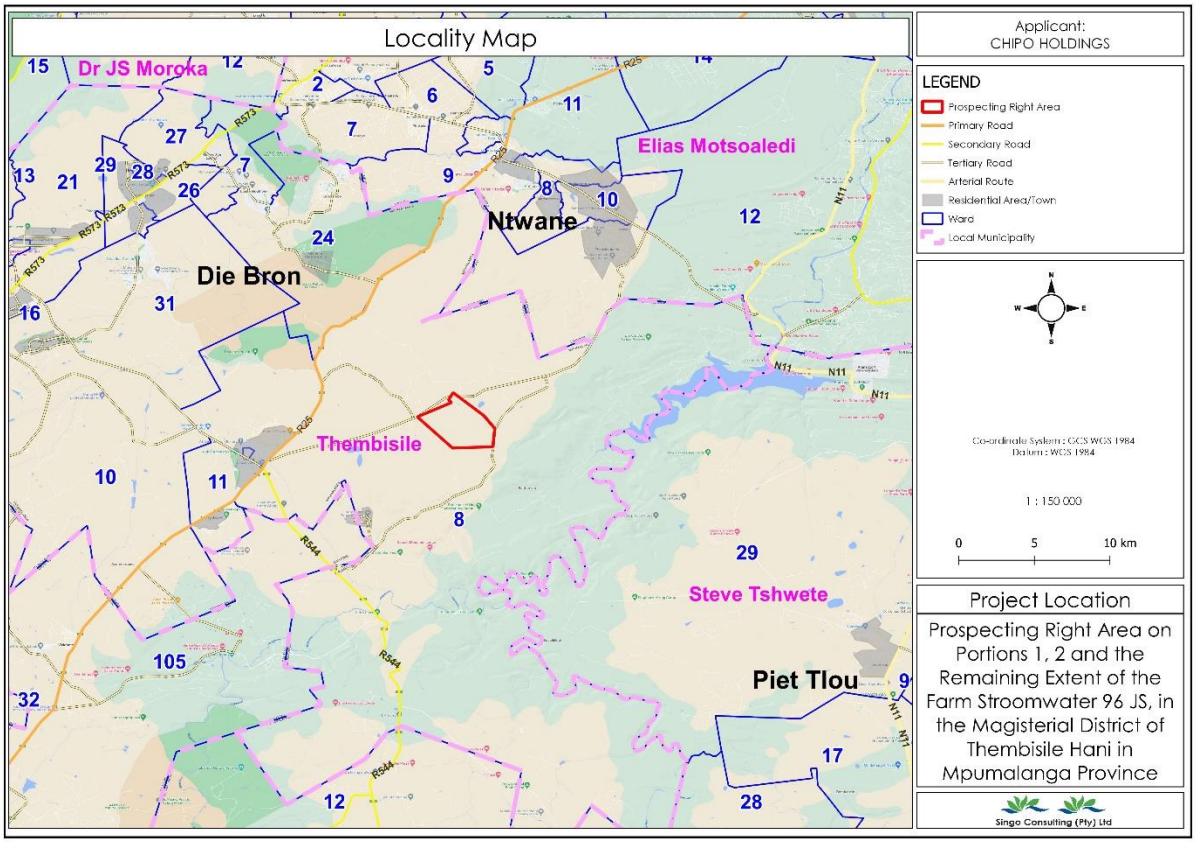


Figure 1:Locality map of the study area (Singo Consulting (Pty) Ltd, 2023)

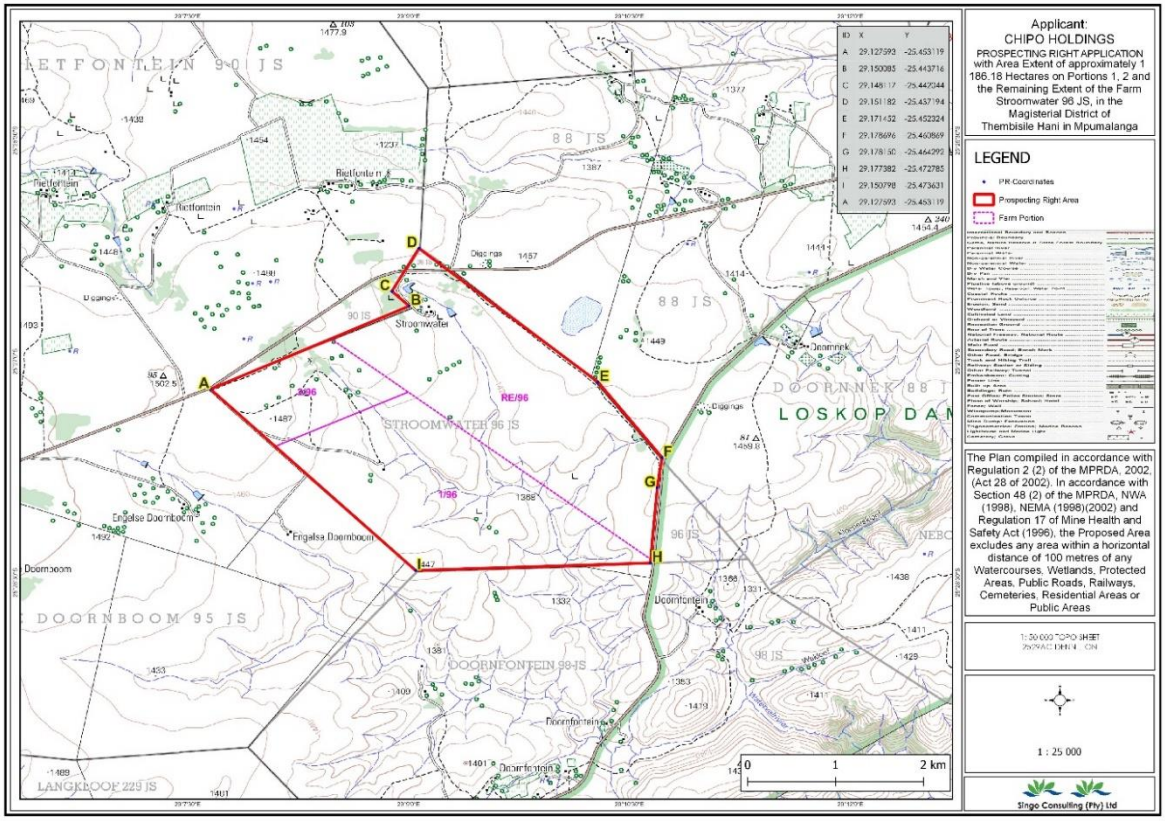


Figure 2: Regulation 2.2 map of the study area

The proposed project is adjacent to portion 1, 5 and 2 of the Doornnek 88 JS, portion 19 of the Doornfontein 98 JS, portion 3 and 4 of the Engelsche Doornboom 95 JS and portion 5, 16 and 5 of the Rietfontein 90 JS. Refer to **Figure 3**.

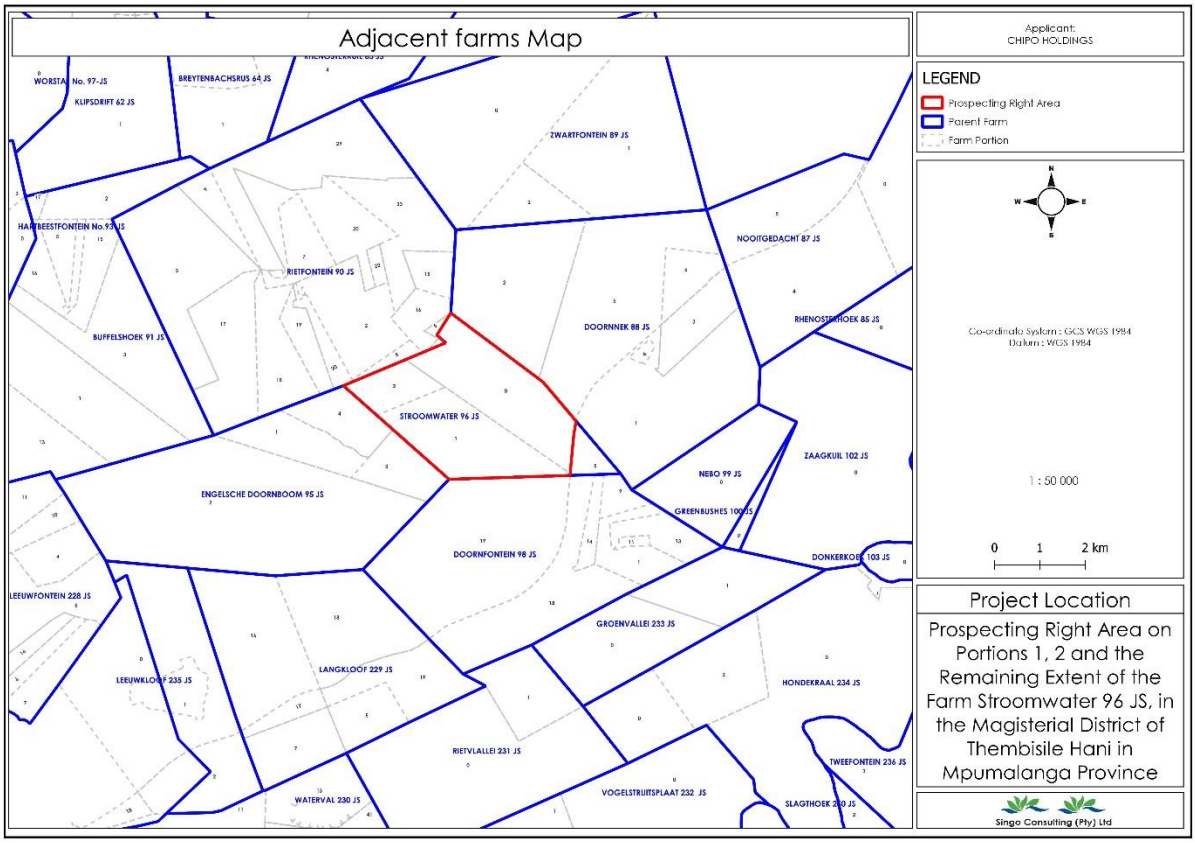


Figure 3: Adjacent Farm map (Singo Consulting (Pty) Ltd, 2023)

2.2 Description of the scope of the proposed overall activity

A typical layout of a drilling site seen on Figure 4 will be employed for each setting of the planned boreholes within portions 1, 2 and the Remaining Extent of the farm Stroomwater 96 JS.

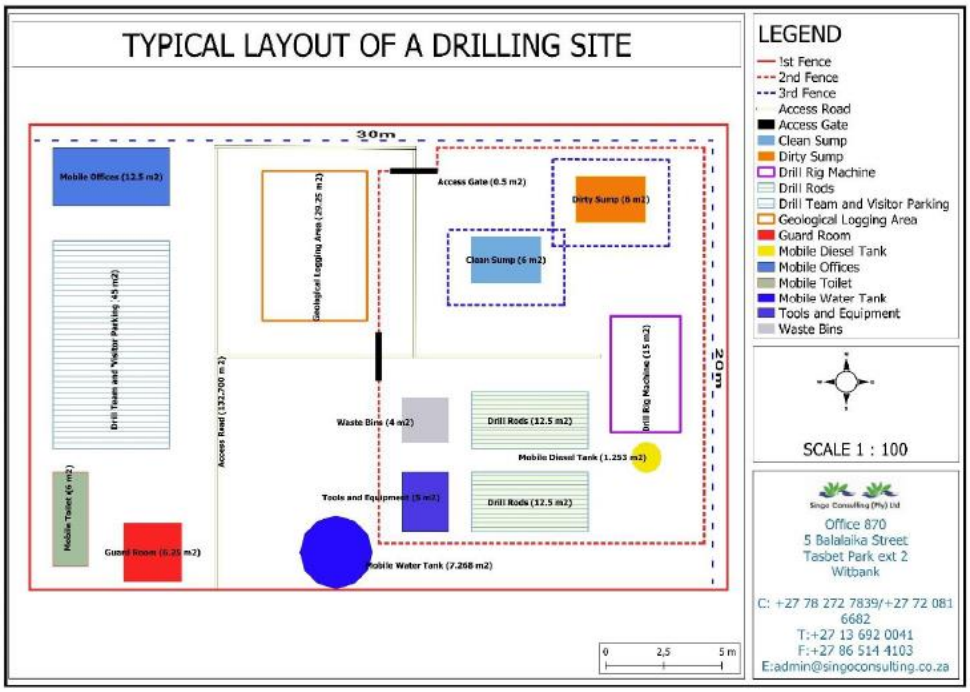


Figure 4: Typical layout plan of a drilling site (Singo Consulting (Pty) Ltd, 2023)

A typical layout plan of the drilling site will be proposed for all 15 boreholes seen on Figure 5 below. The layout plan will be mobile, hence after a borehole has been drilled, the same layout plan will be installed for the next borehole.

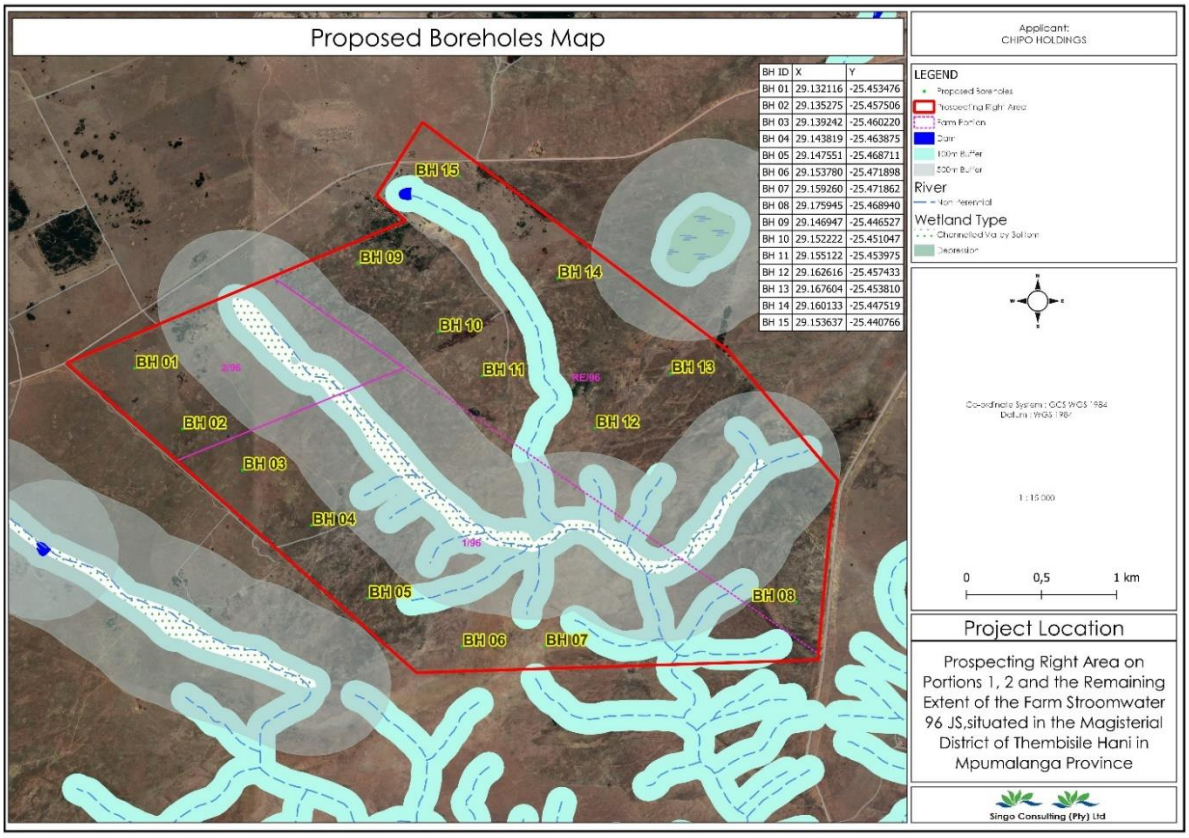


Figure 5: Proposed Borehole Map of the study area

2.3 Listed and specified activities

Table 6: 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.…etc.…etc.**	**Aerial extent of the Activity Ha or m²**	**LISTED ACTIVITY** **Mark with an X where applicable or affected.**	**APPLICABLE LISTING NOTICE (GN 517, 11June 2021)**
Prospecting for the above-mentioned mineral by means of diamond drilling of 15 boreholes. Extent of application area	3 186,18 ha of the entire prospecting area (Disturbed area - 0.06 ha per hole x 15 boreholes = 0,9 ha)	X	GN 517 Listing Notice 1 Activity 20
Vegetation clearance for drilling programme that includes the drill site Invasive prospecting for the above-mentioned mineral by means of diamond drilling of 15 boreholes. The holes will be drilled to an average depth >110 m. The demarcated working area (total area to be disturbed) per site is 30 m x 20 m = 600 m² (0.06 Ha). Then 600 m² x 15 boreholes =9 000 m² Therefore, the total area to be disturbed is 9 000 m² /10 000 = 0,9 Ha	- 600m²*15= 9000m²/10000 =0.9 ha 0,9 ha (Total Disturbed area) of 3 186,18 ha (Extent of application area)		N/A

Mobile office	12.5m^2		N/A
Mobile toilet	6m^2		N/A
Drill team and visitor team parking	45m^2		N/A
Access road	1860.825 m^2	X	N/A
Guard room	6.25m^2		N/A
Geological logging area	25.29m^2		N/A
Waste bins and tools	9m^2		N/A
Drill machine	15m^2		N/A
Drill rods	25m^2		N/A
Clean sump	6m^2		N/A
Dirty sump	6m^2		N/A
Mobile diesel tank	1.253m^2		N/A
Mobile water tank	7.268m^2		N/A

Table 7: Summary of drilling activities

Drilling method	Diamond drilling
Number of boreholes	15
Depth of boreholes	>110m
Duration of drilling	A borehole takes about 2 days to complete; 15 will take at least 30 days.
Demarcated working area	0.9 ha for all 15 drilling sites
Total area to be disturbed	30*20=600m² 15 boreholes* 600 m²=9000 m² 900010000=**0.9ha**

2.4 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).

Background

Chipo Holdings (Pty) Ltd is applying for a Prospecting Right without bulk sampling, to prospect for Coal mineral on the aforementioned properties. The area demarcated for the prospecting covers an area of approximately 3 186,18 ha, Singo Consulting (Pty) Ltd has proposed boreholes that are just temporary, these boreholes can be shifted due to sensitivity of the environment and other environmental factors, refer to Figure 6. Sensitivity areas will be buffered and will be marked as a ''No Go Zone''.

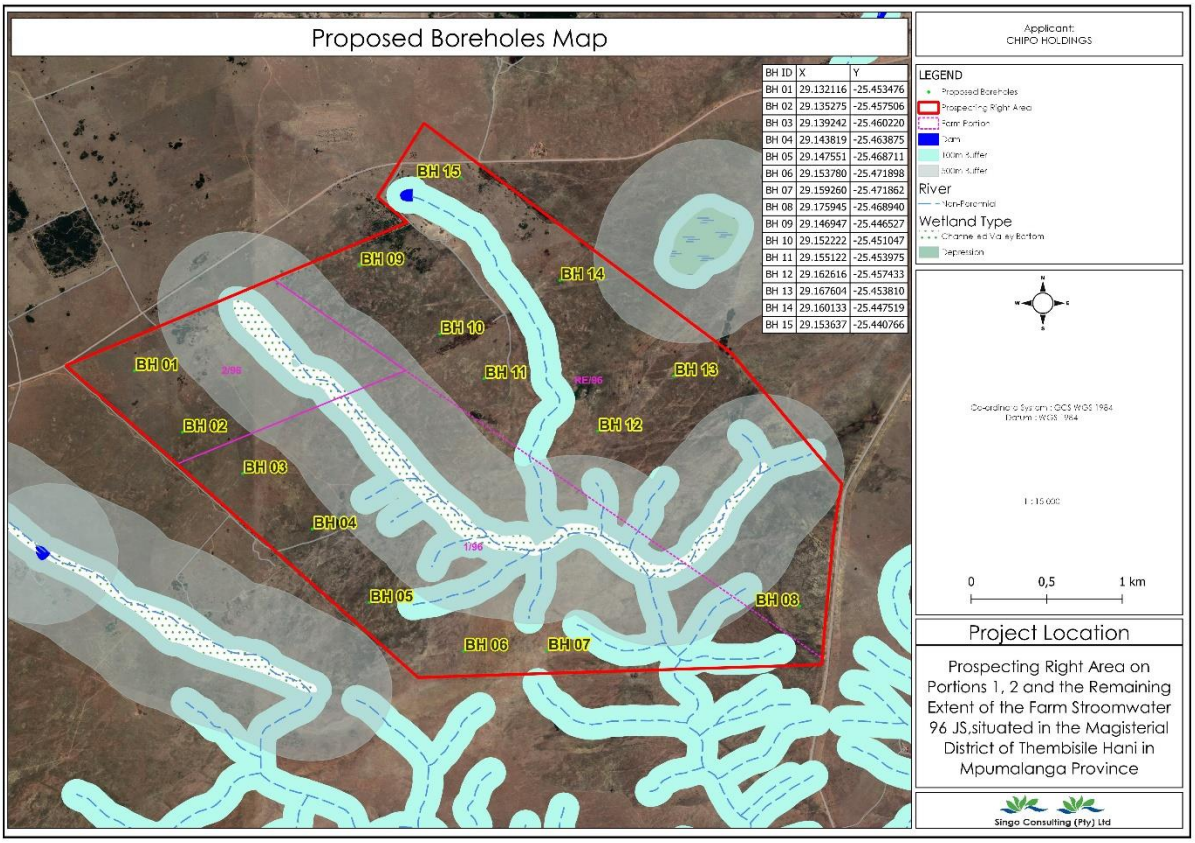


Figure 6: Proposed borehole map

Prospecting work will initially entail a high-level desktop study and potential desktop resource evaluation. This will include a data search of any previous drilling, trenching, sampling activities, exploration activities, existing maps, and relevant historical data. On successful completion of this desktop study, further possible drilling, trenching and resource estimations will be performed if the results warrant it.

Description of the prospecting methods to be undertaken:

- **<u>Planned non-invasive activities:</u>**

Desktop studies to be undertaken over the area would include studying of geological reports, prospecting data, plans/maps, aerial photographs, topography maps and any other related geological information about this area.

- Consultation with landowners:
- Site assessment was conducted on the 21st of February 2023, according to the Windeed search, portions 1, 2, and the remaining extent are owned by the National Government of the Republic of South Africa. During site assessment, we consulted with Mr. Rakwena, who is a lessee of the land from the government. Mr. Rakwena is a lessee for portions 1 and the remaining extent of the farm Stroomwater 96 JS.

- On portion 2 of the farm Stroomwater 96 JS, we consulted with the residents who were available at the time; they shared the contact details of Mr. Masango, and BIDs were shared with them. On Friday, February 24, 2023, we made contact with Mr Masango via phone. Mr. Masango stated that he is the lessee of all the portions that are in Stroomwater 96 JS, which are portions 1, 2, and the remaining extent.

- George Mhlanga of Department of Agriculture, Land. Reform and Rural Development. (DALRRD) has been consulted about the issue.

- Data processing and validation:

  Data obtained during the drilling process needs to be processed and validated versus stratigraphic, structural, and analytical data received and correlated with surrounding boreholes in the reserve area.

- ❖ Electronic procession of borehole data
- ❖ Validation of lithological data versus analytical data.
- ❖ Stratigraphic correlation of Coal.
- ❖ Editing and correction of data on database.

- Lithofacies and Coal ore quality modelling:

Variations in a stratigraphic unit across the reserve area are generated and illustrated by contoured maps showing lateral trends of most significant properties. This is done by the utilization of computerized geological software. Detailed in situ reserve and quality determinations will then be possible through computer based modelling, and qualitative and quantitative calculations.

- Compilation of geology report:

Information obtained during the exploration phase together with computer generated information is compiled into a geological report.

- **Planned invasive activities:**

- Diamond drilling:

The drill rigs are truck-mounted and equipped with diesel driven engines to provide power to the drill. A truck fitted with a water tank will be used to provide the water supply for the drilling process. The drill site is not larger than 20m x 30m (600m²) and consists of a drill rig, water pump, gazebo, and portable chemical toilet. Except for the sump required by the drill rig, no excavations will be required. The sumps are normally 1 m^2 and 50 cm (0.5 m) deep. It is always necessary to separate topsoil from the subsoils. The dimension of the borehole is NQ (±76 mm), and the average depth of the Coal reserve is estimated to be above 110 meters. On completion of the borehole, it is cemented from the bottom up. The only rehabilitation that will specifically be required is borehole capping and revegetation. Drill holes must be permanently capped as soon as is practicable.

- **Pre-feasibility studies**

The commodity thickness distribution, lateral extent and quality will be determined through detailed borehole measurement and laboratory core analysis. Detailed in situ reserve and quality determinations will then be possible through computer based modelling, and qualitative and quantitative calculations.

A geological report (or Competent Person Report) will be compiled which entails all results obtained during the exploration phase. This will be done by the appointed Exploration Geologist.

Prospecting phase and time frames

The prospecting right is required for a period of five years. Prospecting will take place according to the timeframe presented below and incorporates the information required in respect of Regulations 7(1)(f), 7(1)(h) and 7(1)(i) of the MPRDA.

Table 8: Proposed Prospecting Phases and Time Frames

Phase	Activity	Skill(s) required	Timeframe	Outcome	Timeframe for outcome	What technical expert will sign off on the outcome?
Phase1: Invasive Prospecting						
	Diamond drilling (5 boreholes) Sampling	Exploration Geologist Exploration Geologist	Month 1 (30 days)	Borehole core data coal samples Rock core samples Core analyses Rock core analyses	Month 1 Month 2 – 3	Exploration Geologist Laboratory analyst
Phase 1: Non-invasive Prospecting						
	Consultations with landowners	Land Tenure Specialist	Month 1	Legal Access Agreement	Month 1	Land Tenure Specialist
	Data processing and validation	Exploration Geologist	Month 7-8	Stratigraphic correct borehole data Analytical correct borehole data	Month 8 – 10 Month 8 - 10	Exploration Geologist /Database administrator Exploration Geologist /Database administrator
	Lithofacies and Coal quality modelling	Exploration Geologist	Month 10-12	Contour maps Reserve breakdown	Month 10-12	Exploration Geologist /Modeller
	Inspection/Consultation with landowners	Land Tenure Specialist /Drilling contractor	Month 5-6	Rehabilitation clearance certificate	Month 5 - 6	Land Tenure Specialist / Environmental officer
Phase 2: Invasive Prospecting						

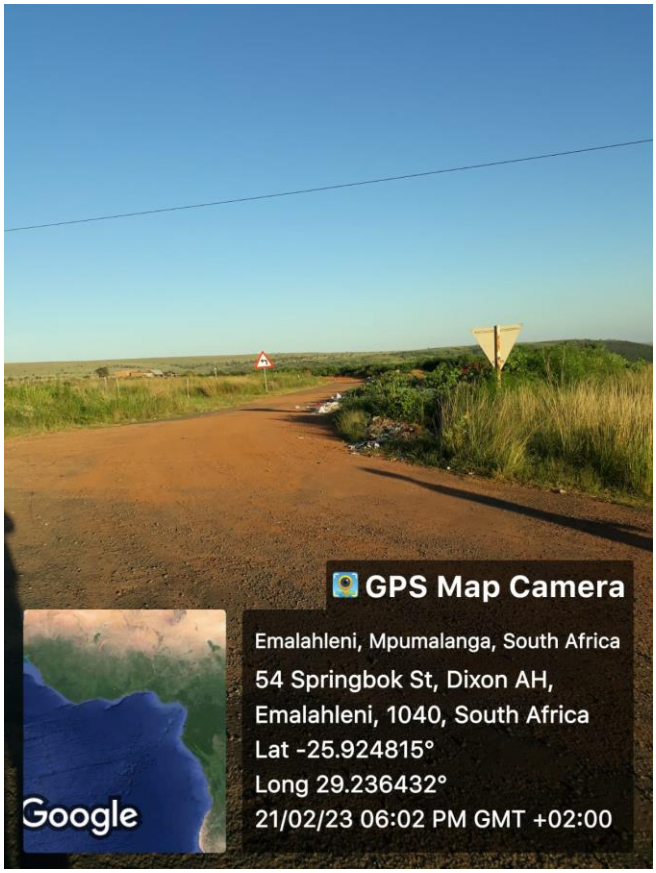
	Diamond drilling (5 borehole)	Exploration Geologist	Month 13	Borehole core data Coal core samples Rock core samples Core analyses Rock core analyses	Month 13 Month 13-14	Exploration Geologist Laboratory analyst
	Geophysical survey (Optional)	Geophysicist Exploration Geologist	Month 13-15	Lithology data Structural data	Month 13-14	Geophysicist
	Geohydrological survey (Optional)	Geohydrologist Exploration Geologist	Month 13-14	Borehole water yield Water samples	Month 17-20	Geohydrologist
Phase 2: Non-invasive Prospecting						
	Consultation with landowners	Mining Rights officer	Month 12	Legal Access Agreement	Month 12	Land Tenure Specialist
Phase	**Activity**	**Skill(s) required**	**Timeframe**	**Outcome**	**Timeframe for outcome**	**What technical expert will sign off on the outcome?**
	Data processing and validation	Exploration Geologist	Month 17-18	Stratigraphic correct borehole data Analytical correct borehole data	Month 20 – 22 Month 20 - 22	Exploration Geologist /Database administrator Exploration Geologist /Database administrator
	Lithofacies and coal quality modelling	Exploration Geologist	Month 22-24	Contour maps Reserve breakdown	Month 22-24	Exploration Geologist /Modeler
	Inspection/Consultation with landowners	Mining Rights officer	Month 16-17	Rehabilitation clearance certificate	Month 16 - 17	Land Tenure Specialist / Environmental officer
Phase 3: Invasive Prospecting						

	Diamond drilling (5 borehole)	Exploration Geologist	Month 25	Borehole core data Coal core samples Rock core samples Coal core analyses Rock core analyses	Month 25 Month 25-60	Exploration Geologist Laboratory analyst
	Directional drilling (Optional)	Exploration Geologist	Month 24-30	Lithological data	Month 24-60	Exploration Geologist
	Geophysical survey (Optional)	Geophysicist Exploration Geologist	Month 25-27	Lithology data Structural data	Month 25-60	Geophysicist
	Geohydrological survey (Optional)	Geohydrologist Exploration Geologist	Month 25-26	Borehole water yield Water samples	Month 29-60	Geohydrologist
Phase 3: Non-invasive Prospecting						
	Consultation with landowners	Mining Rights officer	Month 24	Legal agreement	Month 24	Land Tenure Specialist
	Data processing and validation	Exploration Geologist	Month 29-30	Stratigraphic correct borehole data Analytical correct borehole data	Month 32 – 60 Month 32 - 60	Exploration Geologist /Database administrator Exploration Geologist /Database administrator
	Lithofacies and Coal	Exploration Geologist	Month 34-36	Contour maps Reserve breakdown	Month 34-60	Exploration Geologist /Modeler
	Inspection/consultation with landowners	Land Tenure Specialist	Month 28-29	Rehabilitation clearance certificate	Month 28 - 60	Land Tenure Specialist / Environmental officer

3. Ancillary activities

3.1.1 Access roads to the site. However, during the prospecting phase there will be a construction.

Access to the proposed prospecting area is through a gravel road that extents from the R544 national road, refer to Figure 7 to see the access of temporary road to reach the proposed boreholes, which does not trigger NEMA listing notice 1 activity 56. Once the prospecting right has been granted, the applicant will negotiate access with the landowner to conduct a detailed technical evaluation of the prospecting area. A contract will be drawn up and negotiated with the landowner regarding access and the suitability and time of year that is preferred to start drilling.



Access road to the farm

Access road to the farm

Figure 7: Access roads

3.1.2 Water supply

The proposed drilling system uses only water, ensuring that only on-site workers require water for drinking and other purposes. Figure 8 depicts the placement of a temporary storage tank for drinking water and general use. Water containers will be purchased from local water suppliers. To prevent contamination in the water bodies, best practice guidelines will be implemented during prospecting activities.

Figure 8: Temporary water storage tank

3.1.3 Ablution facilities

Enough portable toilets will be installed on-site for ablution, reducing the potential pollution associated with burying sewage pipes. Portable toilets are mobile, allowing them to be moved from drill site to drill site. Once drilling activities cease, portable toilets can be easily removed from the drill site, and an agreement will be signed between the applicant and sewage personnel to collect waste from ablution at least twice a week.

Figure 9: Typical example of portable toilet

3.1.4 Accommodation

There will be no on-site accommodation for staff or workers. Workers will be transported to and from the prospecting site on a daily basis. Once the equipment is installed, night security personnel will be hired.

3.1.5 Temporary office area

At the drill site, a shaded temporary site office will be built. This will be used for day-to-day project management.

Figure 10: Typical example of temporary site office

3.1.6 Blasting

Blasting is outside the scope of this project because no bulk sampling is possible under the Prospecting Work Programme (PWP), so there will be no blasting. Instead, geological mapping, exploration drilling, sampling, resource modeling, and resource reporting will be part of the project.

3.1.7 Storage of dangerous goods

During drilling operations, 1000L of diesel fuel, oil, and lubricants will be stored on-site. Diesel fuel is the only dangerous good that will be stored in any significant quantity; above-ground diesel storage tanks will be used to prevent contamination, as shown in Figure 11 below.

Figure 11: Diesel storage tank

4. Policy and Legislative Context

Table 9: 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 Chipo Holdings (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.	In terms of the Mineral and Petroleum Resources Development Act a Prospecting Right Application has been applied for Coal mineral. DMRE REF: MP 30/5/1/1/2/17897 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 Licence has been applied for this prospecting project.	No water use license is applied for on this Application. Any water required for drilling activities will be obtained from a legal source within the area or brought in via mobile water tanker. 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 (GN R. 151 dated 23 February 2007, as amended in GN R. 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.
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

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.**		not violate the Constitution of the Republic of South Africa.
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 should be notified in order for an investigation and evaluation of the find(s) to take place.
Thembisile Hani Local Municipality Integrated Development Plan (IDP) **Strategic Development Framework (SDF)**	Socio-economic baseline information, needs and desirability for the development. Land use	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.

5. Need and desirability of the proposed activities.

Since prospecting activities constitute the first stage of mining, they do not offer many obvious advantages. Prior to mining, there is a process called prospecting, and it is at this time that decisions are made regarding whether it is profitable to extract the available reserves. A higher emphasis is placed on prospecting for mining benefits because it is acknowledged that mining contributes significantly to the South African economy and employs a large number of people.

Despite the fact that prospecting activities don't require a lot of labor, 3–10 employees will be employed to help with general operations. Depending on their availability, the necessary services can also be obtained locally, which would boost Thembisile Hani's economy.

Almost 90% of the energy produced in 2018 came from coal-fired power stations, which also accounted for 83% of the nominal capacity mix. The combined output of the remaining power plants, which accounted for 17% of the total nominal capacity, produced the remaining energy. Coal continues to dominate South Africa's domestic energy resource base, and the country's reliance on coal-based energy is unlikely to shift much over the next two decades. The South African government planned to construct two additional coal-fired power stations (Kusile and Medupi) with a lifespan of 70 years in light of the country's current electrical challenges since 2008. The two aforementioned power plants' functioning will necessitate more coal mining.

The South African Energy Sector Report of 2021 states that because of the nation's high energy intensity, the energy sector in South Africa is at the core of the economy. A little over 90% of the total energy was produced in 2018 by coal-fired power plants, which make about 83% of the nominal capacity mix. The remaining energy was produced as a result of the combined output of other power plants, which accounted for 17% of total nominal capacity. Coal remains the country's main domestic energy source, and in the next two decades, its reliance on coal-based energy is not projected to shift dramatically. There is a need for more high-quality coal to maintain our deteriorating energy infrastructure in South Africa given our current electricity challenges. This proposed project is for the exploration of coal to determine its availability and quality, which will be used in coal-fired power plants.

In essence, agriculture and mining may live side by side and both may offer ways out of poverty. People who are employed in agriculture benefit directly. Farmers earn payment for the crops they produce, which they can use to pay for both additional crop production and their families' daily costs. Mining can help progress development more subtly by generating revenue for the government. Governments can use the taxes and royalties collected from mining companies for infrastructure development and other advantageous purposes. Mining companies also contribute additional funds to community development projects, the construction of roads, and educational facilities.

According to the Thembisile Hani IDP (2020/2021), there are currently limited mining activities occurring in the southern portions of the municipality along the R568 road. A number of external stakeholders have shown interest in developing mining opportunities within the Municipality.

The notion that coal mining activities generally sterilize the land is proved to be untrue when the land is remediated/ rehabilitated, according to an article published in News 24 on the 1st of April 2022, written by Lisa Steyn, https://www.news24.com/fin24/companies/coalmining-land-in-mpumalanga-is-now-delivering-better-wheat-than-virgin-soil-20220401

there is currently a Pilot project to grow wheat crops on remediated coal mining by B4D in partnership with Glencore on Glencore's Wonderfontein coal mine in Mpumalanga and the results have shown higher yields than those planted on virgin soil.

Impacts upon significant poultry production and processing facilities can be avoided and mitigated by implementation of the EMPr.

Prospecting activities are needed to:

- Drilling is an example of a minimally and invasive activity that can be used to confirm and gather further information about possible targets.
- Ascertain whether the resource can be harvested in a manner that is sustainable in terms of the environment, society, and economy. The goal of prospecting is to identify feasible minerals that are present at a level that makes them economically mineable. If the mineral is at this level of availability, a new

mine might be built, creating a large number of employment possibilities in Thembisile Hani, where they are required.

An updated version of the Department of Environmental Affairs' 2017 Need and Desirability Guideline Paper has been published. The National Development Plan 2030 and other policies and strategies, as well as the Constitution and NEMA, all reference the sustainability principle, which serves as the foundation for need and desirability (NDP). One strategy to assure sustainable development—that is, that a development is ecologically sustainable, socially justified, and economically justifiable—while also attaining the triple bottom-line is to address a development's need and desirability.

The concept "need and desirability" refers to the types, scope, and site of a development proposal as well as the efficient use of available property. Despite the fact that the terms "need and desirability" can be explained in terms of the general meanings of its two components, where need primarily refers to time and desirability to place (i.e., is this the right time and is this the right place to locate the type of land-use/activity being proposed?), "need and desirability" are interrelated and can be viewed as a whole in an integrated and holistic way. Given the aforementioned, the necessity for and desirability of an application must be considered independently and in depth, including the following questions:

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?	Certainly, prospecting is a key component of the plan to exploit the region's rich natural resources to build a strong, resilient, and wealthy district by creating jobs. When Trevor Manuel, the minister in charge of the presidency at the time, briefed the media on the implementation of the National Development Plan (NDP 2030), he provided a long-term perspective and identified the role that various segments of the general public must play in order to advance toward the goal of eliminating poverty and reducing inequality by 2030. According to the plan, South Africa can achieve these objectives through mobilizing the

		nation's resources to grow economically, develop human capital, and strengthen state institutions by fostering initiative and advancing partnerships everywhere.
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 requested and authorized in the future, the viability of the current environmental structures of the region may be jeopardized, necessitating the completion of a comprehensive Environmental Impact Assessment to assess the viability of the mining operations. The proposed project has the ability to improve the socioeconomic circumstances of the local communities concerned and to gather data on the region's physical features. A mining right may be approved if the exploration results indicate that there are sufficient reserves to mine.
3.	Does the community/area need the activity and the associated land use concerned? This refers to the strategic as well as local level.	The unemployment rate for the economically active persons as of 2016 was approximately 15267, according to the IDP (2021/2022). The increase of job hunters into the municipal area contributes to the high unemployment rate as well. Many jobs have been lost as a result of the Covid-19 epidemic. Once operations begin, Chipo Holdings (Pty) Ltd will have a beneficial impact on the socioeconomic circumstances of the Thembisile Hani community. Prospecting will keep the suggested areas viable, and after mining has begun, it will help the area's socioeconomic development by promoting social advancement and job growth as main factors. A solution out of poverty can be found in both agriculture and mining, provided that they are regarded from a strategic perspective. Mining does not imply that agriculture is ignored, as food production is crucial and requires proper land use.
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?	The proposed prospecting and drilling activities will be supported by all infrastructure, both temporary and functional. Mobile restrooms and temporary shaded areas are examples of temporary infrastructure (in a form of Gazebo). Diamond core drilling will be the drilling technique used. The project won't significantly increase

		traffic congestion because the road networks are still in good condition. As a result, the development does not require the creation of extra capacity.
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)?	Due to its limited size and regional significance, the development is not included in the municipality's infrastructure planning. As a result, the proposed project won't have any effects on infrastructure planning because no new services or infrastructure are needed to accommodate it. Mobile structures will be used in the proposed project.
6.	Is the project part of a national programme to address an issue of national concern or importance?	The mining industry not only employs a sizable number of people but also makes a major contribution to the national GDP. In 2010 the mining industry made up 10% of the local economy's GVA and employed 1.2% of the workforce. From 1995 and 2010, the average annual GVA growth was -8.5%, whereas the average annual formal employment contribution was 1.1%. A long-term viewpoint is also provided by The National Development Plan (NDP) Vision for 2030. It outlines a desired end point and specifies the part that multiple social segments must play in getting there. The NDP's key objectives that are relevant to the proposed project include employment. An "inclusive rural economy" is highlighted in Chapter 6 of the National Development Plan. This plan's goals include the creation of mining and industrial jobs as well as the stimulation of rural economies through assistance with small- and micro-scale mining.
PART II: DESIRABILITY		
7.	Is the development the best practicable environmental option for this land/site?	The project area is located on highly modified land. Environmental management has already been impacted by the current site activities. Immediately following prospecting activities, the affected areas (drill sites) will be rehabilitated.
8.	Would the approval of this application compromise the integrity of the existing approved and credible IDP,	If sensitive sites are avoided and the mitigation measures suggested in this report and in the EMPr are put in place, the approval of this prospecting application won't compromise the integrity of

	and SDF as agreed to by the relevant authorities?	the area's current environmental management priorities.
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?	This development will not damage the integrity of the area's current environmental management priorities.
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).	The coalfield lithology comprises sediments of the Schrikkloof, strubenkof and kwaggasnek formation thus providing the ideal geological formation for the presence of the mineral applied for. The current infrastructure suffices for the process of prospecting. The planned drilling activities does not need any new infrastructure.
11.	How will the activity of the land use associated with the activity being applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?	According to the Site Assessment, there is no known cultural or historical significance in the region in question. If the standings change, information will be added to the BAR & EMPr and the appropriate authority will be alerted immediately.
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 -Low • Dust: Low • Noise: Low • Sense of place: 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?	No. For a very long time, Mpumalanga's economy has been based mostly on the mining sector. Continuous evidence of the economic benefits that mining revenues can have on the economies of the nations from which they are derived can be found in South Africa. Coal and clay have helped South Africa achieve remarkable economic stability and progress.
14.	Will the proposed land use result in unacceptable cumulative impacts?	No, it has simply been determined that the proposed project will have minor overall effects that can be reduced to a manageable level.

		The steps listed in the EMP that is attached will be used as a way to prevent any negative long-term cumulative effects of the proposed project on the receiving environment.

Mining is one of the sectors in the area that is developing the fastest, thus Thembisile Hani is considering it. Although locals have been provided employment possibilities in the mine since the Boekenhoutskloofdrift, Roodepoort, Loopspruit, Nooitgedacht and Blesbokfontein mines ware established in Thembisile Hani, the unemployment rate has dropped. The unemployment rate in the area will drop if coal is found on Farm Stroomwater 96 JS portions 1, 2, and the Remaining Extent at a level that can be profitably mined during the prospecting phase and mining commences after that. When compared to the other local towns in the Nkangala District, Thembisile Hani has a very high mineral occurrence. Flint-like refractory deposits can be found in very large amounts in the southwest. In general, the region's soil and geological formations are stable and do not indicate poor growth.

According to the Thembisile Hani IDP (2020-21), there are currently only a few mining operations taking place along the R568 road in the municipality's southern regions. The development of mining opportunities within the Municipality has drawn the attention of several external stakeholders, including Chipo Holding (Pty) Ltd. The mines listed below are either located within the municipality's boundaries or on those boundaries and thus directly impact the residents of this municipality.

(i) Palesa mine Southern part of the municipality

(ii) Ecca mine southern part of the municipality adjacent to Palesa.

(iii) Nokeng mine on the western part of the municipality on the boundary between Gauteng and Mpumalanga next to Moloto

(iv) Vergenoeg mine adjacent to Nokeng mine

Even though agriculture predominates in the Thembisile Hani area and most of the land is used for cultivation, the government, not the farmers, owns the ground below. There must be a written agreement outlining how both the farmers and the applicant will profit from the arrangement. Electricity, which is crucial to South Africa's economy, is produced using coal. The South African economy will grow as coal is exploited more. After drilling each borehole, the prospecting phase will be restored.

5.1. Motivation for the overall preferred site, activities, and technology

Geophysical surveys, and drilling are the only major methods used in exploring for deposits of this type and for resource definition and evaluation. The technology to be used cannot be replaced by any other methods thus these are the preferred activities.

There is no site or layout alternative as the property provides the ideal geological formation for the presence of the minerals applied for. Thembisile Hani has a much higher mineral abundance than the other local municipalities in the Nkangala District. The southwest regions include quite substantial refractory (flint) deposits. Boekenhoutskloofdrift, Roodepoort, Loopspruit, Nooitgedacht, and Blesbokfontein are among Thembisile Hani's active mines. The region's soil and geological formations are generally stable and do not pose any major development obstacles.

The positioning of the boreholes is determined by the expected location of the mineral reserve.

There are no technology alternatives considered and the proposed site was identified as the preferred alternative due to the following reasons:

- The site offers the mineral sought after,
- Very little natural vegetation needs to be disturbed to establish the prospecting area (0.9 ha).
- The prospecting area can be reached by using a gravel road that extends from R544.
- No residual waste as a result of the prospecting activities will be produced that needs to be treated on site. The general waste produced on-site will be contained in sealed refuse bins to be transported to the local municipal landfill site.

- As maintenance and servicing of the equipment will be done at an off-site workshop, the amount of hazardous waste to be produced at the site will be minimal and will mainly be as a result of accidental oil or diesel spillages.
- Contaminated soil will be removed to the depth of the spillage and contained in sealed bins until removed from site by a hazardous waste handling contractor to be disposed of at a registered hazardous waste handling site, more information will be discussed after the granting of the prospecting right.

5.2. 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.)

Prospecting is conducted in phases, where the activities and location of drilling and trenching to sample soil are dependent on the previous phase. Therefore, the specific locations and extent of soil sampling and diamond core drilling cannot be predetermined. Areas to be avoided in terms of sensitivities are also indicated on the sensitivity maps in this report. Positioning of invasive prospecting planned in the sensitive areas and buffer zones should be conducted with a suitably qualified ecologist in order to avoid and/or minimize the destruction of any sensitive vegetation or habitats occurring in these areas.

- **Details of all alternatives considered**

With reference to the site plan provided as 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.

The following alternatives were investigated as feasible alternatives:

- **The property on which or location where it is proposed to undertake the activity**

The proposed Prospecting Right Application on portions 1, 2 and the Remaining Extentof the Farm Stroomwater 96 JS situated in the Magisterial District of Thembisile Hani in the Mpumalanga Province. It is situated approximately 11,12 km eastern side of Mabusa natural reserves and 4.1 km west of Reitfontein. It is within Olifants Rivers which has its origin between Breyten and Bethal, Mpumalanga Province.It can be accessed via a gravel road that extents from the R544 national road, see Figure 1. There will be no site alternative considered because the geology of farm on portions 1, 2 and the Remaining Extent of the farm Stroomwater 96 JS is the desired location for the project.

- **The type of activity to be undertaken**

Main activity conducted to determine the Coal resources present in an economic feasible quality and quantity is drilling. The boreholes will be drilled using a diamond drilling method which will help the geologists to get a clear understanding of the actual subsurface setting of the lithologies. As outlined in the Prospecting Work Programme (PWP) all activities will be conducted in a phase approach whereby the execution of a new phase will depend on the results of the preceding phase. Prospecting activities will not compromise any future land uses on the study area as the applied activities are temporary.

- **The design or layout of the activity**

Since exploration is temporary in nature, no permanent structures will be constructed. Negotiations and agreements will be made with the farm owners to use any existing infrastructure like access roads, however there will be a construction of a road to reach the proposed boreholes, which does not trigger NEMA listing notice 1 activity 56.

Structures that will be available on site:

- Portable ablution facilities will be used.
- Activities will be limited to the drilling of 15 boreholes to be determined by the geological formations found during prospecting.
- It is planned to use one rig for all drill holes.
- Rehabilitation will be closely controlled, and supervision will be focused.
- No changes to the layout are considered but with the geophysical survey information, the boreholes can be orientated to match the shape of the good quality of resource.
- Buffer zones will apply to all sensitive areas on site and will be marked, ''No-Go Area''.

- **The technology to be used in the activity**

The PWP technologies were chosen because they have been shown to be effective in determining resource viability within the proposed prospecting area. Non-invasive prospecting techniques will include a literature search, field reconnaissance/mapping, and a geophysics survey of the geology and outcrops. Alternatives to intrusive technology were also considered. It is hereby stated that the various phases and timeframes of prospecting contemplated herein are, by definition, dependent on the results obtained during the preceding phases of prospecting. The proposals in the Prospecting Work Programme are thus based on the assumption that the results obtained in the preceding phases may necessitate reasonable changes and adaptations to such proposals, which will be reported as prescribed.

- **The option of not implementing the activity**

According to the Thembisile Hani IDP (2020-21), the occurrence of minerals in Thembisile Hani is very high in comparison to the other local municipalities within the Nkangala District. If prospecting activities are not carried out, information about mineral reserves present on the study area will be lost. If economically viable reserves exist on the study area but the applicant is unable to prospect, the opportunity to use the reserves for future coal mining will be lost, i.e., the minerals will be sterilised, and the associated socio-economic benefits will be lost.

Thembisile Hani has a much higher mineral abundance than the other local municipalities in the Nkangala District. The southwest regions include quite substantial refractory (flint) deposits. Boekenhoutskloofdrift, Roodepoort, Loopspruit, Nooitgedacht, and Blesbokfontein are among Thembisile Hani's active mines. The region's soil and geological formations are generally stable and do not pose any major development obstacles.

6. Details of the Public Participation Process Followed

A Public Participation Process is undertaken for the proposed prospecting right application. The process is undertaken to ensure compliance with regards to the requirements in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) [as amended] (MPRDA), the National Environmental Management Act, 1998 (Act No. 107 of 1998) [as amended], (NEMA), and Environmental Impact Assessment Regulations (2014) [as amended].

6.1. Activities undertaken for the Public Participation Process (PPP)

This section of the report provides an overview of the tasks undertaken for the PPP to date. All PPP undertaken is in accordance with the requirements of the NEMA requirements and EIA Regulations (2014) [as amended]. It further provides an outline of the next steps in the PPP and makes recommendations for tasks to be undertaken during the environmental assessment phase of the environmental authorization process.

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

- **Identification of key Interested and Affected Parties (affected and adjacent landowners) and other stakeholders (organs of state and other parties)**

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

The project timelines have been developed on the section below:

- **Announcement of the project**: Friday10 February 2023
- **Stakeholder engagement and consultation**: throughout the process of compiling the BAR & EMPr.
- **Review of Draft BAR & EMPr**: 13th of March 2023 to the14th April 2023.
- **Submission of BAR:** 16th of May 2023.

The benefits of the online stakeholder engagement platform include:

- Ability to create a dedicated project-specific online platform to enable easy access to project-related information.
- Ability to reach a wider audience, allowing more widespread consultation for major infrastructure projects.
- Allowing stakeholders and I&APs the opportunity to engage on a project without leaving their office or home.
- Enabling stakeholders and I&APs to register their interest in a project (for inclusion on the project database), and automatically gaining access to comprehensive project documentation.
- Enabling the EAP to maintain a complete database of I&APs through maintaining a record of persons accessing the online stakeholder consultation platform.
- Enabling the EAP and stakeholders/I&APs to meet virtually.

Engagement of I&APs was done through publishing of **newspaper**, **site notice**, **emails**, **one-on-one meeting,** and **phone calls**.

Newspaper

- Newspaper advertisement in both English and IsiZulu was published on Friday the 10th of February 2023, Middelburg observer.

Site notices

- To inform surrounding communities, landowners and adjacent landowners about the proposed development, site notices were erected on site, visible locations close to the site and the nearby community on Thursday 16th of February 2023, see Photo 1 for reference.

Face to face Consultation

- Thembisile Hani Public Library, Thembisile Hani Local Municipality, adjacent landowner and landowner.
- Site assessment was conducted on the 21st of February 2023, according to the Windeed search, portions 1, 2, and the remaining extent are owned by the National Government of the Republic of South Africa. During site assessment, we consulted with Mr. Rakwena, who is a lessee of the land from the government. Mr. Rakwena is the lessee for portions 1 and the remaining extent of the farm Stroomwater 96 JS.

- On portion 2 of the farm Stroomwater 96 JS, we consulted with the residents who were available at the time; they shared the contact details of Mr. Masango, and BIDs were shared with them. On Friday, February 24, 2023, we made contact with Mr Masango via phone. Mr. Masango stated that he is the lessee of all the portions that are in Stroomwater 96 JS, which are portions 1, 2, and the remaining extent.

- Adjacent farm Doornnek 88 JS, we consulted with the Makitla family who stated that they have no objections on the proposed project.

Ratepayer's gatekeeper a toothless old dog

Gerhard Rheeder

The council missed a golden opportunity to empower the Municipal Public Accounts Committee during last week's first ordinary council sitting, where the DA and ANC butted heads over the committee's terms of reference, limiting the committee's mandate to investigate financial irregularities within the municipality.

MPAC is a Section 79 council committee tasked with investigating financial irregularities, but the committee can presently only investigate matters referred to the committee by the council, other sub-committees and the municipal finance department.

The committee currently has no power to pick and choose investigations, leaving the committee toothless and unable to investigate burning issues like the procurement process followed in last year's appointment of PPP Protection and Security, who pocketed R1.2 million over three months to protect municipal employees and infrastructure from striking colleagues.

The amendments of MPAC's terms of reference were blocked by the ANC for a second time last week.

According to the ANC's Monty Phetla, important omissions were made in the amendments presented to the council on the agenda.

Cllr Phetla argued that the amendments, as it stood, were not rooted in existing legislation, and therefore improper to implement, and the terms of reference presented were modelled on the Nkangala District Municipality's public accounts committee.

The DA proposed that terms of reference be adopted, while the committee reserved the right to make future amendments through the council.

MPAC Chairman Hennie Niemann made an impassioned plea with fellow councillors to "strengthen the watchdog".

"We cannot request specific financial information, or departmental reports, to investigate and curb corruption and maladministration," Cllr Niemann said.

Later in the sitting, the EFF's Zandile Ngubeni again questioned the administration's reluctance to provide detailed information on PPP's appointment.

Cllr Ngubeni was, however, silenced by the DA's Palesa Mobango, who blamed the EFF's non-support for the MPAC amendments, which would have allowed MPAC to launch its own investigation into the security contract had the terms of reference been implemented.

"Had you done the right thing earlier, we would have had answers already," Cllr Mobango chastised the red beret.

DA councilor Hennie Niemann who serves as Chairman of the Municipal Public Accounts Committee, says the committee is currently toothless to investigate corruption, resulting in a series of strikes since September 2021.

Municipal Manager Mr Mandla Mnguni said detailed reports on the investigation into PPP's procurement could not be tabled due to the matter having been referred to MPAC. MPAC is, however, only privy to information provided, without powers to subpoena additional data.

Mr Mnguni said he'd call a special council sitting next month, where a full report on the investigation's findings up to now, will be tabled.

Cllr Ngubeni said he wanted "criminals locked up and the money back" in relation to the security contract.

Mr Niemann has requested members of MPAC to submit additional proposals for the item to be placed on a future council agenda.

Despite his opposition to the amendments as tabled, Cllr Phetla agreed that MPAC "needed muscle".

Municipality achieves clean audit

Gerhard Rheeder

Steve Tshwete Local Municipality received another clean audit, with an unqualified report, despite a number of findings which Speaker Thomas Mpye said should have been picked up by the authority's internal audit committee and municipal risk assessment.

The Auditor General's office tabled the report during Tuesday's first ordinary sitting for 2023.

The EFF and MHRF wanted more clarity on the findings which suggested that municipal minders did not comply with the submission of financial statements as required.

MMC for Infrastructure, Councillor Marumo Sekgwele, who stood in for Mayor Mhlonishwa Masilela yet again, reminded councillors that the municipality had to function under extreme circumstances with ongoing labour strikes from June 2021 to the end of June 2022.

During the strikes, the municipality was shut down by rampaging employees, resulting in management not being able to access municipal buildings and equipment.

Acting Mayor Sekgwele said the "abnormal circumstances" municipal management was forced to work under, resulted in the lack of compliance.

Speaker Thomas Mpye, however, lauded management for achieving a 98 per cent spending rate on the 2021/2022 budget, with the municipality obtaining a further 73 per cent achievement on service and infrastructure output targets.

Speaker Mpye said that while its true that the municipality was flagged for compliance and internal control issues, municipal management has stepped up considerably to achieve the abovementioned goals.

According to the AG report, financial statements were presented fairly, as did the municipality's financial position alongside its financial performances and cash flows for the year under review.

Matters that were flagged included the material impairment of receivables from non-exchange transactions on traffic fines and property rates of R102 million, which was incurred as a result of an impairment provision for doubtful debts.

Material impairments of receivables from exchange transactions to the value of R83 million was also incurred.

The AG further flagged internal control deficiencies, reporting that management did not exercise its oversight responsibility regarding financial statements, as material misstatements were identified during the audit.

"Management did not prepare accurate and complete financial statements as evidenced by material misstatements," the report says.

'n Jaar sonder lopende water

Sjani Campher

Inwoners van die Belfast industriële gebied het 'n jaar laas water in hulle krane gehad.

Die probleem het 'n eenvoudige oplossing waaraan die Emakhazeni Munisipaliteit homself nie aan wil steur nie sê plaaslike sakeman, Manie le Roux.

Mnr. Le Roux sê dat die pomp wat water moet pomp na die industriële gebied vir langer as 'n jaar buitewerking is, en eerder as wat die munisipaliteit dit herstel, ry hulle eerder water aan waarvan die swaar industrie gebruik moet maak.

Sy onderneming, H & H Truck and Trailer Repairs, het intussen so swaar gekry dat hy 12 van sy werkers moes laat gaan.

"Die probleem het al so vererger dat ek my geiser afgesit het en 'n donkie gebou sodat ons net warm water kan gebruik."

Hy vertel dat die munisipaliteit water aanry elke tweede dag wat dan die hele industriële gebied moet voorsien, maar dat sy eie onderneming, waar hy en sy gesin ook woon, dikwels sonder water sit.

"Die water is teen die middag al opgebruik omdat minstens nege fabrieke daarvan moet gebruik maak. Daar is tye wat ek en my gesin nie eers hande kan was of bad nie."

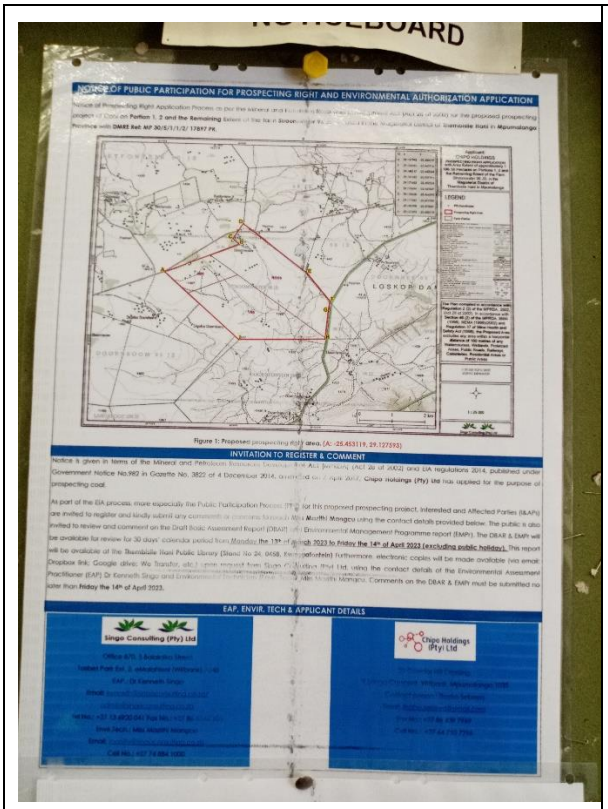
Wat mnr. Le Roux die meeste frustreer is dat hy al 12 keer gaan kla het by die munisipaliteit maar dat niks aan die probleem gedoen word nie.

"Die departement van water smeer hulle aan my af! Ek het selfs met die munisipale bestuurder gesels wat summier vir my vertel het dat dit nie sy probleem is nie en dat hulle watertankers voorsien!"

• Die *Middelburg Observer* het al verskeie kere oor die wateronderbrekings berig, en op een geleentheid het die munisipale bestuurder, mnr. George Mthimunye, ontken dat daar enige probleme was.

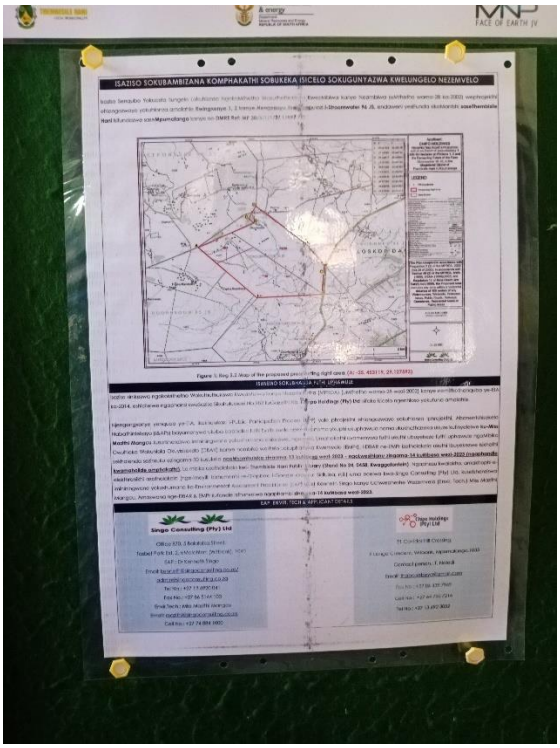
• Verskeie pogings om die Emakhazeni Munisipaliteit te nader vir kommentaar was onsuksesvol.

Figure 12: Published newspaper



Thembisile Hani Local Municipality

Adjacent farm



Thembisile Hani Public Library

S 25. 308756^0, E 28. 946577^0

Farm boundary

Photo 1: Notice placed on public areas

6.1 List of Authorities Identified and Notified

The following authorities, stakeholders altogether with the landowners have been identified and notified of the proposed Prospecting Right project:

- Thembisile Hani Public Library.
- Thembisile Hani Local Municipality.
- Mpumalanga Department of Rural, Environmental and Agricultural Development.
- Mpumalanga Department of Water and Sanitation.
- Mpumalanga Department of Agriculture.
- Mpumalanga Department of Rural Development and Land Reform.
- Mpumalanga Department of Agriculture, Forestry and Fisheries.
- National Department of Environmental Affairs.
- South African National Roads Agency Ltd (SANRAL).
- Eskom SOC Limited.
- TRANSNET.
- Mpumalanga Tourism and Parks Agency (MTPA)
- Biodiversity Mainstreaming EIA: Department of Forestry, Fisheries and the Environment
- Landowners
- Adjacent landowners

Summary of issues raised by I&APs

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

Table 10: summary of issues raised

Interested and Affected Parties **List the names of persons consulted in this column, and who must be consulted were in fact consulted**		**Date Comments Received**	**Issued 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**
Landowner					
Stroomwater 96 JS farm **National Government of the Republic of South Africa** Email	**X**		• No issues raised yet	• Consultation email together with a BID were sent.	Refer to appendix 26
Adjacent Landowner					

Interested and Affected Parties List the names of persons consulted in this column, and who must be consulted were in fact consulted		Date Comments Received	Issued 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
Doornnek Farm Plot 88 JS ☐	**X**	21st of February 2023	• We have no objection on the proposed project, this is an opportunity for our youth to get jobs.	• Face to face consultation and BID was shared.	
Local Municipality					
	**X**	22/02/2023	• No issues raised, yet	• Consultation email together with a BID was shared.	Refer to appendix 17

Interested and Affected Parties List the names of persons consulted in this column, and who must be consulted were in fact consulted		Date Comments Received	Issued 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
SAHRA					
	**x**		• No issues raised yet	• Online application was submitted with a BID. • 25th of February 2023. (online application)	
Thembisile Hani Public Library	**X**		• No issues raised	• BIDs were given to the librarian.	

Interested and Affected Parties List the names of persons consulted in this column, and who must be consulted were in fact consulted		Date Comments Received	Issued 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
SANRAL SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD BUILDING SOUTH AFRICA THROUGH BETTER ROADS Email:			• No issues raised, yet	• Consultation email together with a BID were sent.	Refer to appendix 24
Eskom Email:	X		• No issues raised, yet	• Consultation email together with a BID were sent.	Refer to appendix 22
agriculture, land reform & rural development Department: Agriculture, Land Reform and Rural Development REPUBLIC OF SOUTH AFRICA Email	X		• No issues raised, yet	• Consultation email together with a BID were sent.	Refer to appendix 20

Interested and Affected Parties List the names of persons consulted in this column, and who must be consulted were in fact consulted		Date Comments Received	Issued 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
water & sanitation Department: Water and Sanitation REPUBLIC OF SOUTH AFRICA Email:	x	14/02/2023	• This project has a potential to pollute the water resource.	• Consultation email together with a BID were sent.	Refer to appendix 19
environmental affairs Department: Environmental Affairs REPUBLIC OF SOUTH AFRICA Email:	X	30/03/2023	• Please share the application site with the case officers.	• Consultation email together with a BID were sent.	Refer to appendix 21
agriculture, forestry & fisheries Department: Agriculture, Forestry and Fisheries REPUBLIC OF SOUTH AFRICA Email:	X		• No issues raised, yet	• Consultation email together with a BID were sent.	Refer to appendix 25

Interested and Affected Parties List the names of persons consulted in this column, and who must be consulted were in fact consulted		Date Comments Received	Issued 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
Mpumalanga TOURISM AND PARKS AGENCY Email	X		• No issues raised, yet	• Sensitive maps were requested.	Refer to appendix 27
TRANSNET Email:	X		• No issues raised, yet	• Consultation email together with a BID were sent.	Refer to appendix 23

Interested and Affected Parties List the names of persons consulted in this column, and who must be consulted were in fact consulted		Date Comments Received	Issued 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
 Email		13/02/2023	• Sasol has no interest in this area.	• Consultation email together with a BID were sent.	Refer to appendix 18

7. The Environmental attributes associated with alternatives

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

7.1 Baseline Environment

7.1.1. Locality

The proposed Prospecting Right Application on portions 1, 2 and the Remaining Extent of the Farm Stroomwater 96 JS situated in the Magisterial District of Thembisile Hani in Mpumalanga Province. It is within Olifants Rivers which has its origin between Breyten and Bethal, Mpumalanga Province. It is situated approximately 11,12 km eastern side of Mabusa natural reserves and 4.1 km west of Reitfontein. It can be accessed via a gravel road that extents from the R544 national road.

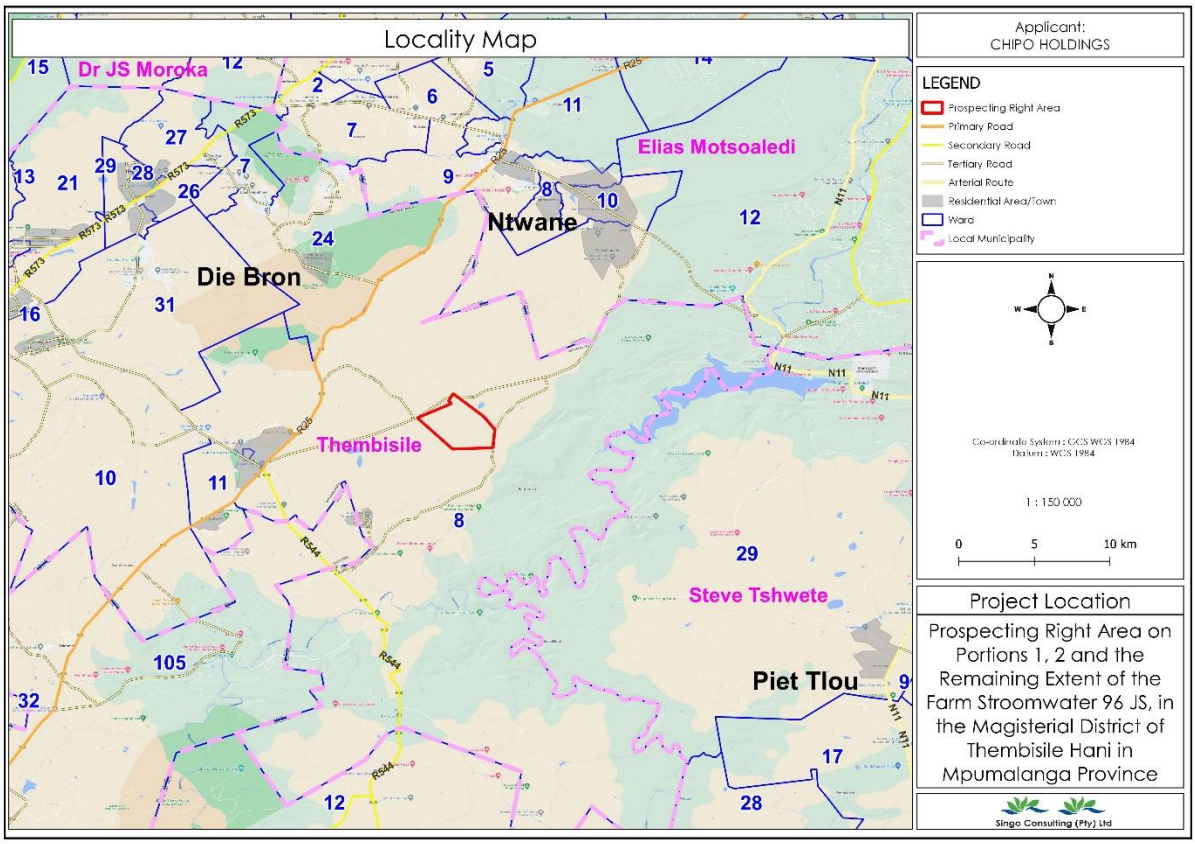


Figure 13: Locality map of study area (Singo Consulting (Pty) Ltd, 2023)

Type of environment affected by the proposed activity.

(It's current geographical, physical, biological, socio- economic, and cultural character)

7.1.2. Topography

The topology of the area is illustrated below by Figure 14 below. A Topographic map is a map which indicates, to scale, the natural features of the Earth's surface, as well as human features, with features at the correct relationship to each other (Oxford Dictionary; 2020). The topography map other than showing landform features, rivers, and associated water resources, it also shows the height above sea level with the use of contour lines. Contour lines are an Imaginary line on the ground surface joining the points of equal elevation. 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.

The area is defined by a gentle slope with elevation ranging from 1320 to 1440 mm. As evidenced by the contours on the Topographic map, the movement and direction of the rivers is from an area of higher elevation to an area of lower elevation, elevation decrease from north towards the south as seen on Figure 14. The highest point in the study is in the northern direction, with an elevation of 1440 mamsl. The non-perennial river which occupies most of the remaining extent of the farm. The slope of the study area is considered to be gentle; the study area is characterized by gentle sloping, an elevation ranging between 620- 640 mamsl covers most of the study area. There is gradual change of elevation with larger area covered. Slope influences the movement of liquid contaminants such as hydrocarbons and wastewater from drill rig, in essence this also decreases the residence time of the contaminants which decreases the likelihood of aquifer contamination.

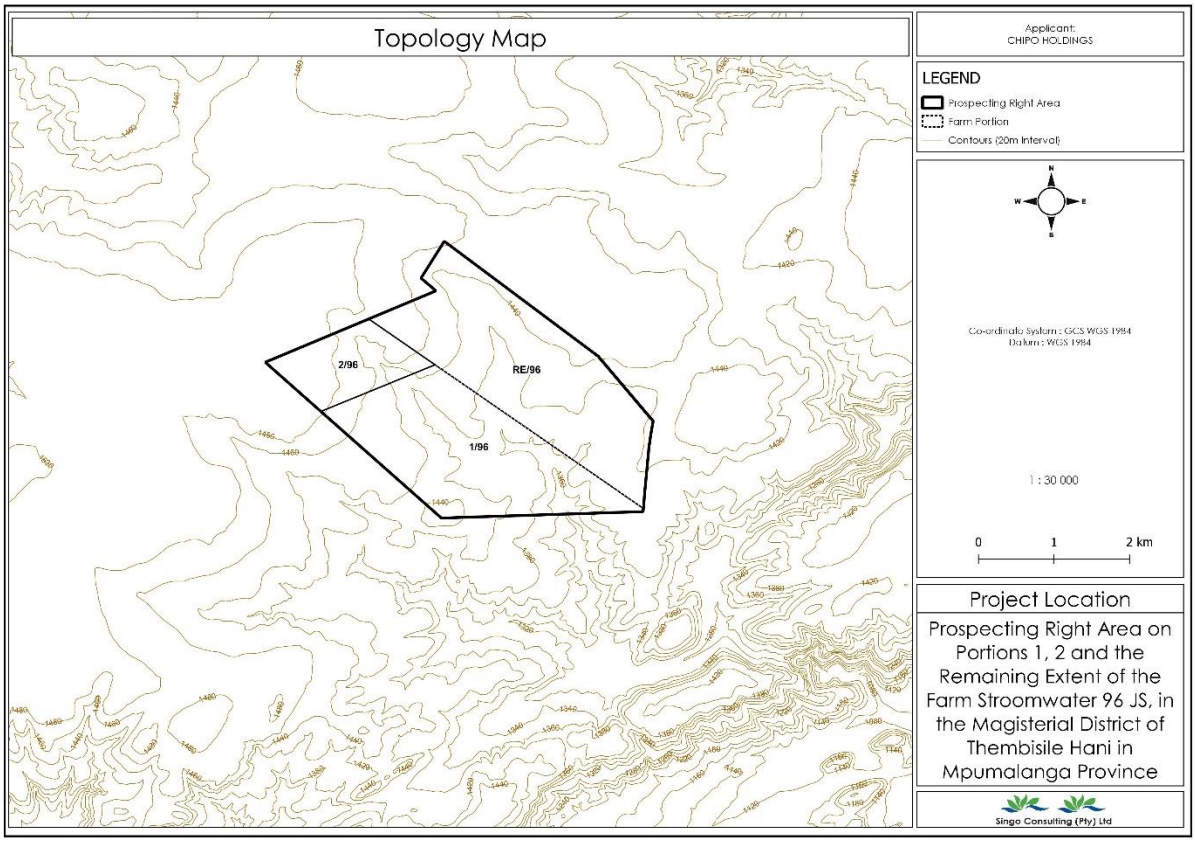


Figure 14: Topography map of study area (Singo Consulting (Pty) Ltd, 2023)

7.1.3. Geology

Witbank Coalfield

The Witbank Coalfield extends from Brakpan in the west through to Belfast in the east. The northern boundary is a very irregular sub-crop against the pre-Karoo basement rocks of predominantly Waterberg sandstones with the most northerly limit about 15km NW of Witbank, with many "inlets" to the east and west. The south boundary is a prominent pre-Karoo felsite contact called the Smithfield ridge. This basin was first exploited in the late 1800s in the Brakpan (Apex Mines) region and has been the focus of concerted exploration and exploitation ever since. The basin is a multiple seam deposit type with the development of five major seam horizons which may in places be composite seams. The major controls for the development of the coal are proximity to undulations of the "basement" topography, through erosion channelling and sediment influx into swamp beds and finally erosion of the current erosion surface. The primary economic coal seams have been the No. 2 Seam and No. 4 Lower Seam and, in places, the No. 5 Seam. Structurally, the coal horizons are un-deformed with each displaying a very slight dip to the south east of less than a degree and minor discrete faulting events that have a south west to north east trend of graben features and other minor faulting events. The most distinctive post-depositional feature is the intrusion of dolerites related to the Lesotho Basalts that have resulted in a variety of sills and dykes of various ages. The most prominent of the dykes is the Ogies dyke, a 12 to 20m thick essentially vertical intrusion with an east-west strike. The No. 4 Dolerite sill, a 20 to 70m thick multiple flow event, has a preferential intrusion horizon above the No. 5 coal Seam, but in places it transgresses through the coal bearing strata to the pre-Karoo basement and forms in other places a barrier to erosion.

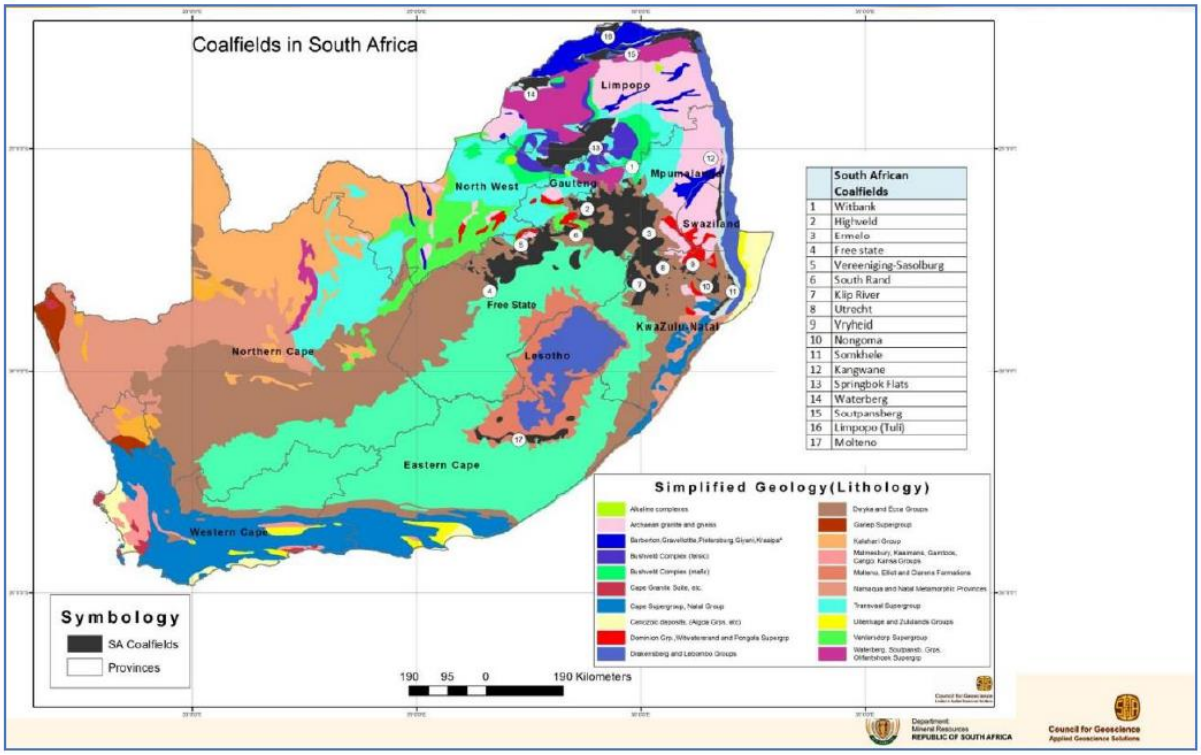


Figure 15: Coal field of South Africa (adopted from Hancox and Gotz, 2014).

7.1.3.1. Local Geology

Schrikkloof Formation

According to the PWP, the Schrikkloof Formation is made up of both massive and flow-banded felsite, with the latter being more prevalent. To distinguish the two formations, an agglomerate/volcanic breccia was utilised as a marker along the base of the Schrikkloof Formation. The felsite is typically red to pale brown, but black variations are frequently encountered. The flow-banding in felsite does not exhibit contortion. The felsite is interbedded with tuft, agglomerate, lapilli tuft, and sandstone lenses. Rhodes (1972, personal communication) observed significant lenses at Loskop Dam formed by the sandstone, which is not well developed in this area.

The Schrikkloof Formation's lithostratigraphic variability indicates a more complicated eruptive history than the relatively homogenous Kwaggasnek Formation. The presence of the Rust de Winter component at the summit of the Schrikkloof Formation

distinguishes it locally. The latter is made up of many tuff flows, quartzite, agglomerate, and rhyolite.

Kwaggasnek Formation

The PWP states clearly that, the Kwaggasnek formation forms part of the upper Rooiberg Group in the Western Transvaal Supergroup and its status is assigned due to the complexity of the lithology and the magma type. Massive, seemingly homogeneous rhyodacites and rhyolites of between 1500 m to 2500 m thickness dominate the Kwaggasnek Formation, forming the lower part of the upper Rooiberg Group. (De Bruiyn, 1980). The Kwaggasnek formation comprises of the Union Tin Member and consists of the agglomerate and shale horizon found above the quartzite xenoliths and it is characterised by massive dark red, dark brown to black rhyolite. The rhyolite is often vesicular as well as porphyritic with plagioclase feldspar phenocrysts typically 2 mm in size. It shows a more massive nature compared to the more flow-banded upper Schrikkloof Formation which overlies the Kwaggasnek formation, which is capped by a volcanic tuff horizon. (R.H Bailie, 1997).

The Strubenkop Formation

In accordance with the PWP, the Strubenkop Formation is predominantly composed of iron-rich shales and ironstones, some of which are oolitic in nature (Button, 1974; Reczko and others, 1995). There is no datable horizon in any formation. Within the Pretoria Group, the Machadodorp Volcanic Member of the Silverton Formation is stratigraphically above the Hekpoort Formation (Button, 1979; Reczko and others, 1995). There are no absolute age determinations for these lavas that have been reported. The Rooiberg Group felsic volcanic rocks unconformably overlie the Pretoria Group (Cheney and de la R. Winter, 1995; Cheney and Twist, 1991; Schweitzer and Hatton, 1995) and have been dated at 2.0610.002 Ga using the single-grain zircon Pb-evaporation technique (Walraven, 1997). As a result, the Hekpoort paleosols developed between 2.245 and 2.059 Ga.

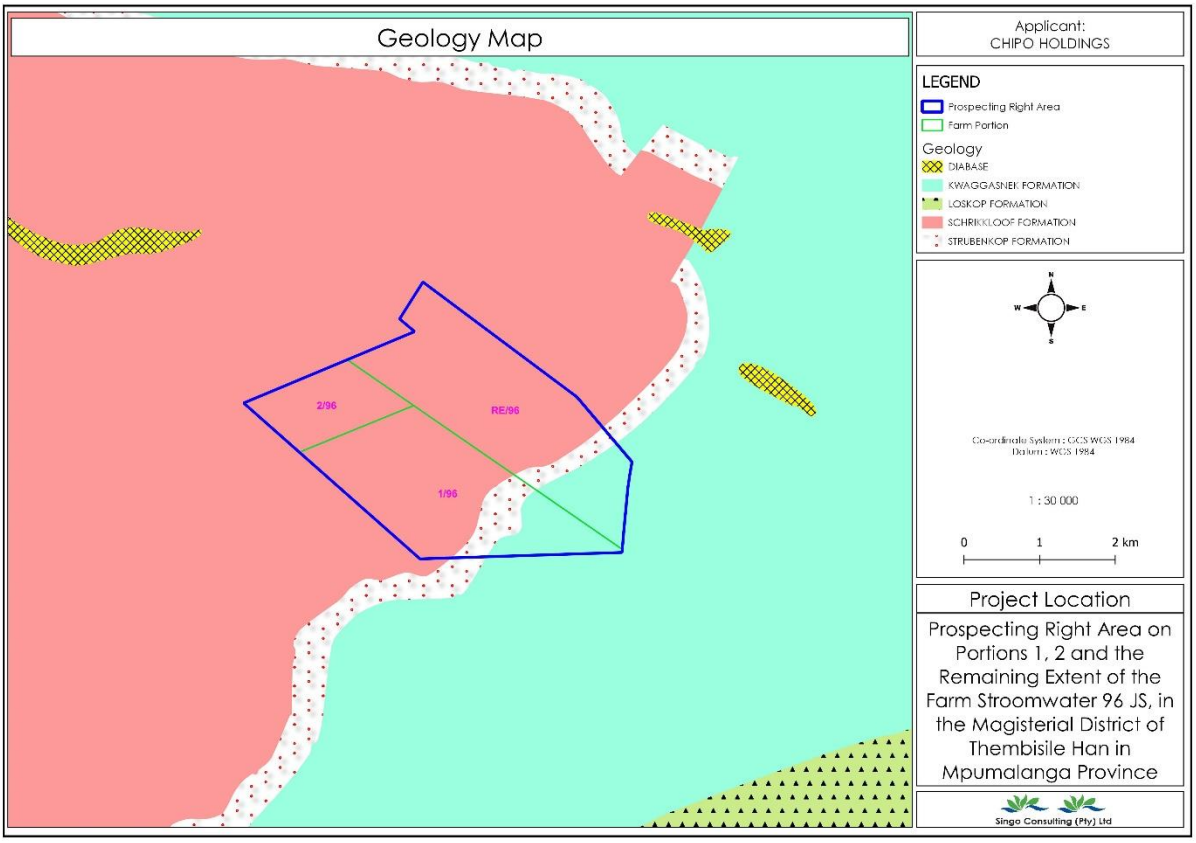


Figure 16: Geology map of the project area (Singo Consulting (Pty) Ltd, 2023)

7.1.4. Soil classes of the project area

The soil classes map in Figure 4 below, shows that the prospecting right area is largely covered with the association of classes 1 to 4: Undifferentiated structureless soils and association of Classes 1 to 4: undifferentiated structure less soils in the south west, respectively. These soil types can further be defined based on their soil depth, Soil Drainage, erodibility and natural fertility.

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, through and out of the soil because of the force of gravity. The soils in the proposed area have 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. Classes 1 to 4: Undifferentiated 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 and association of Classes 1 to 4: undifferentiated structure less soils.

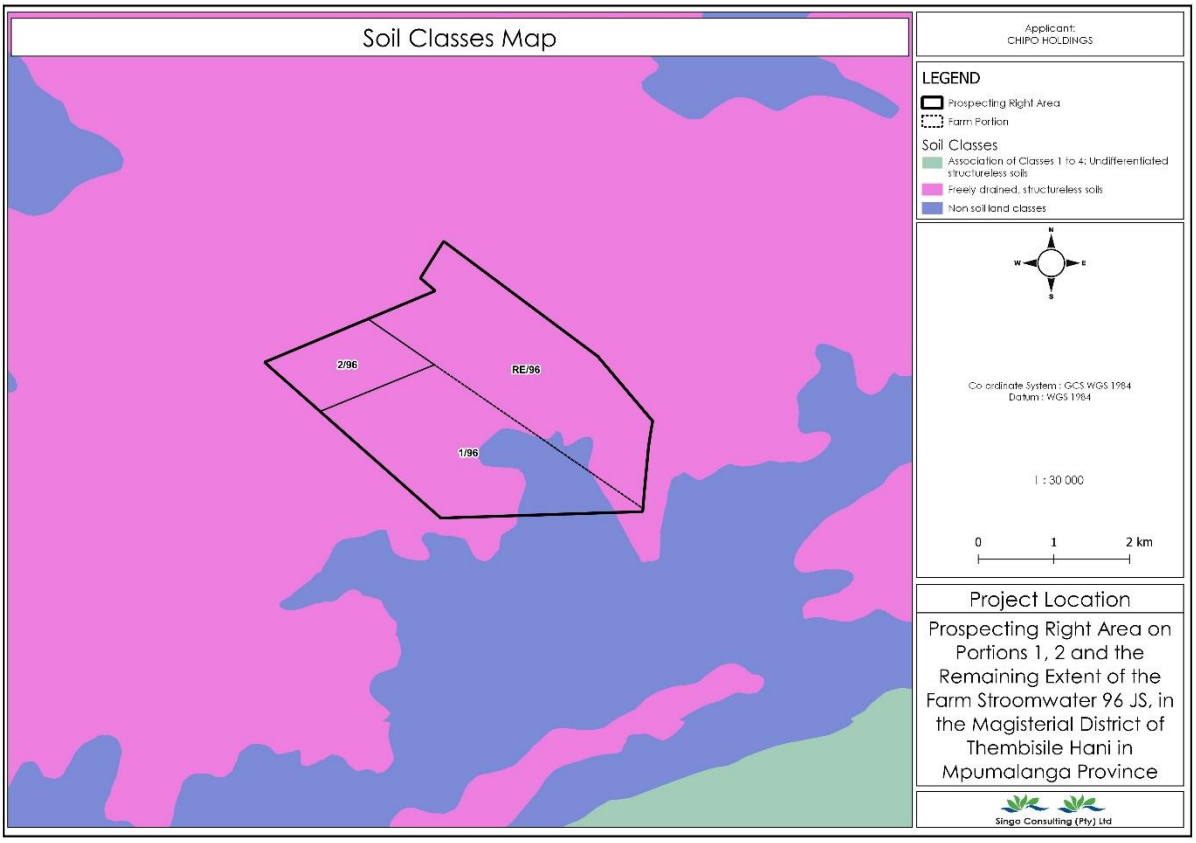


Figure 17: Soil classes map of the study area (Singo Consulting (Pty) Ltd, 2023)

Photo 2: Soil observed on site

7.1.5. Climate

Climate is the state of the atmosphere over long time periods, such as over years, decades, centuries or greater and weather is defined as atmospheric conditions of an area over a short period of time (Naomi, 2004). Climate for the purpose of the study is chosen based on the fact that it does not change over a long period of time whereas weather conditions fluctuate more rapidly, and its data cannot be relied upon.

The climate in Thembisile Hani in Middelburg is warm and temperate, and the Köppen-Geiger climate classification is Cwb. The average annual temperature in Thembisile Hani is 14.7 °C. The average rainfall of Thembisile Hani is between 601 - 800 mm. June and July are the driest months of the year, with 7 mm of precipitation. December gets most of the rainfall with an average 172 mm. With an average of 27.0 °C, December is the warmest month. July is the coldest month, with temperatures averaging 5.0 °C.

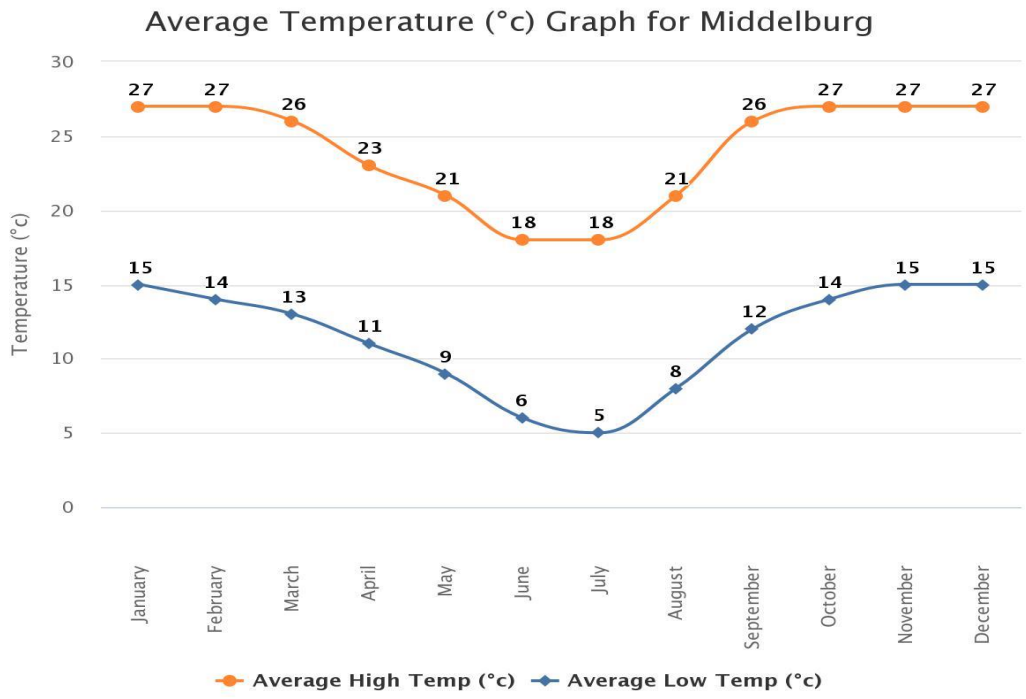


Figure 20: Temperature (High and Low) at Thembisile Hani Local Municipality

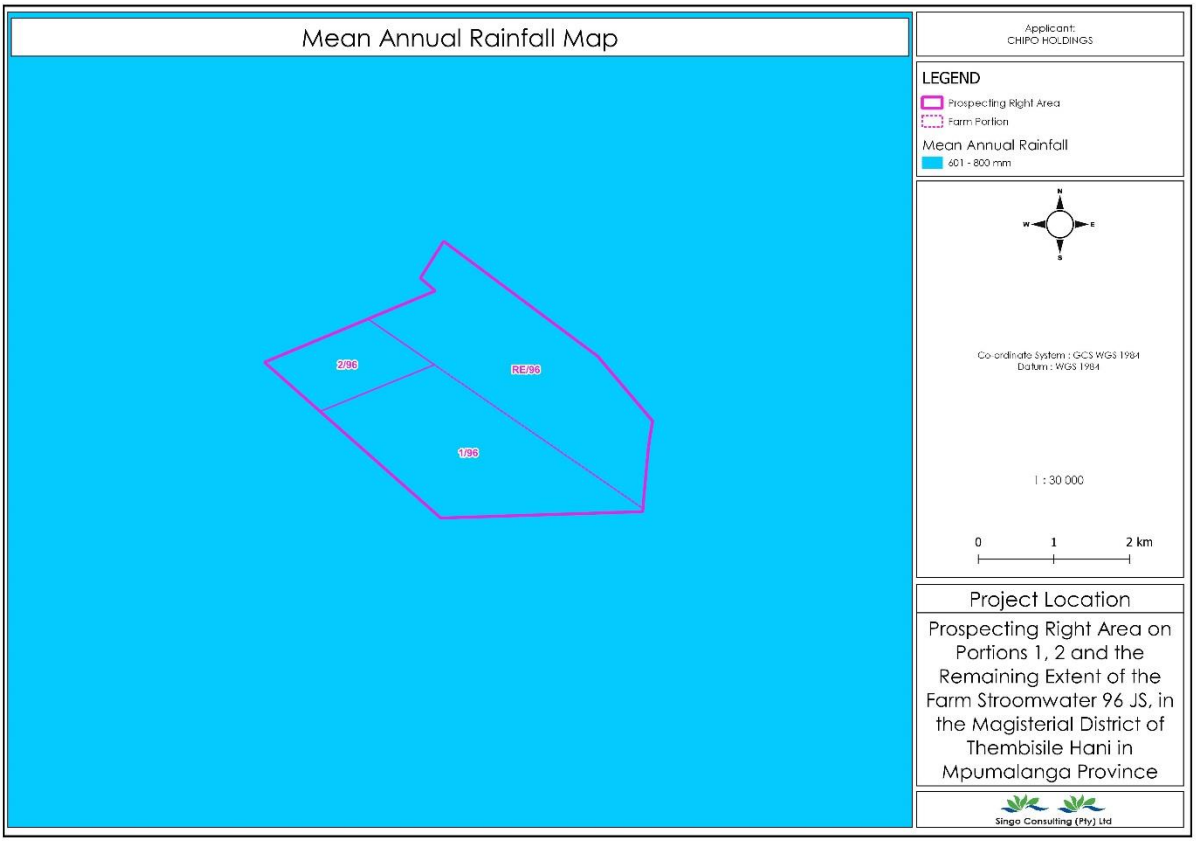


Figure 18: Mean annual rainfall (Singo Consulting (Pty) Ltd, 2023)

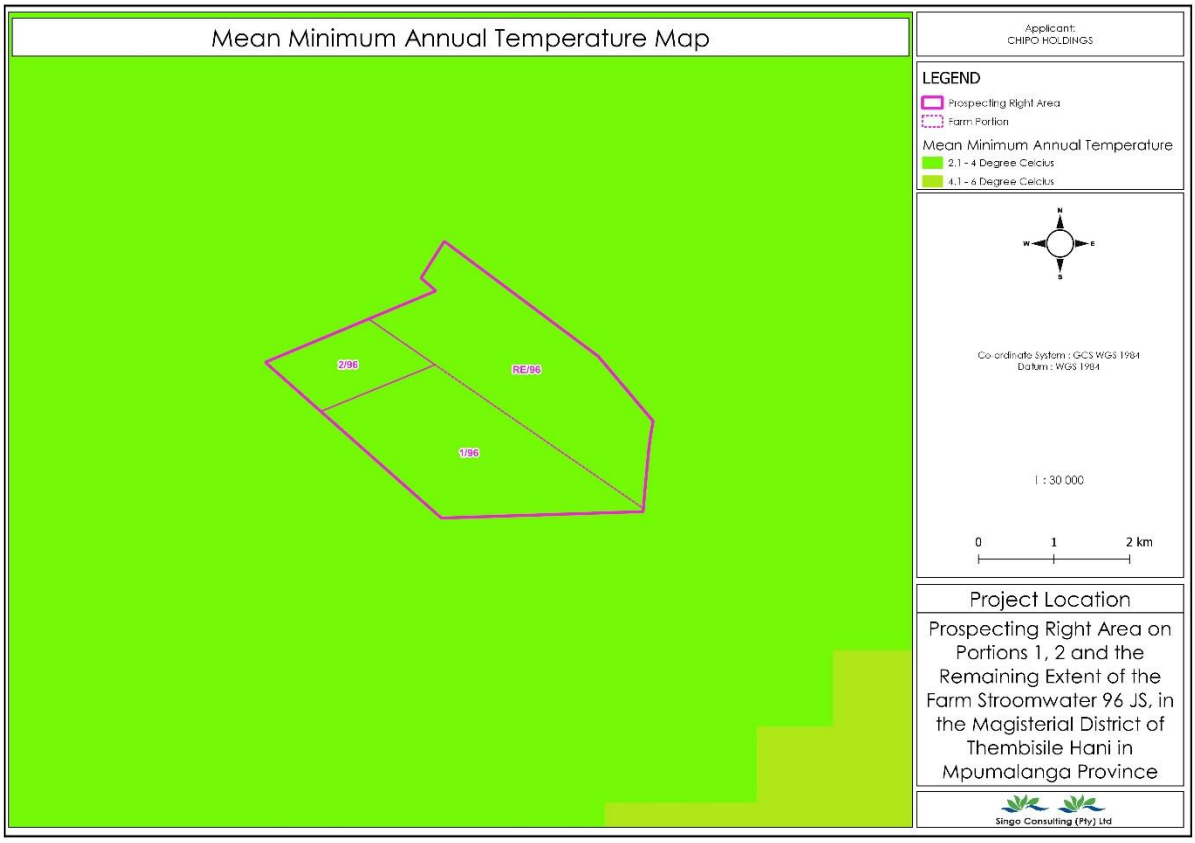


Figure 19: Mean annual temperature (Singo Consulting (Pty) Ltd, 2023).

7.1.6. Catchment description

South Africa's water resources are divided into quaternary catchments, which are the country's primary water management units (DWAF 2011). In a hierarchical classification system, a quaternary catchment is a fourth order catchment below the primary catchments. The primary drainages are further classified as Water Management Areas (WMA) and Catchment Management Agencies (CMA). In accordance with Section 5 subsection 5(1) of the National Water Act, 1998, the Department of Water and Sanitation (DWS) has established nine WMAs and nine CMAs as outlined in the National Water Resource Strategy 2 (2013). (Act No. 36 of 1998). The purpose of establishing these WMAs and CMAs is to improve water governance in various regions of the country, ensuring a fair and equal distribution of the Nation's water resources while ensuring resource quality is maintained.

The study area falls within the Olifants Water Management Area (WMA) as shown on Figure 20. The quaternary catchment is B32A. The WRC 2012 study, presents hydrological parameters for each quaternary catchment including area, mean annual precipitation (MAP) and mean annual runoff (MAR).

Table 11: Quaternary information data

Quaternary Catchment	Water Management Area	S-Pan Evaporation		Rainfall		
		Evaporation Zone	MAE (mm)	Rainfall Zone	MAP (mm)	Catchment Area
B32A	Olifants water management	4A	1400	B1A	366	4312

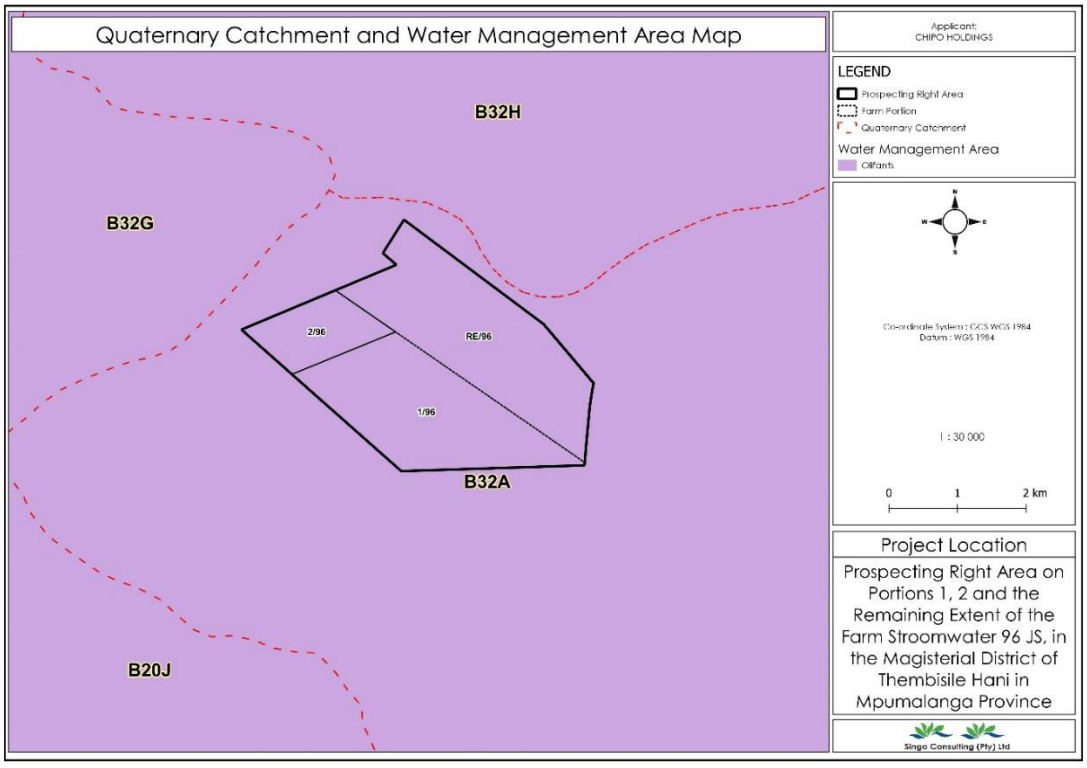


Figure 20: Quaternary catchment and water management areas of the study area (Singo Consulting (Pty) Ltd, 2023)

7.1.7. Surface water

The water surrounding the proposed area is of vital importance as well. 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. The hydrology map, illustrates that the following water bodies exists within and nearby the project area:

- Channelled Valley Bottom wetland.
- Depression.

Channelled valley bottom wetlands are linear fluvial, net depositional valley bottom surfaces which have a straight channel with flow on a permanent, seasonal, or ephemeral/episodic basis (Rountree, Todd, Kleynhans, et al, 2007: iv). Seep wetlands are defined as wetlands that occur in area where the groundwater reaches the surface.

The hydrology of the study area shows the presence of water bodies. Once identified, before the project commences, the designing of the area will be influenced by the nearby waterbodies.

These nearby water bodies which include seep, channeled valley bottom and non-perennial river also play a vital role in groundwater recharge in that area. There will be procedures and guidelines put in place for this project to avoid the risk of water contamination through nearby waterbodies, 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 on the buffer map, a 100m buffer will be applied around the water bodies present within the prospecting right area.

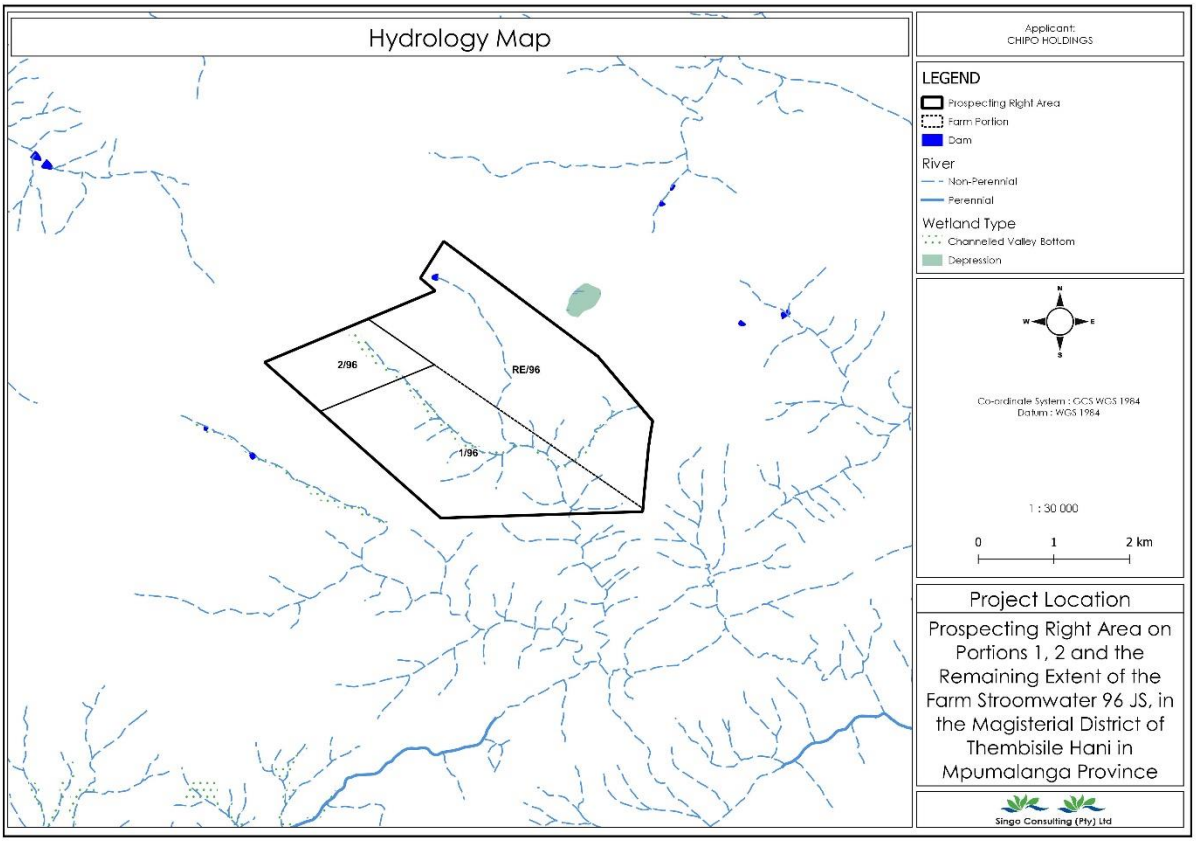


Figure 21: Hydrology map of the study area (Singo Consulting (Pty) Ltd, 2023).

Buffer Zones

During the prospecting right activities which will include, logging, sampling, mapping, and drilling. Caution must be taken with regards to the water bodies existing within the proposed project area. This includes the implementation of buffer zones. Buffer zones as depicted by the map will be the areas where the prospecting team will be notified not to conduct any activities within the depicted 100m radius from the water bodies which include Olifants river, refer to Figure 22 below.

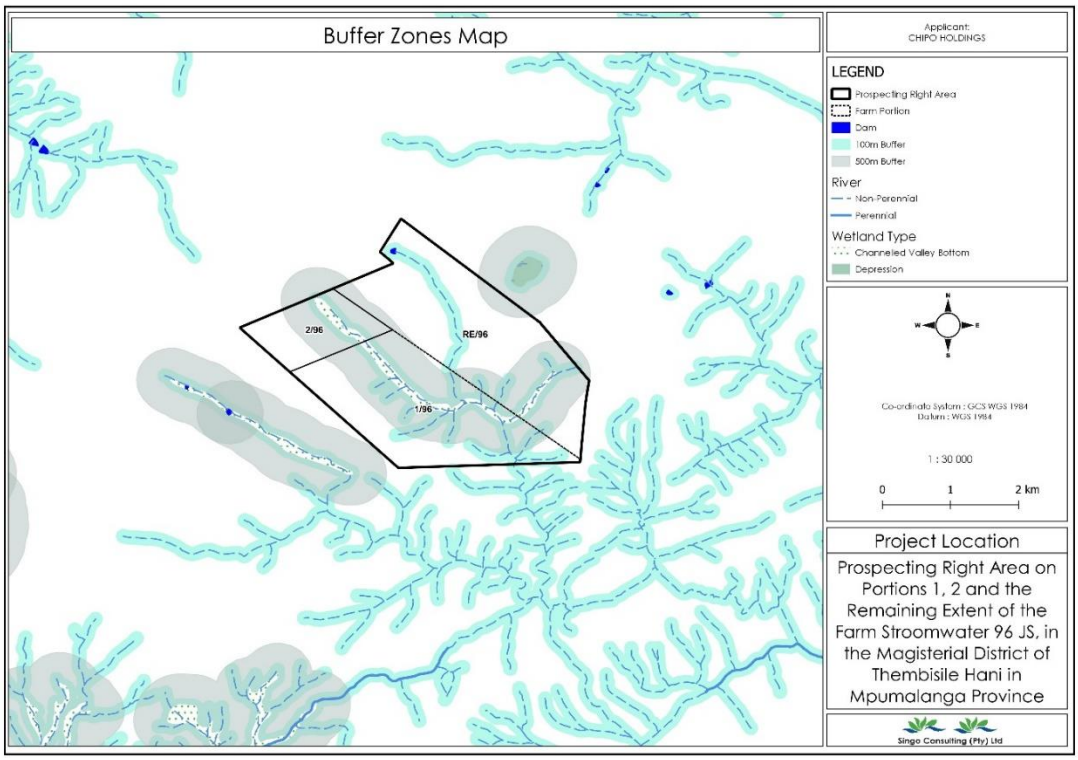


Figure 22: Buffer zone map (Singo Consulting (Pty) Ltd, 2023)

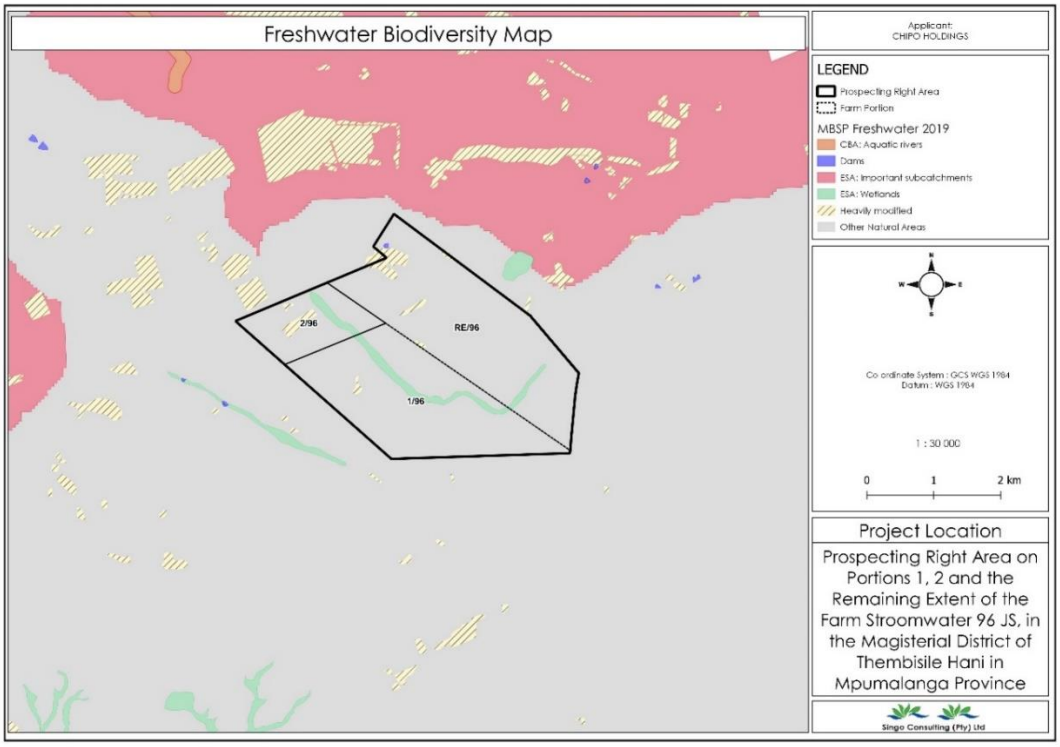


Figure 23: Biodiversity map of the study area (Singo Consulting (Pty) Ltd, 2023)

The map below in Figure 24 terrestrial biodiversity of the area, it is confirmed that the prospecting area is situated in Heavily modified, CBA irreplaceable, CBA Optimal and ESA Protected Area. All the Wetlands and estuaries are regarded as very highly sensitive by the screening tool, a 100 m and 500m buffer will be implemented and will be regarded as no go zone areas, therefore the applicant will be advised to use existing roads on site and also the temporary roads that will be created to avoid unnecessary clearance of vegetation and contamination of wetlands and estuaries.

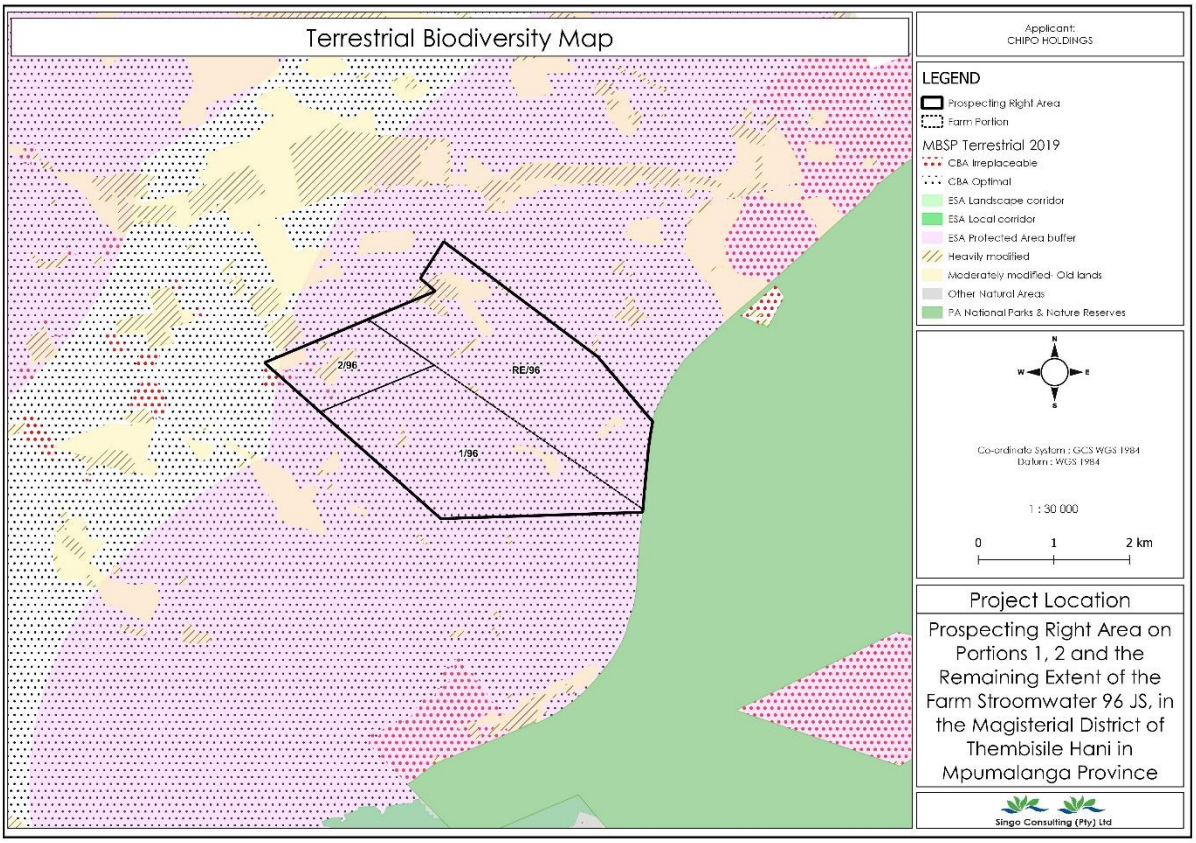


Figure 24: Biodiversity map of the study area (Singo Consulting (Pty) Ltd, 2023)

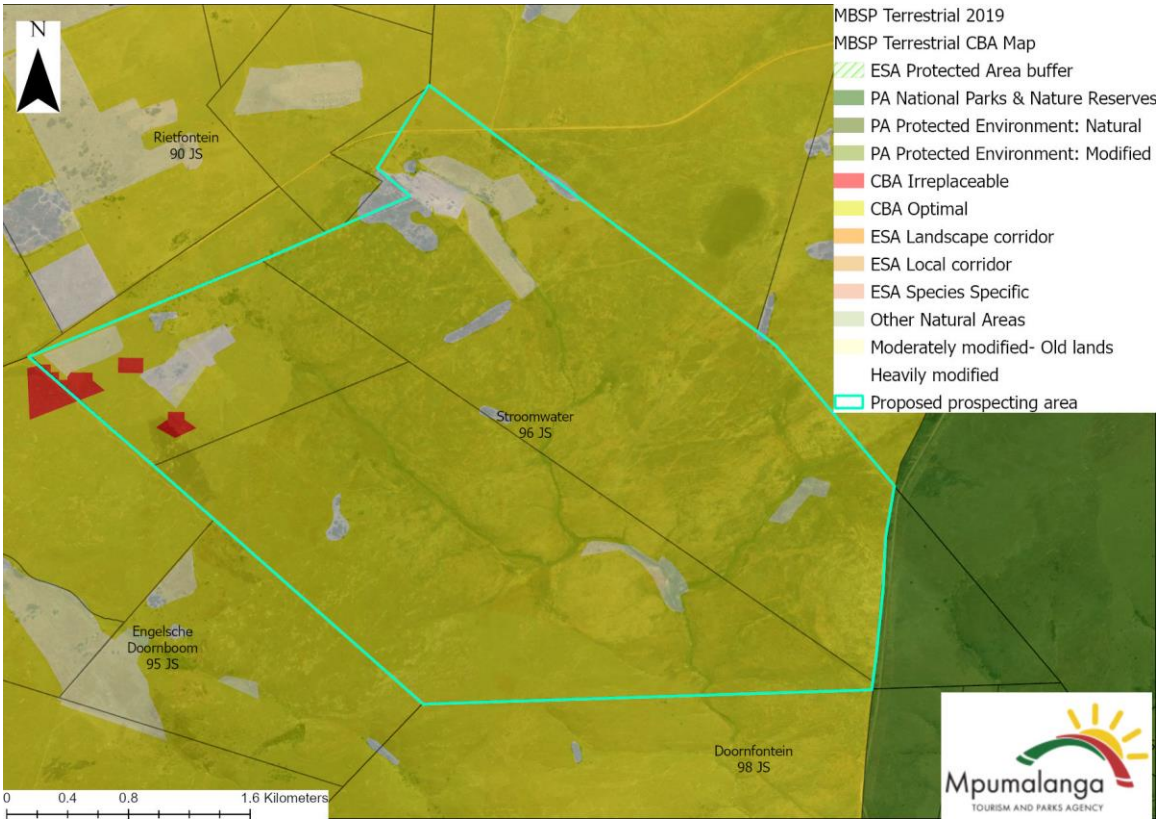


Figure 25: MBSP Terrestrial CBA Map(MTPA, 2023)

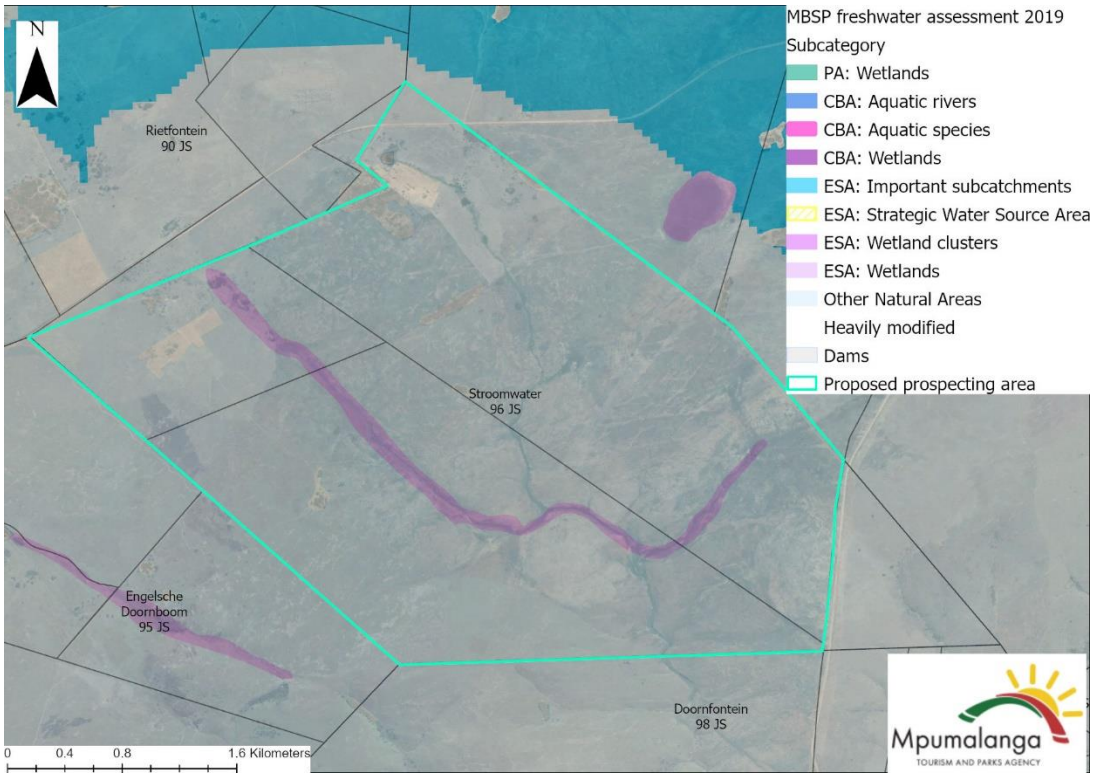
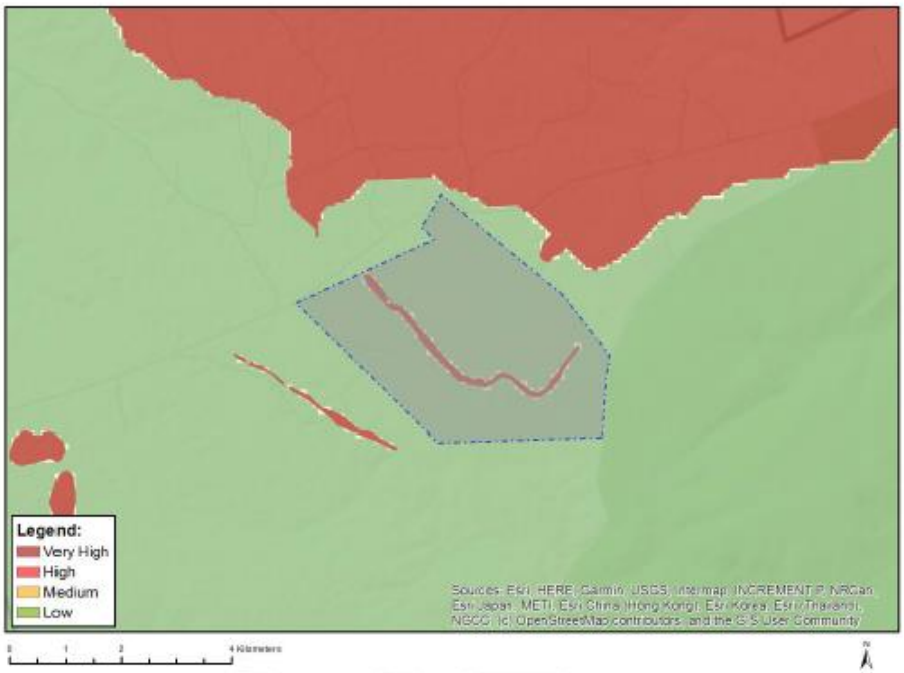


Figure 26: Freshwater Assessment Map (Singo Consulting (Pty) Ltd, 2023)

AQUATIC BIODIVERSITY THEME SENSITIVITY

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity
Very High	Wetlands and Estuaries

Figure 27: Aquatic biodiversity sensitivity map (Screening Report, 2023).

Vegetation and Biomes

The area is characterized as a Savanna Biome, a vegetation type that grows under hot, seasonally dry climatic conditions and is characterized by an open tree canopy (scattered trees) above a continuous tall grass. Refer to Figure 28 below. 99,9% of the proposed area consists of Savannah characteristics as seen during a site assessment. Figure 28 shows the Vegetation of the area which is classified as Mixed Bushveld.

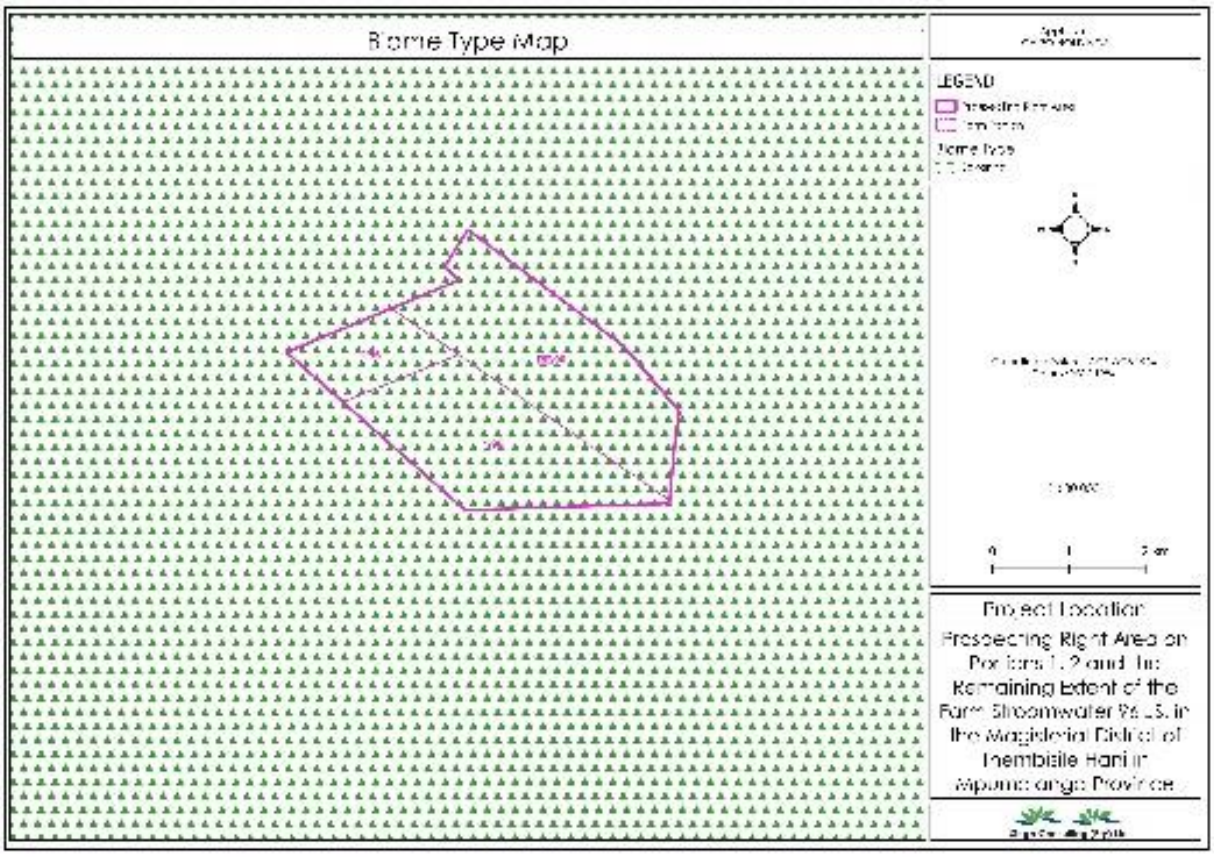


Figure 28: Biome type map of study area (Singo Consulting (Pty) Ltd, 2023)

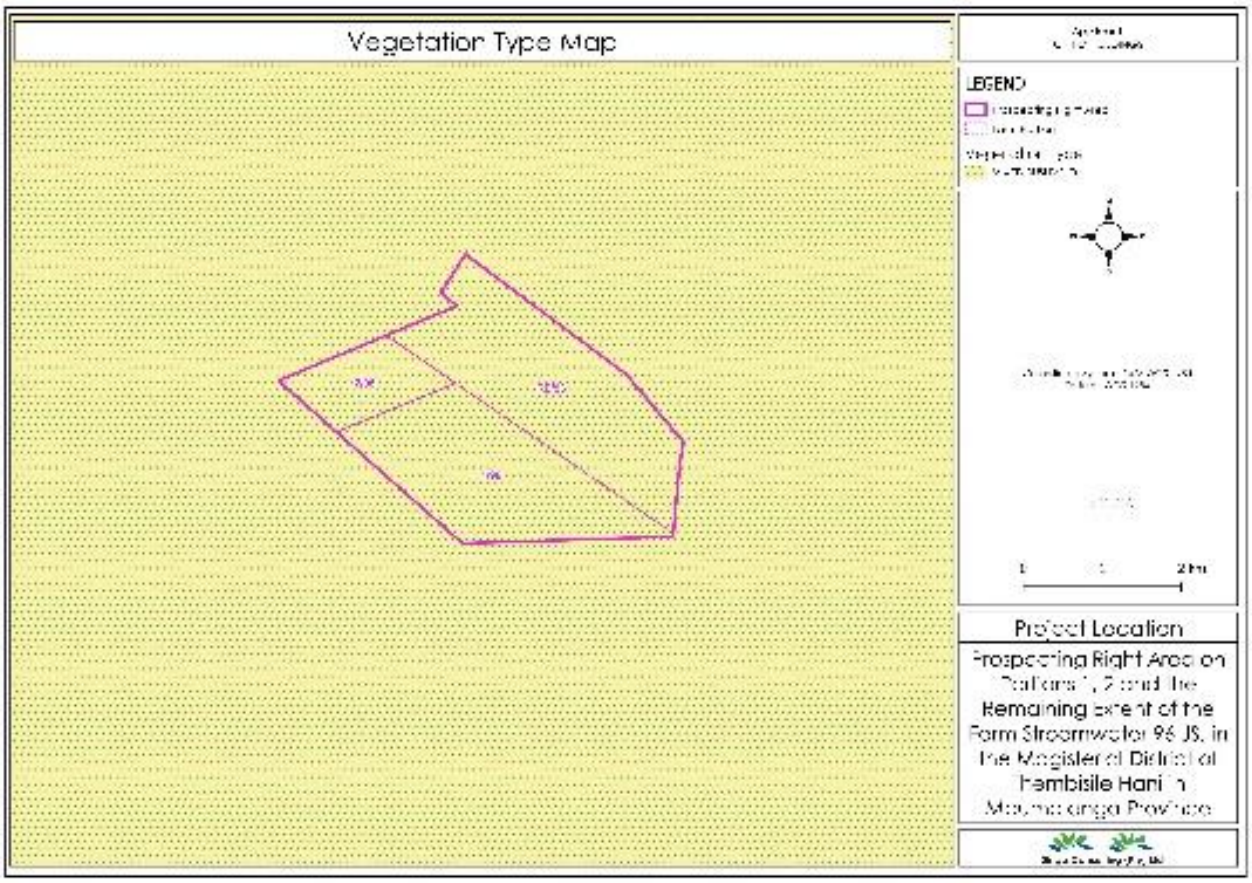


Figure 29: Vegetation type of the study area (Singo Consulting (Pty) Ltd, 2023)

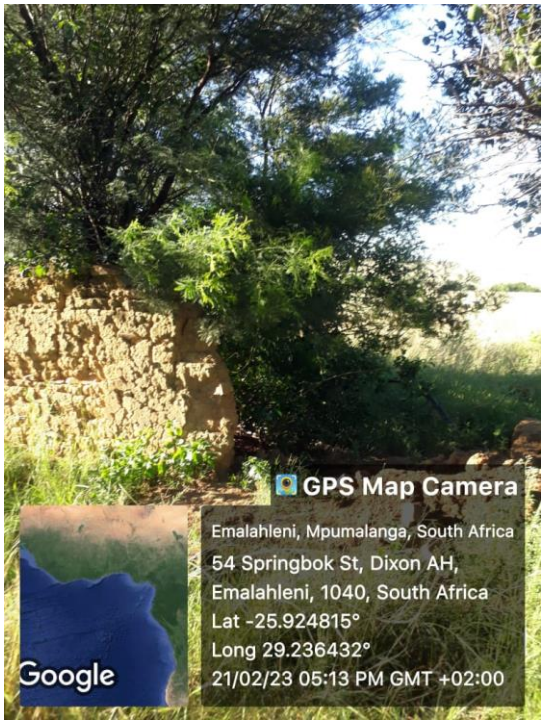
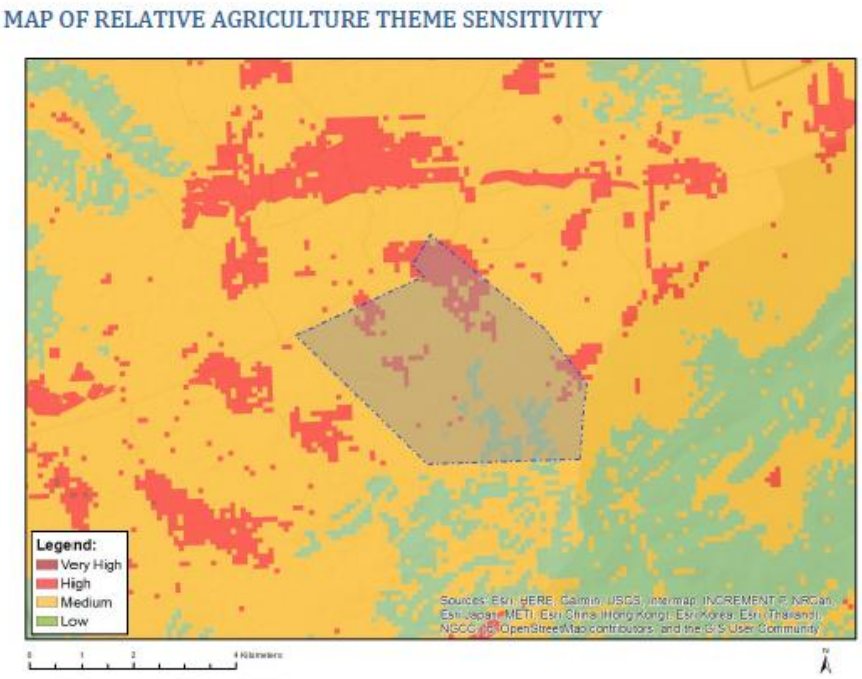


Photo 3: Biome and Vegetation type observed on site

7.1.8. Agriculture

Screening tool in figure 30 below it shows that the area is very highly sensitive in terms of Agricultural theme sensitivity, and according to the farming type map that was created by Singo consulting GIS Specialist it shows that mainland is used for cattle and grains. During site assessment that was conducted on the 16th of February 2023 it was observed that the area is used for cattle.

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
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

Figure 30: Agriculture theme sensitivity (Screening Report, 2023)

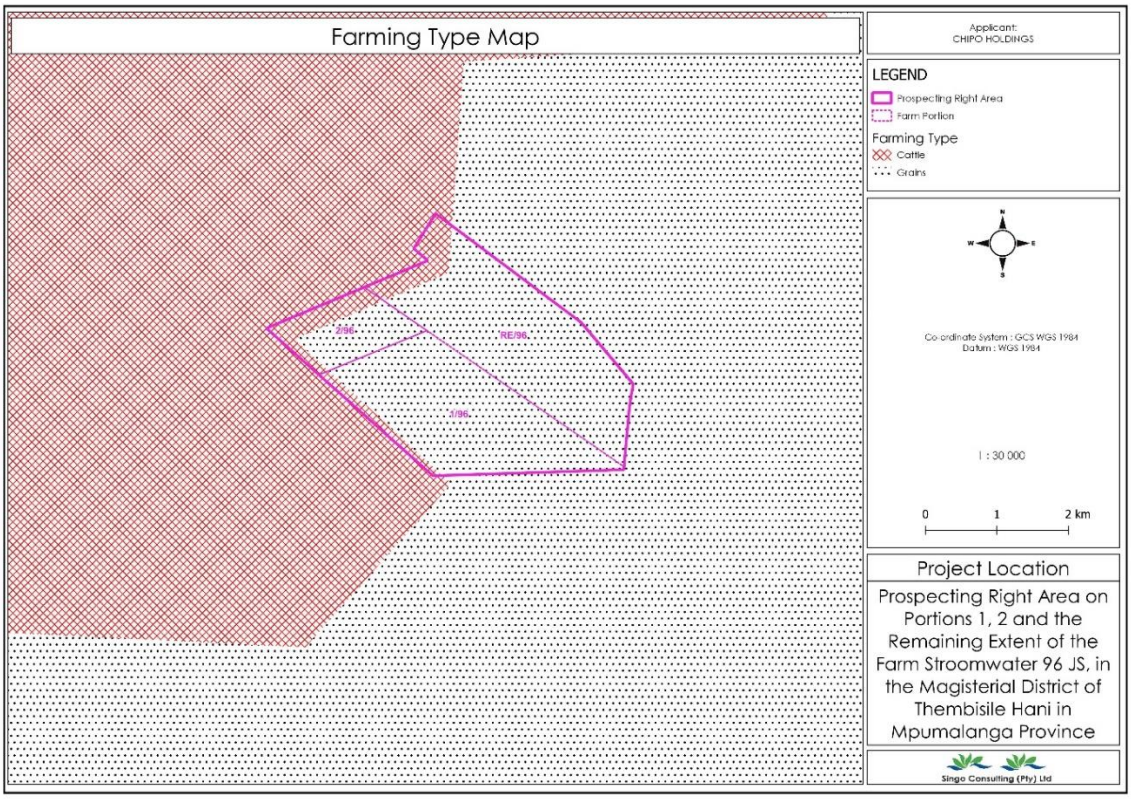


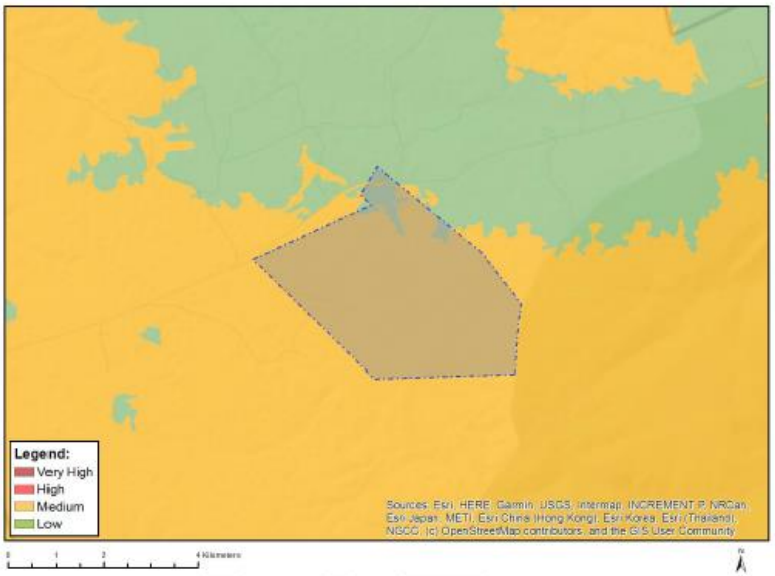
Figure 31: Farming type map (Singo Consulting (Pty) Ltd, 2023).

Picture 4: Agricultural land observed on site

7.1.9. Plant species

The plant species sensitivity found on the proposed area have medium sensitivity as deduced from the screening tool report and as observed during site assessment done on the 21st of February 2023, it was stipulated that clearance of vegetation will be minimal, therefore less plant species on site will be affected by the project, refer to Figure 32 below.

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	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Sensitive species 601
Medium	Sensitive species 51
Medium	Sensitive species 962
Medium	Sensitive species 610
Medium	Sensitive species 219
Medium	Brachycorythis conica subsp. transvaalensis
Medium	Sensitive species 1248

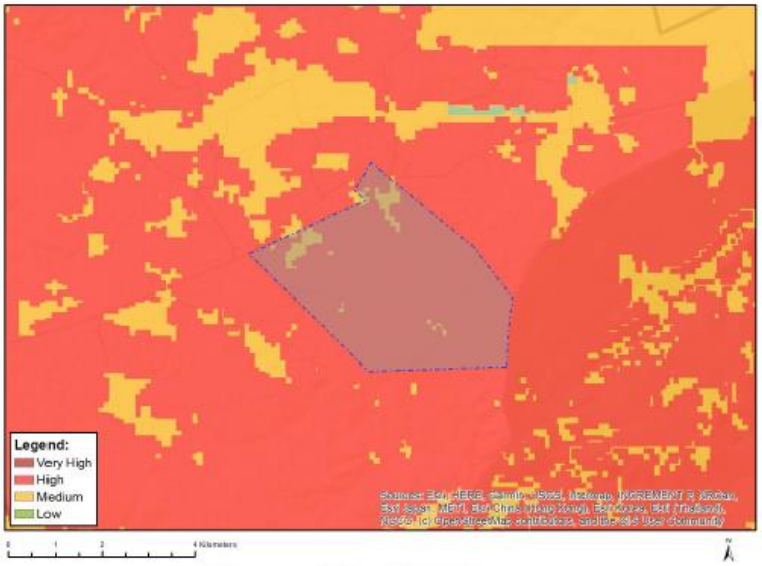
Figure 32: Plant species sensitivity (Screening Report, 2023)

7.1.10. Animal Species

According to the screening tool report and site assessment done on the 21st of February 2023 the proposed area has a high sensitivity for animal's species, it consists of species such as Aves-Geronticus calvus, Aves-Tyto capensis, Aves-Eupodotis senegalensis, Insecta-Lepidochrysops procera, Mammalia-Crocidura maquassiensis to mention a few. The likelihood of mammals, insects, reptiles and amphibians being present is highly likely especially within wetlands areas.

ANIMAL SPECIES THEME SENSITIVITY

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		

Sensitivity Features:

Sensitivity	Feature(s)
High	Aves-Bucorvus leadbeateri
High	Aves-Neotis denhami
High	Aves-Eupodotis senegalensis
Medium	Mammalia-Crocidura maquassiensis
Medium	Reptilia-Kinixys lobatsiana

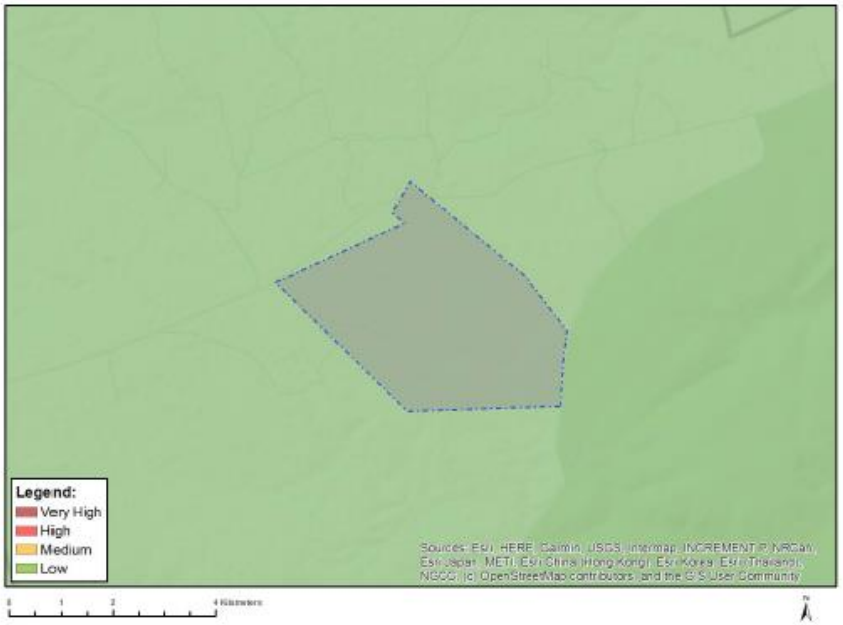
Figure 33: Animal species sensitivity (Screening Report, 2023)

7.1.11. Cultural and Heritage

According to the Screening report the proposed project area has low Sensitivity and during site assessment done on the 21ST of February 2023 no cultural heritage theme was observed on site.

ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			x

Sensitivity Features:

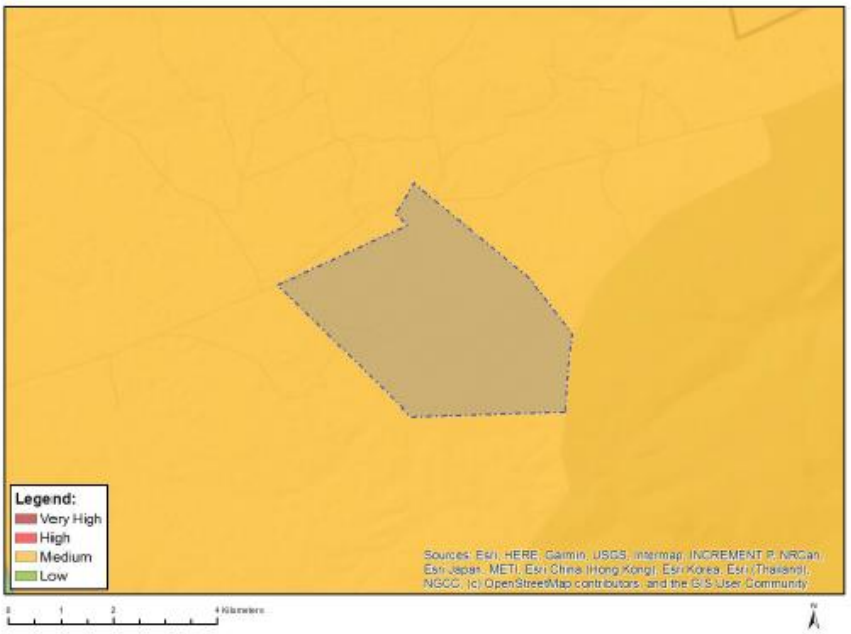
Sensitivity	Feature(s)
Low	Low sensitivity

Figure 34: Archeological and cultural heritage sensitivity (Screening report, 2023)

According to the Screening report and site assessment the proposed area has a medium sensitivity of Paleontology as seen on Figure 35 below.

PALEONTOLOGY THEME SENSITIVITY

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		x	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Features with a Low paleontological sensitivity
Medium	Features with a Medium paleontological sensitivity

Figure 35: Paleontology sensitivity map (Singo Consulting (Pty) Ltd, 2023)

7.2. Land Capability

The Land capability classification is one of several interpretation groups that was made for agricultural purposes. As with all the interpretation groups, the land capability classification starts with one soil-mapping unit, which is the building block of the system.

The land capability is classified into arable and wilderness. In this classification the arable soils are grouped according to their potentialities and limitations for sustained production of the common cultivated crops that do not require specialized site conditioning or site treatment. Non-arable soils (soils unsuitable for long time sustained use for cultivated crops) are grouped according to their potentialities and limitations to produce permanent vegetation and according to their risks of soil damage if mismanaged. The land capability of the proposed area is classified as an arable land and wilderness. Arable land is any land capable of being ploughed and used to grow crops.

The land capability of the proposed area is classified as mostly arable and wilderness land. Arable land is any land capable of being ploughed and used to grow crops, such as wheat and corn rather than growing fruits and vegetables. A wilderness is an undeveloped area of land that man does not control or develop. The wilderness contains some of the world's most untamed natural environments. These are the last remaining wild places that humans have not infiltrated with signs of modern civilization such as roads, power lines, and pipelines.

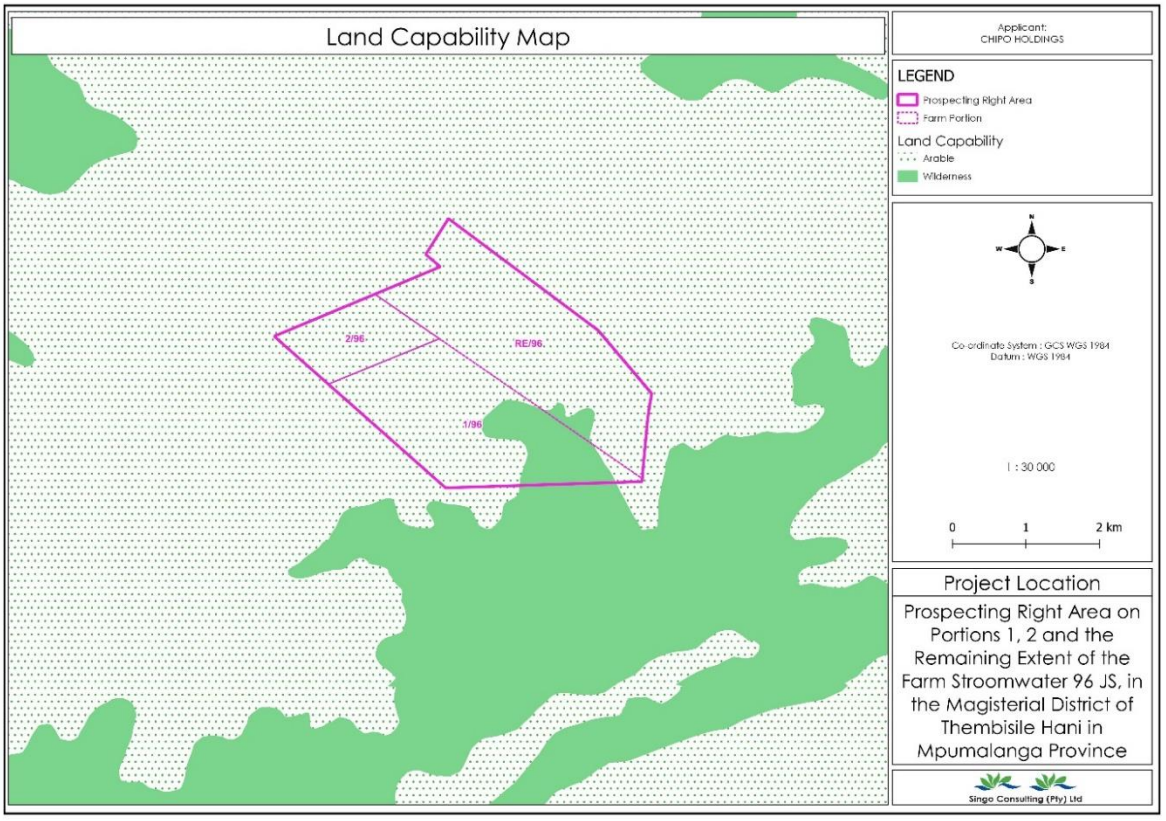


Figure 36 Land capability map of study area (Singo Consulting (Pty) Ltd, 2023)

7.3. Noise and Dust Sources

Noise sources and baseline

Prospecting and associated activities often emit significant noise levels which can become a nuisance or health risk when not properly managed. This impact may affect not only to the prospecting area, but also to the surrounding land users and occupiers. The most sensitive receptors identified for the project area are the occupiers of the study area itself, surrounding communities including land users. The prospecting right area is covered with natural vegetation, plantation, and cultivated land.

The main noise generation activities of the proposed activities during all phases are:

- Transportation of materials.
- Drilling; and
- Loading and off-loading of equipment and materials.
- Limited number of vehicles moving around the site; and

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 as a result 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 scattered on neighbouring farms who are the closest sensitive receptors. These sensitive receptors are approximately 298.45 m from the closest borehole. 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.

Dust Sources and baseline (Pictures)

The following sensitive receptors of dust have been identified and it is expected that these receptors may be affected by dust fallout and other air pollutants, resulting from the proposed prospecting activities:

- Lawful occupiers of the study area.
- Lawful occupiers of the properties adjacent to the study area.
- Surrounding communities including land users, residential areas
- Faunal and floral species within the farm area.

In South Africa the Highveld Area was declared a Priority Area by the former Minister Martinus van Schalkwyk on the 23rd of November 2007. The priority area covers 31 106

km2, including parts of Gauteng and Mpumalanga Provinces, with a single metropolitan municipality, three district municipalities, and nine local municipalities (DEA, 2021). Thembisile Hani is counted amongst the areas that have the worst air quality in the world.

According to the IDP of Thembisile Hani Local Municipality the ambient air quality levels are being exceeded, the Local Municipality was amongst the five Local Municipalities that were declared as Highveld Priority Area in 2007. Human activities have contributed heavily to the degradation of the environment.

Environmental monitoring is regarded as the most proficient tool at formally checking the compliance with environmental legal requirements. These requirements are set out by the Environmental Management Plan, Water Use Licence, Waste Management Licence, the Environmental Authorisation and other documents and licences.

It is from this background that Singo Consulting (Pty) Ltd has been appointed by Chipo Holdings (Pty) Ltd to undertake the dust fallout reporting for the mining operation that will take place, so that dust fallout may be monitored. Singo Consulting is an independent environmental consulting firm with vast experience in the field of environmental management. The firm has conducted countless number of environmental management plans across South Africa.

The main source of air pollution in the local area is the dust emanating from the agricultural activities within the farm. Dust fallout will be measured prior to the drilling activities and monitored throughout the period of the drilling activities within the proposed farm area. It is not expected that the air quality outside of the study area will deviate from its current condition during prospecting. Normal vehicular activity, as is already present, will most likely continue. There is, however, a risk that dust levels may increase as a result of the proposed activity and therefore mitigation measures will be recommended. Limiting the speed of vehicles on the gravel roads to 30km/h will have a threefold benefit in terms of health and safety: it will reduce dust fallout, reduce exhaust emissions and ensure the safety of workers. Another measure is to suppress dust by means of spraying water on the gravel roads, 18 000L water will be bought from the local municipality or from the local water service facility to aid in the suppression of the amount of dust to be created by the drilling activities. To minimize impacts on plants caused by dust deposition from the drilling activities.

Singo Consulting (Pty) Ltd was appointed by Top One Construction which is also around Mpumalanga Province to undertake the installation, maintenance and reporting of

results for two (2) dust fallout monitoring stations (ASTM D1739: 1970) around their mining area. This is in compliance with the National Dust Control Regulations, Government Gazette (36974) dated the 1st of November 2013.

The Dust fall-out monitoring at the mine was aimed at ensuring that Top One Construction complies with the following:

- National Environmental Management: Air Quality Act (Act No. 39 of 2004) (NEM: AQA).
- NEM: AQA National dust control regulations (GN R.827, 1 November 2013).
- Environmental Management Programme report and
- To determine the area influenced by emissions of this dust.

Figure 37: Dust monitoring stations *(Singo Consulting (Pty) Ltd, 2023)*

8. Socio-Economic Environment

Socio-economic information detailed in this section of the report provides an understanding of the need for economic development which to create employment opportunities. The high unemployment rate within the municipal area serves as an indicator of this requirement. Though no local employment opportunities are expected during the prospecting phase, the confirmation of a viable mineral resource and the possible establishment of a mine may aid to address unemployment challenges faced by the project affected communities.

Municipal Administration Units and Wards

The Nkangala District Municipality includes Thembisile Hani Local Municipality. The municipality is bounded by Dr. JS Moroka in the north, Elias Motsoaledi in the north-east, Steve Tshwete in the east, Emalahleni and Kungwini in the south, and Dinokeng Tsa Taemane, now Tshwane Metro, in the west. The municipality has a population of 310 458 and an area of land of about 2 384 km2 in the Nkangala district (Stats RSA 2011). This ranks as the second-largest in the District and sixth-largest in the province. The municipality is primarily rural in nature, and its main economic sectors include public services, retail, business services, and agriculture.

Within the municipal boundaries, there are five main settlement clusters: Moloto, KwaMhlanga, Kwaggafontein, Tweefontein, and Verena. Boekenhouthoek, Bundu, Enkeldoornoog, Goederede, Phola Park, Seeringkop, Sybrandskraal, Vlakfontein, and Witnek are some other localities.

Demographic Profile and Density

Table 11: Municipal population size and growth trend Source: Thembisile Hani Local Municipality IDP, 2020/2021.

DEMOGRAPHIC INDICATORS	Stats SA Census	Stats Census	Share of Nkangala's figure	Share of Mpumalanga's figure	Ranking: highest (1) – lowest (18)
	2011	2016	2016	2016	
Population number	310 458	333 321	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			

Source: Statistic South Africa (community Survey), 2016.

Education indicators

There is an overall improvement at all levels of education over the past 5 years. According to data obtained from the Community Survey (2016), it indicates that the population in Thembisile Hani aged 20 and above completed grade 12 which increased from 33 673 in 2011 to 43 234 in 2016 (increase of 9 561) being an increase of 28.4% for the period under review. Thembisile Hani's grade 12 pass rates improved from 74.1% in 2011 to 77.8% in 2016, which was the 3rd highest in the district and 7th lowest of the municipal areas of the Province (Stats SA, 2016). According to basic education data obtained from the District Municipality's IDP, the Grade 12 pass rate for Thembisile Hani was 82.3% (2017) and 80% (2018) thus placing Thembisile Hani 12th highest of the municipal areas of the province.

In 2016, Thembisile Hani municipality matriculants achieved a 17,2% university admission to B Degree. Once these students graduate, the municipality needs to ensure that it provides the educated young people in the area with employment opportunities. The dilemma is that currently; such opportunities do not exist as the economy is slowing down whilst the population continues to grow.

Table 12 below The figure below indicates the education performance of Thembisile Hani Local Municipality compared to other municipalities in the province.

Local municipal area	Grade 12 Pass Rate			Trend	Admission to B degree
	2011	2015	2016	2015-2016	2016
Thaba Chweu	69.0%	85.7%	88.8%		36.1%
Emalahleni	75.8%	84.6%	88.0%		27.0%
Lekwa	71.1%	82.6%	87.5%		30.7%
Emakhazeni	74.8%	87.0%	84.5%		21.4%
Victor Khanye	70.3%	85.4%	82.1%		27.8%
Steve Tshwete	74.4%	86.3%	81.0%		28.5%
Chief Albert Luthuli	69.7%	79.5%	80.9%		26.3%
Nkomazi	76.2%	85.7%	80.4%		25.2%
Mbombela (City of *2016)	69.1%	80.5%	78.8%	*	26.0%
Msukaligwa	74.1%	71.3%	77.8%		32.3%
Govan Mbeki	71.3%	74.4%	77.6%		24.5%
Thembisile Hani	**67.2%**	**77.8%**	**77.3%**		**17.2%**
Dr JS Moroka	57.6%	80.0%	73.5%		20.4%
Bushbuckridge	51.2%	76.0%	71.1%		16.5%
Mkhondo	55.2%	66.9%	66.1%		24.7%
Dipaleseng	42.6%	53.6%	65.2%		15.1%
Dr Pixley Ka Isaka Seme	46.0%	60.7%	64.5%		16.2%
Umjindi	74.9%	72.3%	*	*	*
Mpumalanga	**64.8%**	**78.6%**	**77.1%**		**22.9%**

Unemployment and Employment

There are approximately 97 744 individuals who are economically active (working or seeking for employment), and 37% of them are unemployed. About half (49, 4%) of the 48 741 economically engaged youth in the area (15-34 years) are unemployed. In the municipality, the unemployment rate is now 37%, with women making up the majority of those who are unemployed. The unemployment rate is made worse by job losses and a drop in new job prospects in nearby urban regions like Witbank, Middelburg, and Pretoria. The SERO further indicates the following about the Municipality:

- An unemployment rate of 37.0% (by a precise definition) in 2011 reached 36 139 jobless people as a percentage of the Total of 97 744 people, showing a declining trend (IHS Global Insight's anticipated 2013 unemployment rate is 36.4%).
- In 2011, the unemployment rate for young people was 49.4%, with the rate for men being 39.9% and women being 34.1%.
- Ward 30 has the highest unemployment (50.1%) and the lowest unemployment (29.0%).
- 17.3% of the population of Nkangala is employed.
- According to the Census, employment expanded by 27 468 between 2001 and 2011; this equates to over 3 000 new jobs year, or 4% of the provincial goal for job creation.
- There are two types of employment: formal (54.3%), and informal (22.5%

Table 13: Thembisile Hani labour indicators

LABOUR INDICATORS	Census	Census	Share of Nkangala's figure	Ranking: best (1) – worst (18)
	2001	2011	2011	
Working age population	151 714	195 457		
Economically Active Population (EAP)/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

Source: Socio-Economic Report and Outlook for Mpumalanga, 2017

The SERO study also shows that in 2014, trade and community services together accounted for 24.6% of all employment within the municipality. Trade and community services, the two largest sectors, saw declines in 2017 to 24,2% and 22,1%, respectively. The function and share of agriculture and finance have decreased according to prevailing trends, while manufacturing and mining have steadily increased as the main employment.

Leading challenges facing the Municipality

According to the 2016 CS (Community Survey) of Stats SA, the 5 leading challenges facing the municipality as perceived by households in the municipal area the following:

- A lack of a steady supply of safe water.
- A lack of or insufficient job opportunities (correlate with poverty driver information of the CS).
- Poor road conditions.
- Inadequate/lack of housing.
- Sanitation and water services.

Due to the abundance of mineral resources and favourable agricultural circumstances, the mining and agricultural sectors are among the main economic movers in South Africa. The Gross Domestic Product is heavily influenced by the two industries (GDP). However, during the last few years, their contribution has been decreasing. Media Club South Africa reports that the mining sector contributed 9.2 percent in 2013 compared to the agricultural sector's contribution of 2.2 percent. Despite the downturn, these two industries continue to play a significant role in the lives of South Africans who are experiencing food shortages. Minerals produced by the mining sector can be used in agriculture to produce food. The mining industry is known for its detrimental effects on the agricultural industry. Conflicts over the shared use of resources and the negative consequences of mining on nearby populations have developed from the coexistence of these industries. But there is some good news where these two industries are concerned. After the 2008 food price crisis and looming food insecurity, strategies linking the two sectors has even grown in importance for guaranteeing both food security and economic expansion. Mining and agricultural issues are covered by policies that provide frameworks for mitigating what effects mining has on agriculture.

(https://www.dmr.gov.za/LinkClick.aspx?fileticket=fYs1uGn0Ei0%3D&portalid=0).

Fertilizers or direct application of minerals are utilized in agriculture. Mineral fertilizers are substances—natural or artificial—that include nutrients necessary for a plant's typical growth and development. Some plants are utilized directly as food for humans, while others are fed to animals, provide natural fibres, or grow wood. Plant nutrients are nourishment for plants. Plants are necessary for human life and animal reproduction. Nitrogen, phosphorus, and potassium are the three main plant nutrients that are utilized in fertilisers in significant amounts. Significant amounts of sulphur, calcium, and magnesium are also needed. These nutrients are needed for functions like energy transmission, maintaining internal pressure, and enzyme activity. They are elements of numerous plant components, including proteins, nucleic acids, and chlorophyll. To meet the demand for crops with a high yield potential and produce economically viable yields, fertilizers are used to supplement the natural soil nutrient supply, make up for nutrients lost through the removal of plant products, leaching, or gaseous loss, and

to improve or maintain favourable soil conditions for cropping. In this manner both agriculture and mining are important.

(https://www.dmr.gov.za/LinkClick.aspx?fileticket=fYs1uGn0Ei0%3D&portalid=0).

The population has been growing and demand is rising every year, which means there isn't enough coal to provide energy that will be sufficient for the entire country, which has resulted in loadshedding issues in South Africa. It will take years to transition from energy produced from coal to green energy, especially since South Africa is a developing nation. This is because the majority of the minerals needed for green energy are extremely rare and expensive as well. Agriculture is crucial, but why can't we use the minerals already accessible to have enough energy while saving to switch to green energy and using the money to improve services for those in need, such as houses, water and proper sanitation.

The majority of the land in the Thembisile Hani area is utilized for farming; the government, not the farmers, is the primary owner of the property below. The country's economy also depends heavily on agriculture, and as the climate is rapidly changing, Mpumalanga is one of the top 5 provinces most at danger of experiencing severe drought in the future. Knowing full well that there may be land that may contain certain minerals, considering the negative effects of drought such as crop losses, water scarcity, and livestock deaths, are we supposed to leave the land untouched while waiting for the rain to fall or do mining that can produce money that can be used to buy food if drought levels can increase drastically. There must be an agreement between the farmers and applicant which clears indicates how they can both benefit. The more coal is extracted the better the economy of South Africa will be.

Conclusively

The high unemployment rate and surge of job seekers have put the municipality under pressure, and the lack of economic prospects makes it difficult for it to accommodate the area's potential educated young people. Also, COVID-19 had a detrimental effect because it led to numerous job losses and greatly raised the unemployment rate.

The prospecting phase is likely to offer few opportunities, but if a significant mineral resource is found and a mine is eventually established, that could help with the problems currently faced by the communities that will be most impacted by the proposed project.

9. Land Uses

9.1. Description of the current land uses

The prospecting right area is covered with natural vegetation, plantation and bare land. Most of the study area and the surrounding area is used for cattle.

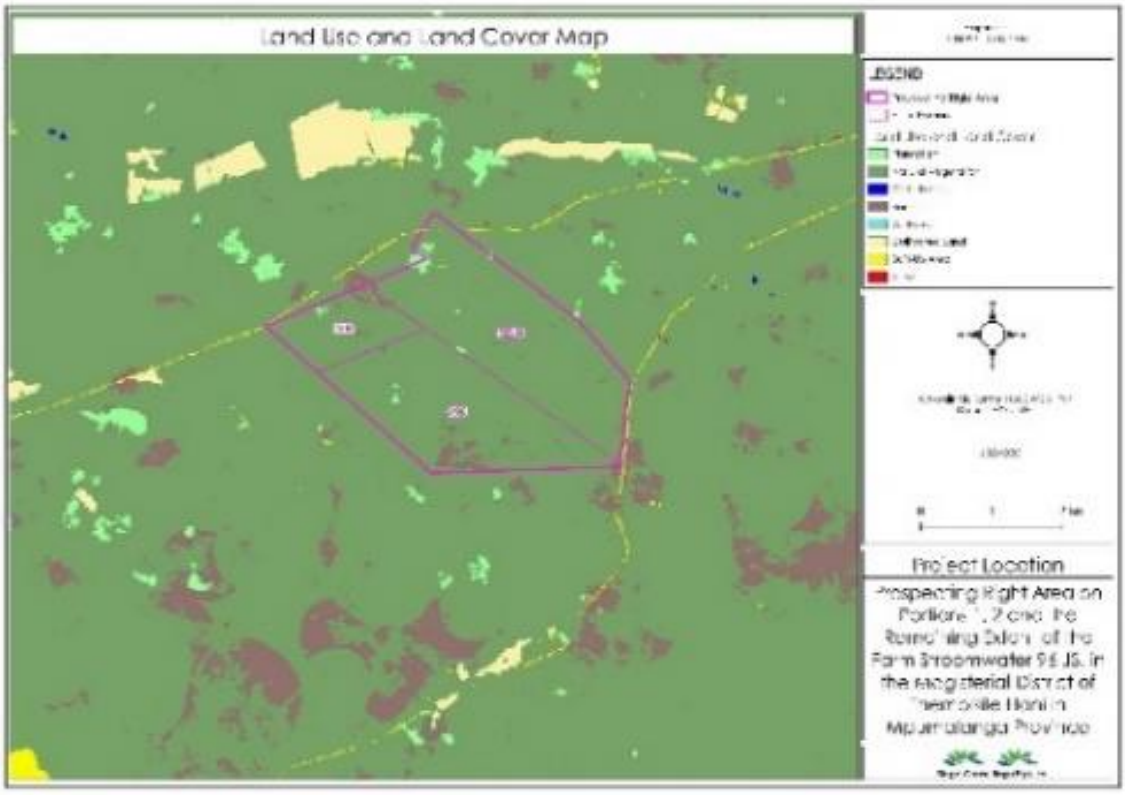


Figure 38: Land use and land cover map of the study area (Singo Consulting (Pty) Ltd, 2023)

9.2. Description of specific environmental features and infrastructure on the site Environmental Features

The major sensitive features within the study area include:

- Water resource (Wetlands and a river)
- Faunal and floral species

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).

The impact assessment method takes into account the current environment, the details of the proposed project and the findings of the specialist studies. Cognizance has been given to both positive and negative impacts that may result from the development. The significance of the impact is dependent on the consequence and the probability that the impact will occur.

Impact significance = (consequence x probability)

Where:

Consequence = (severity + extent)/2

And

Severity = [intensity + frequency + duration]/3

Table 12: Severity Criteria

FREQUENCY = HOW OFTEN THE IMPACT OCCURS	***RATING***
Seldom: impact occurs once or twice	*1*
Occasional: impact occurs every now and then	*2*
Regular: impact is intermittent but does not occur often	*3*
Often: impact is intermittent but occurs often	*4*
Continuous: the impact occurs all the time	*5*

INTENSITY = MAGNITUDE OF IMPACT	***RATING***
Insignificant: impact is of a very low magnitude	*1*
Low: impact is of low magnitude	*2*
Medium: impact is of medium magnitude	*3*
High: impact is of high magnitude	*4*
Very high: impact is of highest order possible	*5*

DURATION = HOW LONG THE IMPACT LASTS	***RATING***
Very short-term: impact lasts for a very short time (less than a month)	*1*
Short-term: impact lasts for a short time (months but less than a year)	*2*
Medium-term: impact lasts for the for more than a year but less than the life of operation.	*3*
Long-term: impact occurs over the operational life of the proposed extension.	*4*
Residual: impact is permanent (remains after mine closure)	*5*

EXTENT = SPATIAL SCOPE OF IMPACT/ FOOTPRINT AREA / NUMBER OF RECEPTORS	***RATING***
Limited: impact affects the mining area	*1*
Small: impact extends to the neighbouring farmers	*2*
Medium: impact extends to surrounding farmers beyond the immediate neighbours	*3*
Large: impact affects the area covered by the municipal area	*4*
Very Large: The impact affects an area larger than the municipal area	*5*

PROBABILITY = LIKELIHOOD THAT THE IMPACT WILL OCCUR	***RATING***
Highly unlikely: the impact is highly unlikely to occur	*0.2*
Unlikely: the impact is unlikely to occur	*0.4*
Possible: the impact could possibly occur	*0.6*
Probable: the impact will probably occur	*0.8*
Definite: the impact will occur	*1*

Negative impacts:

≤1	*Very low*	*Impact is negligible. No mitigation required.*
>1≤2	*Low*	*Impact is of a low order. Mitigation could be considered to reduce impacts. But does not affect environmental acceptability.*
>2≤3	*Moderate*	*Impact is real but not substantial in relation to other impacts. Mitigation should be implemented to reduce impacts.*
>3≤4	*High*	*Impact is substantial. Mitigation is required to lower impacts to acceptable levels.*
>4≤5	*Very High*	*Impact is of the highest order possible. Mitigation is required to lower impacts to acceptable levels. Potential Fatal Flaw.*

Positive impacts:

≤1	*Very low*	*Impact is negligible.*
>1≤2	*Low*	*Impact is of a low order.*
>2≤3	*Moderate*	*Impact is real but not substantial in relation to other impacts.*
>3≤4	*High*	*Impact is substantial.*
>4≤5	*Very High*	*Impact is of the highest order possible.*

Table 13: Impact Significance Calculation – Construction, Operational and Rehabilitation Phase

Unite Number	Activity	Aspect	Impact	Significance Rating Before Mitigation Measures									Mitigation Measures	Significance Rating after Mitigation Measures								
				I	F	D	E	P	S	C	IS	SIGNIFICANCE		I	F	D	E	P	S	C	IS	SIGNIFICANCE
1,0	Employment of workers and procurement of materials	Social	Creation of employment. The nature of the project is one where a contractor is outsourced therefore the project is minuscule and only general workers may be	1	1	1	1	0,4	1,0	1,0	0,4	(P) Very Low	Procumbent opportunities will be maximized as much as possible. Services may be sourced from the local community.	2	1	1	1	0,6	1,3	1,2	0,7	(P) Very low

			employed																		
2,0	Transportation of equipment and material to site	Visual/Air Quality	Dust generation emanating from the movement of the drill rig onto the site.	3	1	1	1	1,0	1,7	1,3	1,3	Low	Ensure that dust suppressants are applied to gravel or unpaved roads that are in use; Vehicles will obey speed limits.	2	1	1	1	0,8	1,3	1,2	0,9	Very low
		Topography and Environment.	Topographical change Negative visual impact caused by drilling	2	1	1	1	0,8	1,3	1,2	0,9	Very low	Ensure liaison with the local authorities for the maintenance and upkeep of roads; Ensure that dust suppressants are applied to gravel or unpaved roads that are in use; and Vehicles will obey speed limits.	2	1	1	1	0,6	1,3	3,0	1,8	Very low

		Surface and ground water		*2*	*5*	*4*	*1*	*0, 8*	*3, 7*	*2, 3*	*1, 9*	*Low*	*All potential hydrocarbon spillages and leaks must be cleaned up immediately and the soils remediated;* *Spillage control kits will be readily available on site to contain the mobilization of contaminants and clean up spills;* *All vehicles and machinery to be serviced in a hard park area or at an off-site location;* *Storage of hydrocarbons and explosives must be managed according to the Hazardous Substances Act, 1973 (Act No. 15 of 1973);* *Hydrocarbons and explosives storage facilities must be in a hard park bunded facility; and*	*2*	*5*	*5*	*2*	*0, 6*	*4, 0*	*3, 0*	*1, 8*	*Low*

												Vehicles with leaks must have drip trays in place.									
		Maize Crop	*Clearance of maize where borehole is to be drilled*	*3*	*1*	*1*	*1*	*1, 0*	*1, 7*	*1, 3*	*1, 3*	*Low*	*Drilling will only occur after harvest. No crops will be removed. Drilling will occur during the dry seasons. Area will be rehabilitated immediately to prepare for planting of seeds*	*2*	*1*	*1*	*1*	*1, 0*	*1, 3*	*0, 8*	*0, 8*	*Very low*

		Soil	Soil compaction	3	1	1	1	0,8	1,7	1,3	1,1	Low	If possible, vegetation clearance can be scheduled to coincide with low rainfall conditions when soil moisture is anticipated to be relatively low such that the soils are less prone to compaction (during dry seasons) The movement of heavy vehicle (drill rig) should be limited to existing roads.	2	1	1	1	0,8	1,3	1,2	0,9	Very low

		Poultry farming	Movement of machinery near poultry houses	3	1	1	1	0.8	1.7	1.3	1.1	Low	Ensure that speed limit is kept, and dust is suppressed. No movement within the buffered area of the wetland is permitted	2	1	1	1	0.8	1.3	1.2	0.9	Very low

3.	*Use and storage of fuel and lubricants.*	*Soil*	*Soil contamination and degradation.*	*3*	*1*	*1*	*1*	*0,8*	*1,7*	*1,3*	*1,1*	*Low*	*All potential hydrocarbon spillages and leaks must be cleaned up immediately and the soils remediated;* *Spillage control kits will be readily available on site to contain the mobilisation of contaminants and clean up spills;* *All vehicles and machinery to be serviced in a hard park area or at an off-site location;* *Storage of hydrocarbons must be managed according to the Hazardous Substances Act, 1973 (Act No. 15 of 1973); and* *Vehicles with leaks must have drip trays in place.*	*2*	*5*	*5*	*2*	*0,6*	*4,0*	*3,0*	*1,8*	*Low*

		Surface Water	*Impacts on surface water resources as a result of hydrocarbon spills.*	*3*	*3*	*1*	*2*	*0,6*	*2,3*	*2,2*	*1,3*	*Low*	*In case whereby contractors bring on site mobile bowsers and lubricants, these are to be stored in a bunded area when parked at the construction areas;All potential hydrocarbon spillages and leaks must be cleaned up immediately and the soils remediated;Spillage control kits will be readily available on site to contain the mobilisation of contaminants and clean up spills;All vehicles and machinery to be serviced in a hard park area or at an off-site location;Storage of hydrocarbons must be managed according to the Hazardous Substances Act, 1973 (Act No. 15 of 1973); andVehicles with leaks must have drip trays in place.*	*2*	*3*	*1*	*1*	*0,4*	*2,0*	*1,5*	*0,6*	*Very low*

		Groundwater	Groundwater contamination	4	3	1	2	0,6	2,7	2,3	1,4	Low	In case whereby contractors bring on site mobile bowsers and lubricants, these are to be stored in a bunded area when parked at the construction areas; All potential hydrocarbon spillages and leaks must be cleaned up immediately and the soils remediated; Spillage control kits will be readily available on site to contain the mobilization of contaminants and clean up spills; All vehicles and machinery to be serviced in a hard park area or at an off-site location; Storage of hydrocarbons must be managed according to the Hazardous Substances Act, 1973 (Act No. 15 of 1973); and	2	2	1	1	0,4	1,7	1,3	0,5	Very low

													Vehicles with leaks must have drip trays in place.									
4,0	*4. Site clearance as a result of the preparations for temporary surface infrastructure.*	*Air Quality*	*Dust generation emanating from the activities associated with prospecting*	*4*	*4*	*1*	*3*	*1,0*	*3,0*	*3,0*	*3,0*	*Moderate*	*The area of disturbance must be restricted to the required footprint size;* *Ensure that only vegetation within the designated areas is removed;* *Gravel roads to be wetted by a water browser and/or any applicable dust*	*3*	*3*	*1*	*2*	*0,8*	*2,3*	*2,2*	*1,7*	*Low*

												suppressant so as to reduce dust plumes.									
		Topography and Visual Environment	Disturbance of scenery due to site and machinery	3	1	1	1	1,0	1,7	1,3	1,3	Low	Machinery and site set up will only be present during the specified, communicated and agreed upon timeframe.	2	1	1	1	1,0	1,3	1,2	1,2	Low
			Soil erosion and generation of dust.	3	3	1	2	0,8	2,3	2,2	1,7	Low	Dust can be mitigated by suppressants so that the construction phase does not produce bursts of dusts	3	2	1	2	0,6	2,0	2,0	1,2	Low
			Soil compaction.	3	3	1	1	0,8	2,3	1,7	1,3	Low	If possible, vegetation clearance and commencement of related activities (construction of haul road), can be scheduled to coincide with low rainfall conditions when soil moisture is anticipated to be relatively low such that the soils are less prone to compaction;	2	2	1	1	0,8	1,7	1,3	1,1	Low

												The movement of heavy vehicle should be limited to existing roads									
			Loss of land capability and land use potential	*2*	*1*	*1*	*1*	*0, 8*	*1, 3*	*1, 2*	*0, 9*	*Very low*	*• Any compacted soils must be ripped to alleviate compaction; • The footprint should be re-vegetated with the relevant seed mixture as soon as possible*	*2*	*1*	*1*	*1*	*0, 6*	*1, 3*	*1, 2*	*0, 7*	*Very low*
			Loss of vegetation communities.	*2*	*1*	*1*	*1*	*0, 6*	*1, 3*	*1, 2*	*0, 7*	*Very low*	*• Ensure site clearing is restricted to the footprint of the designated areas to limit the degradation and destruction of the cultivated land• All activities are to occur after harvest so as to not disturb production of maize*	*2*	*1*	*1*	*1*	*0, 4*	*1, 3*	*1, 2*	*0, 5*	*Very low*

			The destruction or degradation of watercourse vegetation.	*2*	*5*	*5*	*2*	*0, 6*	*4, 0*	*3, 0*	*1, 8*	*Low*	*• Ensure the flow of water through the moist grassland areas remain unchanged.* *• Monitor the presence of hydrophytes and species with an affinity for moist soils within the moist grasslands. Should such species decrease of be replaced by terrestrial species, then it is likely that the hydrological regime on the site has changed.* *• If moist grasslands are found to become drier, the Crinum species must be relocated to suitable habitat.* *• Input of sediment due to any related mining activities should be prevented at all costs.* *• Pollution of the surface and groundwater. Mitigation for this potential impact includes:* *o In the case of pollution of any surface or groundwater, the Regional Representative of the Department of Water Affairs must be informed immediately;*	*2*	*4*	*4*	*1*	*0, 6*	*3, 3*	*2, 2*	*1, 3*	*Low*

												o Store all litter carefully so it cannot be washed or blown into the water course; *o Storage of potentially hazardous materials should be above any 100-year flood line or the functional wetland boundary (and its associated buffer zone). These materials include fuel, oil, cement, bitumen etc.;* *o Surface water draining off contaminated areas containing oil and petrol would need to be channeled towards a sump which will separate these chemicals and oils;* *o No uncontrolled discharges of water from the mine to any surface water resources shall be permitted. Any discharge points need to be approved by the relevant authority.*								

			Destruction of Maize filed.	*3*	*2*	*1*	*1*	*1,0*	*2,0*	*1,5*	*1,5*	*Low*	*The contractors setting up should use the EMPR to oversee construction activities and ensure the following:• Keep the development footprint in Medium categories as small as possible.• A temporary fence or demarcation must be erected around the construction area (include the actual footprint, as well as areas where material is stored) to prevent access to adjacent sensitive vegetation.• Maintain site demarcations in position until the cessation of construction work.• Only remove vegetation where necessary and retain vegetation in place for as long as possible prior to removal.• Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area.• Formalize access roads and make use of existing roads and tracks*	*2*	*4*	*4*	*1*	*0,6*	*3,3*	*2,2*	*1,3*	*Low*

												where feasible, rather than creating new routes through naturally vegetated areas. • *Implement a vegetation rehabilitation plan to ensure areas that can be rehabilitated post construction are adequately vegetated with indigenous grass species.* • *After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction.*									

			Erosion and subsequent sedimentation or pollution of proximate moist grassland (watercourse).	*3*	*3*	*1*	*1*	*0,8*	*2,3*	*1,7*	*1,3*	*Low*	*• Make use of existing roads and tracks where feasible, rather than creating new routes through cultivated areas..• Do not remove any vegetation unnecessarily and only remove as per the specified extent.• Runoff from access roads must be managed to avoid erosion and pollution problems.• Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.• Prevent spillage of construction material, oils or other chemicals, strictly prohibit other pollution. Ensure there is a method statement in place to remedy any accidental spillages immediately. • After construction clear any temporarily impacted areas of all foreign materials, re-apply and/or loosen*	*3*	*2*	*1*	*1*	*0,6*	*2,0*	*1,5*	*0,9*	*Very low*

													topsoil's and landscape to surrounding level.									
		Surface and ground water	Siltation of surface water resources .	3	2	1	2	0, 8	2, 0	2, 0	1, 6	Low	• Ensure site clearing is limited to the designated areas	2	1	1	1	0, 6	1, 3	1, 2	0, 7	Very low

			Contamination of water resources	3	2	1	2	0,8	2,0	2,0	1,6	Low	• Ensure that no infrastructure, containers or machinery is leaking during the construction phase. • Groundwater monitoring of the water quality and levels must take place. A tray or cover must be in place for objects with hazardous substances to avoid any possible leaks/spillage.	2	1	1	1	0,8	1,3	1,2	0,9	Very low
		Noise	Noise emanating from the construction of the site and vehicles impacting on surrounding sensitive receptors.	3	2	1	2	0,6	2,0	2,0	1,2	Low	• Ensure site clearing activities are only undertaken during daylight hours; • Ensure equipment and machinery is switched off when not in use.	2	2	1	2	0,6	1,7	1,8	1,1	Low

		Poultry farming	Dust generation	3	1	1	1	0.8	1.7	1.3	1.1	Low	Ensure that infrastructure is set up a measurable distance from the chicken houses and ensure that the time of operation is agreed upon by the landowner.	2	1	1	1	0.8	1.3	1.2	0.9	Very low
5,0	Storage, use and control of fuel and lubricants to be used for the drilling activities.	Soil	Soil contamination and degradation	4	4	1	1	0,8	3,0	2,0	1,6	Low	• All potential hydrocarbon spillages and leaks must be cleaned up immediately and the soils remediated;• Spillage control kits will be readily available on site to contain the mobilisation of contaminants and clean up spills;• All vehicles and machinery to be serviced in a hard	2	4	1	1	0,6	2,3	1,7	1,0	Low

												park area or at an off-site location;• Storage of hydrocarbons must be managed according to the Hazardous Substances Act, 1973 (Act No. 15 of 1973); • Hydrocarbons storage facilities must be in a hard park bunded facility; and• Vehicles with leaks must have drip trays in place.										
		Groundwater	Groundwater contamination	5	3	1	2	1,0	3,0	2,5	2,5	Moderate	• All potential hydrocarbon leaks must be repaired immediately and spillages be cleaned up immediately and the soils remediated; • Spillage control kits will be readily available on site to contain the mobilisation of contaminants and clean up spills; • All vehicles and machinery to be serviced in a hard park area or at an off-site location; • Storage of hydrocarbons and explosives must be	4	2	1	1	0,8	2,3	1,7	1,3	Low

													managed according to the Hazardous Substances Act, 1973 (Act No. 15 of 1973); • Hydrocarbons and explosives storage facilities must be in a hard park bunded facility; and • Vehicles with leaks must have drip trays in place; and • Groundwater monitoring of the water quality and levels must take place quarterly especially for the water supply boreholes to ensure a sustainable resource and identify impacts on local users.										
6,0	Vehicular activity.	Air Quality	Fugitive dust generation emanating.	3	3	1	2	0,8	2,3	2,2	1,7	Low	• Ensure the area of disturbance during the prospecting activities is restricted to the extent of the drilling area • Ensure that dust suppressants are applied to gravel or unpaved roads that are in use; • Vehicles will obey speed limits. Maintenance	2	3	1	2	0,6	2,0	2,0	1,2	Low

													equipment and heavy vehicle speeds should be reduced, where possible, to prevent dust emissions.									
		Visual and Topography Environment	Topography changes and disruption of surface water flow	3	2	1	2	0,8	2,0	2,0	1,6	Low	• Ensure that existing access roads are used as much as possible. • Ensure that dust suppressants are applied to gravel or unpaved roads that are in use; and • Vehicles will obey speed limits.	2	2	1	1	0,6	1,7	1,3	0,8	Very low

		Soil	Soil contamination and degradation.	3	3	1	2	1,0	2,3	2,2	2,2	Moderate	• All potential hydrocarbon spillages and leaks must be cleaned up immediately and the soils remediated;• Spillage control kits will be readily available on site to contain the mobilization of contaminants and clean up spills;• All vehicles and machinery to be serviced in a hard park area or at an off-site location;• Storage of hydrocarbons and explosives must be managed according to the Hazardous Substances Act, 1973 (Act No. 15 of 1973); • Hydrocarbons and explosives storage facilities must be in a hard park bunded facility; and• Vehicles with leaks must have drip trays in place.	2	3	1	2	0,8	2,0	2,0	1,6	Low

		Fauna and Flora	Loss of biodiversity and minimise impacts on floral species	3	2	1	2	0,8	2,0	2,0	1,6	Low	• Ensure that dust suppressants are applied to gravel or unpaved roads that are in use; • Vehicles will obey speed limits.	2	2	1	2	0,6	1,7	1,8	1,1	Low
		Wetlands and Aquatic Ecology	Contamination and sedimentation of the wetland systems and aquatic ecosystems	2	2	1	2	1,0	1,7	1,8	1,8	Low	• Ensure a Storm Water Management Plan is implemented; • Ensure that dust suppressants are applied to gravel or unpaved roads that are in use and exposed surfaces; • Cover the road going trucks from the tip to KPS with a tarpaulin to prevent coal dust generation; • Vehicles will obey speed limits; and • Implement a biannual Aquatic Monitoring Programme to monitor potential impacts and implement corrective actions, should it be required.	2	1	1	2	0,6	1,3	1,7	1,0	Low

		Surface Water	Contamination and sedimentation of clean water resources	3	2	1	2	0,8	2,0	2,0	1,6	Low	• Ensure that dust suppressants are applied to gravel or unpaved roads that are in use and exposed surfaces; • Vehicles will obey speed limits; and • Monitor surface water resources around project area to identify potential contamination.	2	1	1	1	0,6	1,3	1,2	0,7	Very low
		Noise	noise emanating from mining and vehicular activities impacting on surrounding sensitive receptors.	4	4	1	2	1,0	3,0	2,5	2,5	Moderate	• Prospecting related machines and vehicles should be serviced prior to commencement of activities and should there be an issue the equipment must be serviced immediately to avoid further generation of noise outside that of the drilling • Ensure equipment and machinery is switched off when not in use. • Adhere to the set speed limit in accordance with the Management Plan.	2	4	4	1	0,8	3,3	2,2	1,7	Low

		Visual/Traffic	Degradation of the road structures resulting in potential health and safety risks and soil erosion.	3	2	1	2	0,8	2,0	2,0	1,6	Low	• existing roads must be used as much as possible. Road use should remain in the working hours stipulated in the management programme. • Adhere to the set speed limit in accordance with the Management Plan.	2	2	1	2	0,4	1,7	1,8	0,7	Very low
7,0	Waste and sewage generation and disposal.	Visual and Topography Environment	Topography change	2	3	1	2	0,8	2,0	2,0	1,6	Low	• Waste must be stored away from surface water and drainage lines; and • General and hazardous waste must be removed and disposed of frequently at a registered disposal site.	2	2	1	1	0,6	1,7	1,3	0,8	Very low

		soil	Degradation and contamination of soil	4	3	1	2	0,8	2,7	2,3	1,9	Low	• Burying of any waste including domestic waste, empty containers on the site must be strictly prohibited; • Proper waste storage facilities should be available and used for the correct separation and storage of waste prior to collection and disposal; and • Generated waste must be removed to an approved disposal facility.	3	2	1	1	0,4	2,0	1,5	0,6	Very low
		Surface Water	Contamination of clean water resources.	4	3	1	2	1,0	2,7	2,3	2,3	Moderate	• The sewer waster collected from the workings must be disposed of at a licensed sewage treatment facility; • Monitor surface water resources up and downstream of the Project area to identify potential contamination; • Remove core log after analysis • Waste must be separated at source and stored in	3	2	1	2	0,6	2,0	2,0	1,2	Low

												appropriately designated areas for disposal at a licensed facility or by a reputable contractor.										

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

According to the EIA Regulations (2014), a "significant impact" is one 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 by rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence." This EIA methodology's goal is to provide a framework for reliably assessing consequences related to planned or already-conducted operations in the biophysical, social, and socioeconomic domains. In order to have a comprehensive and integrated environmental framework for impact evaluations, it seeks to ensure that all legal obligations and environmental considerations are addressed.

One of the most crucial steps in the environmental impact assessment process is identifying the affects that will be evaluated. Because the observed environmental consequences can and frequently do belong to the same impact stream, it is of utmost relevance. This approach evaluates all effects on the biophysical environment in terms of the general health of the ecosystems, habitats, communities, and individuals involved. For instance, the removal of groundcover to slope or scrape an embankment may result in higher water runoff, which speeds up erosion. Due to increased erosion further down the river, the amount of sediment increases. Many fish species leave the area because they can't handle the heavy silt load. As a result, the habitat has changed or is changing. So, it is important to comprehend that the primary cause of the issue—the removal of groundcover—is evaluated in terms of the degree to which the environment's health has changed and/or the components' conservation value. Hence, the impact of groundcover removal is highly significant if it has a large negative impact on a specified system and a high positive conservation value.

All identified potential impacts connected to the proposed project must be evaluated in terms of their overall potential significance on the natural, social, and economic environments, according to the Environmental Impact Assessment (EIA) 2014 Regulations promulgated in accordance with Sections 24 (5), 24M, and 44 of

the National Environmental Management Act, 1998 (Act No. 107 of 1998) [as amended] (NEMA). 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 criteria outlined in the following tables are used to evaluate impacts. Discussed in terms of effect status, magnitude, duration, probability, and severity are the project's numerous environmental benefits. An impact magnitude and significance rating is used to rank each identified impact in terms of its overall magnitude and significance. Impact significance is defined as the sum of the impact extent, duration, probability, and intensity. A numerical rating system has been applied to evaluate impact significance.

Impact Assessment Methodology

The possibility that the activity conducted has or could have an impact is determined by taking the issue's root cause into account. The impact can then be evaluated to ascertain its significance and define management or mitigation strategies 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 organization's activities, products, and services that can interact with the environment are referred to as having an environmental aspect. An aspect's interaction with the environment may have 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 may include—but are not restricted to—individuals or man-made systems, such as neighborhood members, communities, and social infrastructure, as well as elements of the biophysical environment, such aquifers, flora, and paleontology. Conditions may alter as a result of environmental influences, which may 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

Impacts are predicted using the body of information as well as the results of environmental investigations. Once a potential impact has been identified, it is required to evaluate which project activity would result in the impact, its likelihood of happening, as well as its size and scope (spatial and temporal). This information is crucial for determining mitigation and monitoring methods, as well as for assessing the impact's magnitude. 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 **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 (neighboring 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 amount 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 14: 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 15: 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**

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

(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).

The proposed prospecting activities to be undertaken include the use of both invasive and non-invasive prospecting techniques. There will therefore be physical disturbance to the application area although this disturbance will be limited to the identified borehole sites and not the entire application area. Another negative impact of the proposed activity would be the interference with landowners or communities and the existing land uses. The actual invasive work only covers a few properties within the application area itself and therefore the disturbance due to invasive work will be minimal.

The positive impact of the proposed activity is the discovery of an economically viable mineral resource within the identified Local Municipalities, whose economy is dependent of the mining industry.

It should be noted that this report made available to I&AP's for review and comment and their comments and concerns will be taken into account in this BAR & EMPr. Furthermore, it should be noted that the impact scores themselves will include the results of the public response and comment. Please refer to Section 10 for the Methodology used in determining and ranking the nature, significance,

consequence, extent, duration and probability of potential environmental impacts and risks.

The following provides a description and assessment of the potential impacts identified in the impact assessment process. The topographical and geophysical surveys will see an increase in the use of access tracks by vehicles driving around the site. The access roads may over time and continuous use deteriorate and become damaged. The potential exists for a group of unfamiliar workers to enter the project area during the prospecting activities. This impact could potentially affect the local communities; however, the impact will be minimal as people on site will be limited to the Applicant, contractor and geologists for the topographical and geophysical surveys.

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, care will be taken to be ensure that any protected species identified are relocated outside the footprint of the prospecting activities. Provisions have been made for the rehabilitation of all areas disturbed during prospecting, including access tracks.

The prospecting activities will generate general waste during the construction/ operational phase. This waste must be collected during site visits to be disposed of at appropriate landfill sites.

10.2. The possible mitigation measures that could be applied and the level of risk.

The mitigating measures for each potential impact discovered throughout the impact assessment process are described and evaluated in the sections that follow. The impact scores listed below indicate the effects following the application of mitigation measures. The final significance of each prospective influence is also indicated by a second score, which is displayed below. According to this score, there could be a potential loss of valuable resources, the impact would be cumulative, and the public would be somewhat concerned about the impact. It should be noted that this report

will be made available to I&AP's for review and comment and their comments and concerns will be addressed in the final report to be submitted to the DMRE for adjudication. It should also be emphasized that the outcomes of the aforementioned public response and remark will be included in the impact ratings itself. After the public review time is over, the results of the consultation will be used to update the impact scores, and only then will the finalized report be sent to the DMRE for decision-making.

The following mitigation types have been associated with the potential impacts identified:

- 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).
- Remedy through application of mitigation measures in EMPr.
- Avoid and control through implementation of preventative measures (e.g., monitoring, communication with landowners, emergency response procedures).
- Avoid through implementation of preventative measures (e.g., consultation and communication).
- Avoid and remedy impacts and risks to the community through ongoing communication with the community. In this regard, quarterly community meetings shall be held with the affected communities.
- 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).
- Avoid through preventative measures (e.g., bunding, spill kits).
- No invasive prospecting activities to be undertaken within 500m of a watercourse.
- Should any watercourse be affected, then the necessary water use licenses should be obtained from the Department of Water and Sanitation.
- No ablution of site laydown areas is to be located within 500m of a watercourse.

- A study of the drinking water/livestock watering boreholes should be conducted if shallow aquifers are found (within 100 m of the prospecting borehole sites). For these drinking water/livestock watering boreholes, a thorough groundwater monitoring program should be created, and pre- and post-prospecting water quality samples should be taken.
- When it comes to the requirement for filling and casing prospecting boreholes, a geohydrologist's opinion should be sought out where drinking water/livestock watering boreholes are to be impacted.
- 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).

The following impacts will result from the proposed prospecting activities:

- Job creation
- Clearance of vegetation
- Compacting of soils
- Drilling impact on identified lithic scatters
- Deterioration and damage to existing access roads and tracks
- Safety and security risks to landowners and lawful occupiers
- Interference with existing land uses
- Generation and disposal of waste
- Contamination of surface and groundwater
- Introduction/invasion by alien species
- Noise
- Impact on fauna
- Pollution of soils
- Dust
- Erosion due to vegetation clearance
- Impact on surface water features
- Impact on groundwater

11. Motivation where no alternative sites were considered

Each stage of the prospecting process has an impact on the activities and locations for trenching and drilling to sample the soil. As a result, it is impossible to estimate the exact locations and parameters of soil sampling and diamond core drilling. The sensitivity maps in this report also highlight sensitive locations to stay away from. The placement of invasive prospecting planned in sensitive areas and buffer zones should be carried out with the assistance of an appropriately skilled ecologist in order to avoid or limit the loss of any sensitive vegetation or ecosystems occurring in these places.

No permanent structures will be created because exploration is a temporary activity. To utilize any current infrastructure, such as access roads, discussions and agreements will be had with farm owners. According to the PWP, the property is situated in a region where the geological formation is known to host the desired mineralization.

11.1. Statement motivating the alternative development location within the overall site

As was previously mentioned, the proposed project area was chosen because of the local geology and the prospecting area's expected favorable tectono-stratigraphic setting. No prospecting will be done within 100 meters of any watercourses if the Water Usage license is not provided. Due to the mostly unutilized nature of the affected land or properties, it would be advantageous to diversify the area's land uses if significant mineral resources were to be discovered within the proposed project area. To utilize any current infrastructure, such as access roads, discussions and agreements will be had with farm owners. Implementing the suggested mitigation steps stated in the EMPr will lessen the aforementioned negative effects. Where unfavorable effects cannot be avoided, rehabilitation will be put into action.

12. 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 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**

A transparent and inclusive process is necessary for the entire EIA. This implies that the proponent should have an open door policy and that there should be no constraints on the information gathered during the process or hidden agendas. Stakeholders must be given access to technical knowledge in order for them to effectively comment on the project.

It is necessary to regularly consult with interested and impacted parties from all walks of life. Time must be allowed for comments. It is important to provide people regular chances to comment. There should be chances for experts and the general public to offer their opinions. When conducting technical specialist studies and making decisions, it is important to take into account their contributions and concerns.

- **Information gathering**

The Environmental Assessment Practitioner (EAP) recognized the data that would be needed for the impact assessment early on in the Basic Assessment process and the pertinent data were acquired. In addition, reliable sources, interested parties, impacted parties, prior recorded studies in the area, and prior EIA Reports were consulted for information that was accessible regarding the receiving environment. The project team went to the location to learn more about the activities that were already in place and the project that was being considered.

- **Specialist Assessments**

The following Basic studies will be conducted:

- Soil study
- Surface water study
- Hydrogeological study
- Rehabilitation study

The prime objective of the basic studies is to offer unbiased, reliable information about problems of concern related to the project proposal.

The numerous specialist studies' conclusions and suggestions were included into the Basic Impact Assessment.

- **Legislative Framework**

The legal requirements were described and assessed in detail.

- **Alternatives**

Prospecting is carried out in phases, with each stage affecting the activities and position of trenching and drilling to sample the soil. Thus, it is impossible to predict the precise locations and scope of soil sample and core drilling.

The following alternatives were investigated as feasible alternatives:

- The property on which or location where it is proposed to undertake the activity

The proposed Prospecting Right Application on portions 1, 2 and the Remaining Extent of the farm Stroomwater 96 JS, situated in the Magisterial District of Thembisile Hani in Mpumalanga Province. It is within Olifants Rivers which has its origin between Breyten and Bethal, Mpumalanga Province. Approximately 11,12 km eastern side of Mabusa natural reserves and 4.1 km west of Reitfontein. It can be accessed via a gravel road that extents from the R544 national road.

Main activities conducted to determine the Coal resources present in an economic feasible quality and quantity is drilling. The boreholes will be drilled with the diamond drilling method so the geologists can get a clear understanding of the actual subsurface setting of the lithologies. As outlined in the PWP all activities will be conducted in a phase approach whereby the execution of a new phase will depend on the results of the preceding phase. Prospecting activities will not compromise any future land uses on the study area.

- The design or layout of the activity

Since exploration is temporary in nature, no permanent structures will be constructed. Negotiations and agreements will be made with the farm owners to use any existing infrastructure like access roads, however during the prospecting phase there will be a construction of a road to reach the proposed boreholes, which does not trigger NEMA listing notice 1 activity 56.

- Portable ablution facilities will be used.
- Activities will be limited to the drilling of 15 boreholes to be determined by the geological formations found during prospecting.
- It is planned to use one rig for all drill holes.
- Rehabilitation will be closely controlled, and supervision will be focused.
- No changes to the layout are considered but with the geophysical survey information, the boreholes can be orientated to match the shape of the good quality of resource.

- The technology to be used in the activity.

The PWP's technologies have been selected because they have been shown to be successful in determining the viability of resources in the proposed prospecting region. A literature review, field survey and mapping, and a geophysical study of the geology and outcrops are a few of the approaches used in non-invasive prospecting. Alternatives to invasive technologies have also been taken into account. It should be emphasized that the many steps and timelines for the prospecting described here are, by their very nature, contingent on the outcomes of the earlier stages of such prospecting. The plans outlined in the Prospecting Work Programme are therefore made with the understanding that results from earlier phases may require acceptable modifications and alterations, which will be reported as required.

- The option of not implementing the activity

The possibility of discovering viable mineral resources could be lost if the prospecting right is not granted. Since mining and prospecting have historically been done close to the proposed prospecting right area, the proposed prospecting activities are a continuation of the nearby land uses. Additionally, it enables the economic reintroduction of marginal land that was previously adversely impacted by prospecting and mining activities.

- **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.

13.1 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.
- Specialist investigations.
- Site visit with the project team; and
- Legislation.

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

- Contamination and compaction of soils.
- Erosion.
- Contamination of ground- and surface water quality and decline in quantity.
- Impacts on biodiversity.
- Loss and displacement of fauna.
- Impacts on existing land use of the study and surrounding area.
- Destruction or loss of heritage features including graves and other historical sites of importance that may be uncovered during excavations.
- Decreased aesthetic value and impact on "Sense of Place".
- Poor air quality and decreased visibility due to dust pollution.
- Increased noise levels.
- Waste generation.
- Increased demand on service infrastructure and resources.
- Slight increase in traffic and need for maintenance of road infrastructure.
- Potential injury and loss of health and life of humans; and
- Altered Socio-Economic Environment (Positive or negative).

Table 16: Potential environmental impacts and mitigation measures

Potential environmental impacts and sources	**Measures to prevent, mitigate, minimize or manage the impacts**
Impact: Air pollution (dust, gaseous emissions) **Source:** Establishment of camp site, movement of vehicles and drill rigs,	• Dust suppression measures will be implemented, and the area will be sprayed with water. • A low-speed limit (30 km/h) will be imposed to reduce dust generation. • All equipment and vehicles will be equipped with the manufacturers' standard exhaust systems which will reduce emissions. • Waste burning will not be allowed on site.
Impact: Water pollution (surface water, groundwater and wetlands) **Source:** Spillages from machines on site	Prospecting activities will not be conducted within a 100 m radius from a dam, river, stream, wetland or any water body and the following will be ensured: • Control and manage storm water • Prevent soil erosion and keep the water channel clean • Monitor the ground water
Impact: Land degradation, land-use and capability **Source:** Poor waste management	• Completed boreholes will be rehabilitated and re-vegetated. • Areas which do not form part of drilling site will not be disturbed • Prospecting will be conducted in an environmentally sustainable manner. • One of the prospecting objectives is to turn the area into other land use/s after closure. • Waste material will be properly managed
Impact: Ecological degradation **Source:** Uncontrolled vehicle movement and poor rehabilitation	• Disturbed biodiversity will be restored after closure. • Indigenous species will be used to re-vegetate the area. • No animals will be killed, and collection of firewood will not be allowed. • Movement of vehicles will be restricted to designated area only.

Impact: Land pollution **Source:** Lack of proper waste management	• It is anticipated that a small amount of domestic waste will be generated by workers. Such waste materials will be kept in waste bins which will be disposed of on a regular basis at the registered waste disposal site. The same will apply to office waste. • Any spillages which may occur will be investigated and immediate action will be taken. Significant spills (>35 l) of any hazardous substance will be recorded and reported to the environmental personnel, DWA, DMRE and any other relevant authorities. • Scraps will be kept in designated areas prior delivery to the scrap yard. • All machinery will be serviced off site and also inspected for any leaks.
Impact: Aesthetic, pollution **Source:** Machinery	• The visual impact will be of temporary nature. • The surrounding trees and dense vegetation will also serve as the screen to the prospecting area.
Impact: Noise **Source:** Vehicle movements and drill rigs	• The operation will comply with the provisions of the Mine Health and Safety Act, 1996 (Act 29 of 1996) and its regulation as well as other applicable legislations regarding noise control. • Employees will be supplied with ear plugs. All prospecting vehicles are equipped with silencers and maintained in a road worthy condition. • All work will be carried out between 06:00 and 18:00. This will allow landowners and occupiers to have some respite from noise.
Impact: Death and theft of livestock **Source:** Drilling operation invasive on livestock	• Drilling will only occur during specified time • No drilling will occur near the area designated to keep livestock safe and away from harmful by-products of drilling. • No unauthorized personnel on site. All personnel on site will be registered with the landowner/farm keeper
Impact: Degradation of houses/infrastructure on site **Source:** Vibrations from drilling. Movement of drill rig	• No drilling to occur near infrastructure. Maintain a 100m distance from infrastructure. • Assessment and record keeping of current infrastructure status before drilling commences. • Compensation where it is due.

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 0.5 m over the	Topography	Alteration of local topography and disturbance of natural drainage lines.
		Visual	Creation of stockpiles alters the visual quality of the landscape.

	disturbed area. Approximately 1,5m of topsoil will be removed.	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	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.

	and domestic animals from harm.		
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.
Use of hydrocarbons, chemicals	The use of hydrocarbons, chemicals will take place and these will be stored on site in designated storage areas.	Soil	Soil contamination.
		Land capability	Decreased land capability due to contaminated soil.
		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.

13. Summary of specialist reports

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

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
Basic Hydrogeological study	• On site there will be regular maintenance of the mobile toilets. • Once drilling, the team will rehabilitate the area and ensure the core is out of site. • The drilling machine used will 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 will 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**	See appendix 30

	• No onsite vehicle or machinery repairs such as changing oil. • No onsite storage of oil, diesel, or petrol. • Cores will be logged on an impervious surface and will be cleared from the site immediately after logging. • Sumps should be lined with an impervious layer to prevent infiltration of the wastewater.		
Basic Hydrology 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. • Stormwater should be prioritized, and the management to prevent surface water contamination. • Clearing of vast amount of vegetation should be avoided, this is to preserve infiltration. • Stormwater measures which include the identified rivers and wetlands, should not be disrupted as they manage surface run off in an area. • The drilling activity should also take into consideration the shallow and fractured aquifer in the area. • No washing of vehicles on site should be allowed.	**x**	See appendix 30

	• Prohibition signs should be placed all around the prospecting area, such no ablution sign or site clearing. • The identified locations for sampling should be made available to the prospecting team.		
• **Basic Soil study**	• Pathways will be stripped when the soil is dry (as far as practical possible), as to reduce compaction; and • The pathways will be stripped according to the stripping guideline and management plan, and further recommendations contained within the rehabilitation plan. • The period of exposure of soil disturbances will be minimized through a planning schedule. • Absorbent kits will be made available near the drill rigs during drilling activities to prevent oil spills from contaminating the surrounding soil. • Drilling on steep slopes will be avoided, to prevent soil erosion. • The exploration geologist will be advised to drill and sample more than 100m away from the waterbody on site. • The proposed prospecting land should be returned to its origin as before prospecting activities and the rehabilitation performance assessment in the proposed land must be done progressively (annually) during the operational phase by a soil specialist. • Dust suppression should be conducted regularly.	**x**	See appendix 30

Basic Rehabilitation study	• It is recommended that the financial provision for closure and rehabilitation be annually updated as per the requirements of the MPRDA. • Surface water monitoring of the pans and associated wetlands surrounding the project area is to be undertaken to determine the impacts associated with operations of the proposed prospecting project. • Regular audits should be undertaken to monitor the progress of areas that have been rehabilitated. • Long term management of the rehabilitated areas will be required via contractual agreements with landowners in the area and rehabilitation should also be undertaken to best practice. • An independent Environmental Assessment Practitioner (Singo Consulting Pty Ltd) shall be appointed to ensure compliance with requirements of the Final Rehabilitation, decommissioning and Closure Plan. • All the affected department must be invited during and after rehabilitation for their input.		See appendix 30

14. Environmental impact statement

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

The prospecting right's positive effect is the identification of a mineral resource that may be exploited economically. But the anticipated prospecting activities will include the use of non-invasive methods. By putting the suggested mitigation strategy into practice, the project's risks and adverse effects will be kept to a minimum.

The Potential positive impacts are as follows:

- 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.

The potential negative impacts are as follows:

- Clearance/Disturbance of vegetation.
- Compacting of Soils.
- Drilling impact on identified lithic scatters.
- Deterioration and damage to existing access roads and tracks.
- Safety and security risks to landowners and lawful occupiers.
- Interference with existing land uses.
- Generation and disposal of waste.
- Contamination of surface and ground water.
- Introduction/invasion by alien species.
- Noise.
- Impact on faunal species.
- Pollution of Soils.
- Dust.
- Erosion due to vegetation clearance.
- Impact on surface water features.

- ❖ Impact on groundwater.
- ❖ Loss of fossil heritage.

The EMPr has identified appropriate mechanisms for avoidance and mitigation of these negative impacts.

14.2. 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 following management objectives and impact management outcomes are recommended for inclusion in the EMPR:

- Biodiversity: Prevent and / or restrict the loss of indigenous fauna and flora as far as practically possible.
- Physical aspects: Prevent and / or restrict the impact on soils and surface water.
- Social Aspects: Ensure the health and safety of employees Chipo Holdings (Pty) Ltd and any contractors associated with the development and operation of the proposed activity as well as the surrounding community and visitors.
- Heritage: Ensure the protection of any potential heritage features or objects that may be excavated during the proposed development.

15. Any aspects which must be made conditions of the Environmental Authorization

The following aspects are recommended to be included as conditions in the Environmental 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 Chipo Holdings (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.

16. Description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed.

The following assumptions, uncertainties, and gaps in knowledge are applicable to this BAR & EMPr:

From the desktop study proposed borehole map was developed, these boreholes can be shifted depending on the sensitivity of the area and other factors, then it is recommended that focus should be given to these sites in order to identify any cultural or heritage resources of significance, any ecologically significant areas that may occur as well as re-engaging landowners regarding the intention to access and conduct drilling activities on their property.

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

17.1. Reasons why the activity should be authorized or not

In general, it is acknowledged that the prospecting activities under consideration could expose people, the environment, and nearby companies to a number of dangers. However, all consequences can be reduced to minimal levels based on the results of this BA, which are reported in this report.

According to this report, the projected development could help the local and regional communities in terms of socioeconomic factors. The EMPr must be closely followed, compliance with it will be checked regularly, and prospecting is prohibited in the northern parts of the research area, according to the EAP's recommendation that the proposed activities be allowed.

Prospecting efforts must be carried out or information on mineral reserves in the research area will be lost. The opportunity to use the reserves for future mining and brickmaking will be lost if economically viable reserves are present on the study area and the applicant is unable to prospect, meaning the minerals will be sterilized and any ensuing socioeconomic benefits will be lost.

The proposed prospecting activities have the potential to negatively affect both the local social and biological environments. Yet, as the impact assessment demonstrates, these effects may be avoided, reduced, mitigated, and managed to low and extremely low levels.

17.2. 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 Chipo Holdings (Pty) Ltd and Singo Consulting (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.

18. Period for which the Environmental Authorisation is required

This Environmental Authorisation is required for a period of 5 years.

19. Undertaking

It is confirmed 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 BAR and the EMPR.

20. Financial provision

A financial provision of approximately **R 1 617 747.00** has been budgeted for the prospecting activities. In addition, **R45 647.00** will be made available Chipo Holdings (Pty) Ltd for rehabilitation purposes. The financial provision was calculated according to Financial Provision Regulations 6 of 2015, published under Government Notice R1147 in Government Gazette 39425 of November 2015 (the Financial Provisioning Regulations) for National Environmental Management Act 1998 (Act No. 107 of 1998) (NEMA), amended, Government Notice 24 in Government Gazette 42956 dated 17 January 2020.

Table 17: Calculation of the quantum

CALCULATION OF THE QUANTUM

DMRE REF: MP 30/5/1/1/2/17897 PR

Applicant: **Chipo Holdings (Pty) Ltd** **Date: 30/03/2023**

Evaluator: **Mazithi Mangcu**

No.	Description	Unit	A Quantity	B Master Rate	C tiplica 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	55,125	49	0,1	1	270,1125
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		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		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		685612	1	1	0
9	Rehabilitation of subsided areas	ha	0,9	158701	0,1	1	14283,09
10	General surface rehabilitation	ha		150138	1	1	0
11	River diversions	ha	0	150138	1	1	0
12	Fencing	m	0	171	1	1	0
13	Water management	ha		57087	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0,9	19980	1	1	17982
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
						Sub Total 1	32535,2025

1	Preliminary and General	3904,2243	weighting factor 2 1	3904,2243
2	Contingencies	3253,52025		3253,52025
			Subtotal 2	39692,95
			VAT (15%)	5953,94
			Grand Total	**45647**

Sign Mazithi Mangcu

Date 30/03/2023

20.1. Explain how the aforesaid amount was derived

This information has been provided in the Prospecting Work Programme that was submitted to the DMRE. The drilling contractor will be responsible for rehabilitating the drill pad once the drilling activities have been completed at each exploration hole. The financial guarantee was calculated using the DMRE official financial quantum calculator.

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

Chipo Holdings (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. The amount is also reflected in the Prospecting Work Programme and their financial statements submitted to the DMRE.

21. Specific information required by the competent authority

No additional information other than the appendices of this report has been included.

21.1. Compliance with the provisions of sections 24(4)(a) and (b) read with section 24 (3) (a) and (7) of the National

Environmental Management Act (Act 107 of 1998). the EIA report must include the:

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

The potential impacts on the socio-economic conditions have the potential to include:

- Safety and security risks to landowners and lawful occupiers

  The potential exists for a group of unfamiliar workers to enter the project area during the prospecting activities. This impact could potentially affect the local communities; however, the impact will be minimal as people on site will be limited to the Applicant, contractor and geologists for the topographical and geophysical surveys.

❖ Interference with existing land uses

Access to the application area for the topographical and geophysical survey will be required which may interrupt the existing land uses, such as livestock. However, this impact will be minimal as no heavy equipment will be brought on site and it is of short duration.

The consultation process will allow directly affected parties to raise their concerns. Further to this, it must be noted that I&AP's, including directly affected parties such as landowners, have the opportunity to review and comment on this report. The results of the public consultation have been included in the final report submitted to the department for adjudication.

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

From these previous research records conducted in the area; the specialist concluded that the general region is significant from a heritage perspective. Heritage sites are likely to include graveyards, Iron Age/Farmer and Historical remains. Since heritage sites, e.g., graves, are not always clearly identifiable as it might consist of stone cairns, it is advised that a qualified archaeologist inspect the proposed prospecting sites prior to drilling to establish whether the sites might be sensitive from a heritage perspective.

The following recommendations were made in terms of the National Heritage Resources Act (Act No. 25 of 1999) in order to avoid the destruction of heritage remains in areas demarcated for prospecting:

- Prior to any development, construction or prospecting, a qualified archaeologist should conduct a site inspection on the areas demarcated for geotechnical drilling/prospecting. Proposed access roads to the drill sites should also be surveyed in order to avoid the destruction of heritage material.
- Should the prospecting outcome result in further development or construction and mining, a full Phase 1 Archaeological Impact Assessment must be conducted on the affected area if triggered.
- Because archaeological artefacts generally occur below surface, the possibility exists that culturally significant material may be exposed during the

development and construction phases, in which case all activities must be suspended pending further archaeological investigations by a qualified archaeologist. Also, should skeletal remains be exposed during development and construction phases, all activities must be suspended, and the relevant heritage resources authority contacted (see National Heritage Resources Act (Act No. 25 of 1999) Section 36 (6)).

22. Other matters required in terms of sections 24(4)(A) and (B) of the act

The EAP included all aspects as required by the EIA regulations, 2014 for the EIA and EMPR as described in the Executive Summary of this report. Please refer to Part A

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

23. Introduction

23.1. Details of the EAP

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(a) of this report.

23.2. Description of the Aspects of the Activity

Herewith, it is confirmed that the requirement to describe the aspects of the activity that are covered by the environmental management programme is already included in PART A, section (2) herein as required.

23.3. Composite Map

Refer to appendix for a composite map.

24. Description of Impact management objectives including management statements

24.1. Determination of closure objectives

The actions of prospecting rely on the earlier stage (non-invasive). Prospecting is conducted in phases, with each stage affecting the activities and position of trenching and drilling to sample the soil. Hence, it is impossible to predict the precise locations and scope of soil sample and diamond core drilling.

The closure objectives include:

- Use drill hole capping and backfilling to make sure there are no safety issues connected to the drill boreholes.
- Clean up any pollution caused by waste materials or hazardous spills and get rid of the pollution's source.
- Re-vegetate disturbed areas with endemic plant species that exist natively in the area.

- ❖ Create an area that is resistant to soil erosion.

24.2. Volumes and rate of water use required for the operation

A total of 18 000L of water will be used per day on maximum drilling production day

24.3. Has a water use license been applied for?

No. No water use license has been applied because no water will be extracted from or diverted from any water source. For the sole purpose of this project, a water tank will be used to transport all water used on site. The municipality or authorized water supplier that provides treated industrial water or potable water will be where this water is purchased from. A water sale agreement will be issued and filed on site to ensure compliance.

24.4. Impacts to be mitigated in their respective phases

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

Table 18: impacts to be mitigated

Activities	Phase	Size and 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	0.9ha, 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.	NEMA OHS and MHSA	Throughout Construction and operation
Activities	**Phase**	**Size and Scale of Disturbance**	**Mitigation Measures**	**Compliance with Standards**	**Time Period for Implementation**
			• 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.		
Establishment of site infrastructure	Construction	0.9 ha, 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. • 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.	NEMA MPRDA NEMBA NEMAQA Dust regulations NWA DWAF Best Practice Guidelines NHRA	Throughout Construction and operation

			• Limit vehicle access to approved access roads. • Prepare contingency plans for spillage and fire risks.		
Activities	**Phase**	**Size and Scale of Disturbance**	**Mitigation Measures**	**Compliance with Standards**	**Time Period for Implementation**
			Temporary heritage signage around the conserved farmsteads during the construction (drilling) phase.		

Storage of construction vehicles	Construction and Operation	0,9 ha, 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	0.9 ha, 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	NEMA NEMBA CARA NEMAQA Dust Regulations Road Traffic Act	Throughout Construction and operation

			agreement should additionally stipulate landowners' special conditions which would form a legally binding agreement;		
Activities	**Phase**	**Size and Scale of Disturbance**	**Mitigation Measures**	**Compliance with Standards**	**Time Period for Implementation**

			• 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; • 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	0,9 ha, 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
Activities	**Phase**	**Size and Scale of Disturbance**	**Mitigation Measures**	**Compliance with Standards**	**Time Period for Implementation**
			• Hazardous substances must be confined to specific and secured areas, and stored at all-time within bunded areas. • Adequate spill prevention and clean-up procedures should be developed and implemented during the prospecting activities. • Should any major spills of hazardous materials take place, such should be reported in terms of the Section 30 of the NEMA.		

Waste management	Construction and Operation	Short-medium term, localized	• Waste generated on site must be recycled as far as possible. Recyclable waste must not be stored on site for excessive periods to reduce risk of environmental contamination. • Drill muds, formation water (if encountered), etc. would constitute waste and must be classified and ranked in terms of relevant legislation for correct disposal; and • A Waste Management System must be implemented and provide for adequate waste storage (in the form of enclosed containers) waste separation for recycling, and frequent removal of non-recyclable waste for permanent disposal at an appropriately licensed waste disposal facility. No waste material is to be disposed of on site.	DWAF Minimum requirements for waste disposal NEMWA	Throughout Construction and operation
Prospecting boreholes:	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	SANS 10103 ECA Noise Regulations NEMAQA	Throughout Construction and operation and decommissioning

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
15 sites, with a footprint of 600 m² each			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. • Local residents should be notified of any potentially noisy activities or work and these activities should be undertaken at reasonable times of the day. These works should not take place at night or on weekends. • 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.	Dust Regulations NWA	

			• 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 500m of a watercourse. • Should any watercourse be affected, then the necessary water use licences should be		
Activities	**Phase**	**Size and Scale of Disturbance**	**Mitigation Measures**	**Compliance with Standards**	**Time Period for Implementation**

			obtained from the Department of Water and Sanitation. • No ablution of site laydown areas is to be located within 100m of a watercourse. • Where shallow aquifers are encountered, a survey of the drinking water/ livestock watering boreholes should be undertaken (within 100m 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, and where a pollution event occurs at a particular borehole, then the advice of a geo-hydrologist 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	0,9 ha, 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	MPRDA Regulations GN R527 SANS 10103	Planning Phase Throughout Construction and operation
Activities	**Phase**	**Size and Scale of Disturbance**	**Mitigation Measures**	**Compliance with Standards**	**Time Period for Implementation**
			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.	ECA Noise Regulations NEMAQA Dust Regulations NWA DWAF BPG NHRA	

			• 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. • No prospecting boreholes should be drilled in the immediate vicinity of existing private boreholes. • Soils in drilling areas where disturbances will be encountered 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. • Cut of trench and berm must be constructed around the drill pad to prevent contaminated surface runoff from entering shallow aquifers and surrounding water resources, where required by the topography.		

			• 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		
Activities	**Phase**	**Size and Scale of Disturbance**	**Mitigation Measures**	**Compliance with Standards**	**Time Period for Implementation**
			minimize excessive environmental disturbance to the soil and vegetation on site, and to minimize disruption of traffic. • Workforce should be kept within defined boundaries ad to agreed access routes; • fugitive emissions be detected, then the recommendations of the must be undertaken throughout the drilling activity up to the decommissioning of the wells. • Should any chance finds be uncovered during the construction phase, these must be handled in accordance with		

			the requirements of the National Heritage Resources Act, 1999 (Act 25 of 1999) (NHRA); and • If a possible heritage site (including graves) or artefact is discovered during construction, all operations in the vicinity of the discovery (at least 30 m buffer) should stop and a qualified specialist contracted to evaluate and recommend appropriate actions. Depending on the type of site that can include initiating a grave relocation process, documentation of structures or archaeological excavations. • Should fossil remains be discovered in the Cenozoic Superficial deposits during any phase of construction, either on the surface or exposed by fresh excavations, the ECO responsible for these developments should be alerted immediately. Such discoveries ought to be protected (preferably in situ) and the ECO should alert SAHRA so that appropriate mitigation		

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			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 APM Unit 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 Phase 2 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. • Temporary heritage signage around the conserved.		
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	NWA DWAF BPG	Throughout Construction and operation
Activities	**Phase**	**Size and Scale of Disturbance**	**Mitigation Measures**	**Compliance with Standards**	**Time Period for Implementation**
			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 (inlets, outlets,		

			points of leakage, etc.) during transfer to prevent such spillage or leakage. Any accidental spillages must be contained and cleaned up promptly.		
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, and the chemicals contained	NWA DWAF BPG	Throughout Decommissioning and Closure
Activities	**Phase**	**Size and Scale of Disturbance**	**Mitigation Measures**	**Compliance with Standards**	**Time Period for Implementation**
			therein. As a result, the contractor shall ensure that: o Concrete shall not be mixed directly on the ground. o The visible remains of concrete, either solid, or from washings, shall be physically removed immediately and disposed of as 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;	MPRDA Rehab Plan NEMA	Rehabilitation
Activities	**Phase**	**Size and Scale of Disturbance**	**Mitigation Measures**	**Compliance with Standards**	**Time Period for Implementation**
			• 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.		
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. The Applicant shall attend applicable community meetings with the affected communities. Any issues raised will then be addressed through a grievance mechanism.	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)	MPRDA Rehab Plan	Post-operation

			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.		

24.5. Impact Management Outcomes

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

Table 19: Measures to rehabilitate the environment affected by the undertaking of any listed activity, impact management outcomes, and impact management actions for

Activity Including Size/ scale	**Aspects and potential impacts**	**Mitigation type and Measures**	**Standards to be achieved**	**Compliance with standards**	**Phase and / or period for implementation**
• Clearing of vegetation and topsoil. • Stockpiling of overburden positioned for	Minor loss and disturbance to topsoil as a result of clearing of vegetation and drilling and trenching. When vegetation is cleared and the topsoil is stripped, the soil's natural structure is disturbed and as a result	**Prevent and reduce through management measures.** **Stripping of topsoil:** • Clearing of areas to take place a maximum of one month prior to intended prospecting in the area;	Impact avoided. All topsoil used in concurrent rehabilitation.	Rehabilitation objectives and standards	Prospecting Invasive Phase

later rehabilitation. • 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.	the natural cycle is broken exposing the bare soil to erosion. Vehicles driving on these soils cause compaction of soils and reduces the soils' ability to be penetrated by root growth. Compaction 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.	• Stripping of topsoil will not take place during rain or excessive wind; and • The top 30 cm of vegetation and topsoil is to be stripped from the area to be prospected. **Storage of topsoil / overburden:** • Topsoil (top 30cm) is to be stored in predetermined topsoil berms, (+/- 5m) outside the boundary of the specific area; and • Topsoil stockpiles will be restricted to 1.5 to 2m in height. **Maintenance and monitoring of topsoil stockpiles:** • The stored topsoil should be used as soon as possible in concurrent rehabilitation. • Weekly visual inspections to be conducted.	Rehabilitation objectives and standards		

Activity Including Size/ sca	Aspects and potential impacts	Mitigation type and Measures	Standards to be achieved	Compliance with standards	Phase and / or time period for implementation
• Dust Suppression.	Hydrocarbon spills on soil 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 always a chance of these breaking down and/or leaking.	**Prevent and reduce and remedy through management measures.** • All vehicles and machinery will be regularly serviced to ensure they are in proper working condition and to reduce risk of leaks; • All leaks will be cleaned up immediately using an absorbent material and spill kits, in the prescribed manner; and ***Hydrocarbons and hazardous waste*** • All hazardous waste generated shall be kept separate and shall not be mixed with general waste; and • All hazardous waste shall be stored within a sealed drum on an impermeable surfaced area within the central waste storage and transition area.	Impact avoided. No signs of soil contamination and loss of topsoil due to contamination. Meet rehabilitation objectives and standards.	Rehabilitation objectives and standards Spill procedure Hazardous Substances Act, 1973 (Act 15 of 1973) [as amended] • Section 2 Declaration of grouped hazardous substances;	Prospecting Invasive Phase

				- Section 9 (1) Storage and handling of hazardous chemical substances	

Activity Including Size/ scale	Aspects and potential impacts	Mitigation type and Measures	Standards to be achieved	Compliance with standards	Phase and / or time period for implementation

				- Section 18 Offences Hazardous Chemical Substances Regulations, 1995 (Government Notice 1179 of 1995) - Section 4 Duties of persons who may be exposed to hazardous chemical substances SANS 10234: 2008: Globally Harmonized	

Activity Including Size/ scale	Aspects and potential impacts	Mitigation type and Measures	Standards to be achieved	Compliance with standards	Phase and / or time period for implementation
				System of classification and labelling of • chemicals (GHS)	
	Stormwater, erosion and siltation impacts due to a lack of implementing temporary measures to manage stormwater run-off quantity and quality.	**Prevent and reduce and remedy through management measures.** • The existing SMP updated, where applicable for present and future activities should include the management of stormwater during excavation, as well as the installation of temporary stormwater and erosion control measures during prospecting, followed up by rehabilitation of the area;	Impact avoided. No signs of soil contamination and loss of topsoil due to contamination. Meet rehabilitation objectives and standards.	Rehabilitation objectives and standards Spill procedure GN704 Regulations in terms of the National Water Act, 1998 (Act No 36 of 1998)	Prospecting Invasive Phase

		• Temporary stormwater management systems (such as sand bags) will be installed to prevent stormwater from entering or exiting the area where prospecting will occur, which could result in silt laden surface water from draining		Hazardous Substances Act, 1973 (Act 15 of 1973) [as amended]	

Activity Including Size/ scale	**Aspects and potential impacts**	**Mitigation type and Measures**	**Standards to be achieved**	**Compliance with standards**	**Phase and / or time period for implementation**
		• The slopes of the area where prospecting activities will occur, should be profiled to ensure that they are not subjected to excessive erosion but capable of drainage run-off with minimum risk of scrub (hydrologic action by water that causes erosion). A maximum gradient of 1:3 is recommended.		• Section 2 Declaration of grouped hazardous substances. - Section 9 (1) Storage and handling of hazardous	

		• If necessary, temporary diversion channels should be constructed ahead of the stockpiles (if relevant) to intercept clean run-off and divert it around disturbed areas into the natural drainage system • downstream (down gradient) of the prospecting area; • Existing vegetation must be retained as far as possible to minimize erosion problems. • Rehabilitation of the prospecting area shall be planned and completed (after conclusion of the prospecting activities) in such a way that the runoff water (if any) will not cause erosion. Visual inspections shall be done on a weekly basis with regard to the stability of the temporary		chemical substances - Section 18 Offences Hazardous Chemical Substances Regulations, 1995 (Government Notice 1179 of 1995)	

Activity Including Size/ scale	Aspects and potential impacts	Mitigation type and Measures	Compliance with standards		Phase and / or time period for implementation
		water control structures, erosion and siltation (if required). • Sediment-laden run-off from cleared areas should be prevented from entering rivers and streams. • No river or surface water may be affected by silt emanating from the prospecting area (especially aimed at prevention of siltation of the nearby watercourse); and • No wastewater may run freely into any of the surrounding naturally vegetated areas.		- Section 4 Duties of persons who may be exposed to hazardous chemical substances SANS 10234: 2008: Globally Harmonized System of classification and labelling of • chemicals (GHS)	

	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.	**Prevent and reduce through management measures.** In accordance with Government Notice 704 (GN 704), the onsite management should: • Keep clean and dirty water separated. • Contain any dirty water within a system; and	Impact avoided. No signs of soil contamination and loss of topsoil due to contamination.	Rehabilitation objectives and standards Spill procedure	Prospecting Invasive Phase

Activity Including Size/ scale	**Aspects and potential impacts**	**Mitigation type and Measures**	**Standards to be achieved**	**Compliance with standards**	**Phase and / or time period for implementation**
		• Prevent the contamination of clean water. In order to achieve these objectives, the following stormwater management measures must be implemented on the site to ensure that those potential stormwater impacts are kept to a minimum:	Meet rehabilitation objectives and standards.	GN704 Regulations in terms of the National Water Act, 1998 (Act No 36 of 1998)	

		• Clean and dirty stormwater needs to be separated. Dirty stormwater may not be released into the environment and should be contained and treated on site; • All temporary stormwater infrastructure (if any) on-site shall be maintained and kept clean throughout the prospecting period; • Immediate reporting of any polluting or potentially polluting incidents so that appropriate measures can be implemented; • Fuel and oil spills shall be treated immediately by appropriate mop-up products. Several hydrocarbon absorption/remediation products (i.e. Spill kits) must be placed throughout the site;		Hazardous Substances Act, 1973 (Act 15 of 1973) [as amended] • Section 2 Declaration of grouped hazardous substances; - Section 9 (1) Storage and handling of hazardous	

Activity Including Size/ scale	Aspects and potential impacts	Mitigation type and Measures	Standards to be achieved	Compliance with standards	Phase and / or time period for implementation
		• Use of bunds or traps to ensure full containment of hydrocarbon and other hazardous materials are mandatory; • Any contaminated material is disposed of in an appropriate manner and the potential risks associated with such spills are limited; • Stormwater leaving the site must in no way be contaminated; Ensure good housekeeping practices; Increased runoff should be managed using berms and other suitable structures as required to ensure flow		chemical substances - Section 18 Offences Hazardous Chemical Substances Regulations, 1995 (Government Notice 1179 of 1995) - Section 4 Duties of persons who may be exposed to hazardous	

		velocities are reduced; and Removal of spills, rainwater and waste produced during clean-up of the bunds – shall be done in accordance to relevant specifications.		chemical substances	

Activity Including Size/ scale	**Aspects and potential impacts**	**Mitigation type and Measures**	**Standards to be achieved**	**Compliance with standards**	**Phase and / or time period for implementation**
				SANS 10234: 2008: Globally Harmonized System of classification and labelling of • chemicals (GHS)	
	Minor loss of natural vegetation and destruction of habitat will result in associated loss of fauna and flora species.	**Reduce through management measures.** • A suitably qualified specialist (ecologist) to accompany the site	Meet rehabilitation objectives and standards.	Meet rehabilitation objectives and standards.	Prospecting Invasive Phase

		manager to demarcate areas for prospecting, in order to avoid damaging sensitive vegetation as identified during the specialist study and according to the sensitivity maps provided in this report; • Only vegetation falling directly into demarcated access routes or project sites should be removed; • No further vegetation clearance except for the removal of alien invasive species will be allowed; and	Alien and invasive vegetation management plan implemented and outcomes achieved.	Alien and invasive vegetation management plan implemented and outcomes achieved.	

Activity Including Size/ scale	**Aspects and potential impacts**	**Mitigation type and Measures**	**Standards to be achieved**	**Compliance with standards**	**Phase and / or time period for implementation**
		• All remaining indigenous vegetation should be conserved wherever possible.			

	Disruption in the movement patterns of fauna species may impact on biodiversity. 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.	**Prevent and reduce through management measures.** • Reduce the levels of disturbance on areas indicated by the Environmental Control Officer (ECO) as migratory routes, if any; • Environmental awareness training should include that no hunting, trapping or killing of fauna are allowed; • Any animals rescued or recovered will be relocated in a suitable habitat away from the mining operations and associated infrastructure; • Any lizards, snakes or monitors encountered should be allowed to escape to a suitable habitat away from disturbance.	NEMBA: National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	NEMBA: National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	Prospecting Invasive Phase

		• No reptile should be intentionally killed, caught or collected during any phase of the project; and • General avoidance of snakes is the best policy if encountered. Snakes should not be intentionally harmed or killed and allowed free movement away from the area.			

Activity Including Size/ scale	**Aspects and potential impacts**	**Mitigation type and Measures**	**Standards to be achieved**	**Compliance with standards**	**Phase and / or time period for implementation**
	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	**Prevent and control through management measures.** • An alien vegetation management plan should be drawn up and implemented;	Rehabilitation Objectives and Standards Alien and invasive	Alien and Invasive Species Management Plan Rehabilitation Objectives and Standards	Prospecting Invasive Phase

	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.	• Regular removal of invasive alien species should be undertaken. This should extend through to the closure phase of the project; and • No spreading of alien vegetation onto adjacent properties should be allowed.	vegetation management plan implemented and outcomes achieved. Proof of alien vegetation control. No listed species visible on the site.	Alien and Invasive Species Regulations (Government Notice 598 of 2014) and Alien and Invasive Species List, 2014 in terms of NEMBA (Government Notice 599 of 2014) - Notice 2	

Activity Including Size/ scale	**Aspects and potential impacts**	**Mitigation type and Measures**	**Standards to be achieved**	**Compliance with standards**	**Phase and / or time period for implementation**

				Exempted Alien Species in terms of Section 66 (1) - Notice 3 National Lists of Invasive Species in terms of Section 70(1) – List 1, 3-9 & 11 - Notice 4 • Prohibited Alien Species in terms of Section 67 (1) – List 1, 3-7, 9-10 & 12	
	Alteration of archaeological, historical and palaeontological resources	**Protect heritage resources through developing and implementing procedures.** • Prior to any development, construction or prospecting, a qualified archaeologist	No loss of newly discovered material.	National Heritage Resources Act, 1999 (Act No. 25	Prospecting Invasive Phase

	that may be discovered during earthworks and drilling.	should conduct a site inspection on the areas demarcated for geotechnical drilling/prospecting.		of 1999) and associated regulations.	

Activity Including Size/ scale	Aspects and potential impacts	Mitigation type and Measures	Standards to be achieved	Compliance with standards	Phase and / or time period for implementation
		Proposed access roads to the drill sites should • also be surveyed in order to avoid the destruction of heritage material; Should the prospecting outcome result in further development or construction and mining, a full Phase 1 • Archaeological Impact Assessment must be conducted on the affected area if triggered; Because archaeological artefacts generally occur below surface, the possibility exists that culturally significant material may be exposed during the development and construction phases,		• South African Heritage Resources Agency Guidelines.	

		in which case all activities must be suspended pending further archaeological investigations by a qualified archaeologist. Also, should skeletal remains be exposed during development and construction phases, all activities must be suspended and the relevant heritage resources authority contacted (see National Heritage Resources Act (Act No. 25 of 1999) Section 36 (6)). Should culturally			

Activity Including Size/ scale	Aspects and potential impacts	Mitigation type and Measures	Standards to be achieved	Compliance with standards	Phase and / or time period for implementation

		significant material or skeletal remains be exposed during prospecting all activities must be suspended pending further investigation by a qualified archaeologist (Refer to the National Heritage and Resources Act, 25 of 1999 section 36 (6)); • Should any objects of archaeological or paleontological remains be found during activities, work must immediately stop in that area and the Environmental Control Officer (ECO) must be informed; • The ECO must inform SAHRA and contact an archaeologist and / or paleontologist, depending on the nature of the find, to assess the importance and rescue them if necessary (with the relevant SAHRA permit). No work may be resumed in this area without the permission of the ECO and SAHRA.			
	Visibility from sensitive receptors / visual scarring of the landscape as a result of the prospecting activities.	**Reduce through controlling management measures.** • Unnecessary lights should be switched off during the day and / or night to avoid light pollution;	Rehabilitation objectives and standards	• Rehabilitation objectives and standards	Prospecting Invasive Phase

Activity Including Size/ scale	Aspects and potential impacts	Mitigation type and Measures	Standards to be achieved	Compliance with standards	Phase and / or time period for implementation
		• If lighting is required, the lighting will be located in such a place and such a manner so as to minimise any impact on the surrounding community and fauna; • Install temporary lights that will not create a night sky glow; • Security lighting should be designed in such a way as to minimise emissions onto undisturbed areas on site and neighbouring properties. Light fittings should face downwards; • Housekeeping on site should be enforced; • Rehabilitation measures such as re-vegetation and plan to be implemented; • Reduce the prospecting period through careful planning and productive implementation of resources;			

		• Plan the placement of lay-down areas and any potential temporary prospecting camps in order to minimize vegetation clearing;			

Activity Including Size/ scale	Aspects and potential impacts	Mitigation type and Measures	Standards to be achieved	Compliance with standards	Phase and / or time period for implementation
		• Restrict the activities and movement of workers and vehicles to the immediate prospecting site and existing access roads; • Ensure that rubble, litter and issued materials are managed and removed regularly; • Ensure that all infrastructure and the site and general surrounds are maintained in a neat and appealing way; and • Reduce and control dust through the use of approved dust suppression techniques.			

	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.	**Reduce through controlling measures.** • Vehicles and machinery will be regularly serviced to ensure acceptable noise levels are not exceeded; • Silencers will be utilised where possible; • Heavy vehicle traffic should be routed away from noise sensitive areas where possible; • Noise levels should be kept within acceptable limits. All noise and sounds generated should adhere to South African Bureau of Standards (SABS) specifications for maximum allowable noise levels for construction sites. No pure tone	Impact reduced. Records of service of all operational vehicles. Silencers utilised where applicable. All employees wear PPE where required.	Meet the South African National Standard SANS 10103:2008 Meet South African Bureau of Standards (SABS) specifications for maximum allowable noise	Prospecting Invasive Phase

Activity Including Size/ scale	**Aspects and potential impacts**	**Mitigation type and Measures**	**Standards to be achieved**	**Compliance with standards**	**Phase and / or time period for implementation**

		sirens or hooters may be utilised except where required in terms of SABS standards or in emergencies; • With regard to unavoidable very noisy activities in the vicinity of noise sensitive areas, the Site Manager (SM) should liaise with local residents and a suitably qualified ecologist and how best to minimise impacts, and the • local population should be kept informed of the nature and duration of intended activities; • The SM should take measures to discourage labourers from loitering in the area, causing noise disturbance; • Noise impacts should be minimised by restricting the hours (between 06h00 and 18h00 on		levels for construction sites. • Meet the requirements of the Mine Health and Safety Act (Act 29 of 1996)	

		Monday to Friday, and 06h00 and 13h00 on Saturdays), during which the offending activities are carried out and, where possible, by insulating machinery and/or enclosing areas of activity; No noisy activities to occur on Sundays or public holidays;			

Activity Including Size/ scale	Aspects and potential impacts	Mitigation type and Measures	Standards to be achieved	Compliance with standards	Phase and / or time period for implementation
		• Personal Protective Equipment to all persons working in areas where high levels of noise can be expected; Signs where it is compulsory; • Regular inspections and maintenance of equipment, vehicles and machinery to prevent unnecessary noise.			

	Increased dust pollution due to vegetation clearance and vehicles driving on gravel roads and drilling.	**Reduce through controlling measures.** • Dust suppression shall be implemented during dry periods and windy conditions; • All exposed surfaces should be minimised in terms of duration of exposure to wind and stormwater; • Excavation, handling and transportation of erodible materials shall be avoided under high wind conditions (excess of 35km/hr) or when a visible dust plume is present; • Ensure that the shortest routes are used for material transport; • Ensure that stockpile height is kept to a minimum; • Minimise travel speed on unpaved roads;	Impact reduced. Speed limit road signs, complying with the South African Road Signs Manual on site. Dust fall monitoring programme should be implemented. Dust fallout and Particulate Matter	South Africa National Standard 1929:2005: Ambient Air Quality: Limits for common pollution Meet the requirements of the National Dust Control regulations, 2013, as published in the Government Gazette (No. 36974) of 1	Prospecting Invasive Phase

Activity Including Size/ scale	Aspects and potential impacts	Mitigation type and Measures	Standards to be achieved	Compliance with standards	Phase and / or time period for implementation
		• Implement monthly site inspection to check for possible areas of dust generation not addressed or not effectively managed; • Spray areas to be cleared with water; • Ensure minimum travel distance between working areas and stockpiles; • Ensure that topsoil for stockpiles is sprayed with water before tipping to prevent dust generation; Ensure graded areas are sprayed with water; Minimise the amount of graded areas; Load and offload material, as far as possible, downwind of topsoil stockpiles.	(PM) levels may not exceed the limits as set out in the Dust Control Regulations above. Monitoring dust stands occurring on site.	November 2013 (GNR 827 of 1 November 2013), in terms of the National Environmental Management: Air Quality Act 39 of 2004 •	

	Gaseous emissions from vehicles and machinery may cause an impact on ambient air quality.	• All vehicles and machinery will be regularly serviced to ensure they are in proper working condition • and to reduce risk of leaks; Proper planning of movements (vehicle trips) and working of machinery should take place, in order to avoid unnecessary trips and hours of operation.	Rehabilitation objectives and standards	• Rehabilitation objectives and standards	Prospecting Invasive Phase

Activity Including Size/ scale	**Aspects and potential impacts**	**Mitigation type and Measures**	**Standards to be achieved**	**Compliance with standards**	**Phase and / or time period for implementation**

	Generation of additional general waste, litter and building rubble and hazardous waste.	**Control through management measures.** • A central waste storage and transition area shall be established within the site camp; • The central waste storage and transition area shall be surfaced and demarcated appropriately; • Portable wheelie bins shall be placed throughout the drill site as well as at the remainder of the site and at all working areas in the field; • Wheelie bins shall be colour coded and labelled to identify the waste stream for which it is intended; • All portable wheelie bins and other containers shall be emptied at the central waste storage and transition area a minimum of once a week or when filled, as to avoid waste build up; • The waste shall be removed (within 30 days) by a licensed waste service provider as shall be disposed of at a	Waste management on site visible.	Waste management on site visible. Waste Classification and Management Regulations and Norms and Standards for the assessment of for landfill disposal and for disposal of waste to landfill, 2013 (Government Notice 634 – 635 of 2013) promulgated in terms of the National Environmental Management:	Prospecting Invasive Phase

		licensed waste landfill site and records of safe disposal (as required for hazardous wastes) shall be supplied to the Contractor. These records shall be kept on site by the ESM;			

Activity Including Size/ scale	Aspects and potential impacts	Mitigation type and Measures	Standards to be achieved	Compliance with standards	Phase and / or time period for implementation

		• Wherever possible and practical, waste materials generated on site must be recycled; and • Waste specific (hazardous, timber, steel etc.) mitigation measures to be implemented.		Waste Act, 2008 (Act No. 59 of 2008) [as amended] and: Regulations regarding the planning and management of residue stockpiles and residue deposits from a prospecting, mining, exploration or production operation (GN R. 632 of 2015)	

Activity Including Size/ scale	Aspects and potential impacts	Mitigation type and Measures	Standards to be achieved	Compliance with standards	Phase and / or time period for implementation
				SANS 10234: 2008: Globally Harmonized System of classification and labelling of • chemicals (GHS)	
	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.	**Reduce through controlling management measures.** • Energy savings measures to be implemented at the site e.g.: o No lights to be switched on unnecessarily; o Only security lights to be switched on at night; • Energy saving bulbs to be installed; and • Water should be recycled as far as possible to avoid any additional water usage.	Impact avoided. Recycling of used and contaminated water through wastewater and sewage treatment and reuse.		Prospecting Invasive Phase

	Minor change in traffic patterns as a result of traffic entering and exiting the site on the surrounding road infrastructure and existing traffic.	**Reduce through controlling management measures.** • Where feasible heavy vehicles should not operate on public roads during peak hours; and	Impact reduced. Speed limit road signs, complying	Reduce through controlling measures	Prospecting Invasive Phase

Activity Including Size/ scale	**Aspects and potential impacts**	**Mitigation type and Measures**	**Standards to be achieved**	**Compliance with standards**	**Phase and / or time period for implementation**
		• Heavy vehicles should adhere to the speed limit of the road.	with the South African Road Signs Manual on site.	Set Speed Limits • South African Road Signs Manual	

	Nuisance, health and safety risks caused by increased traffic on and adjacent to the study area including cars, and heavy vehicles.	**Prevent through controlling management measures.** • Drivers will be enforced to keep to set speed limits; • Trucks will be in a road-worthy condition; • Roads and intersections will be signposted clearly. Only main roads should be used; • Where feasible vehicles should not operate on public roads during peak hours; • Vehicles should adhere to the speed limit of the road; • Heavy vehicles should always travel with their headlights switched on; • Heavy vehicles should not stop on the road to pick up hitchhikers – No stopping on the road approaching the site will be allowed;	Impact reduced. Speed limit road signs, complying with the South African Road Signs Manual on site. South Africa National Standard 1929:2005: Ambient Air Quality: Limits for common pollution	Reduce through controlling measures Set Speed Limits South African Road Signs Manual South Africa National Standard 1929:2005: Ambient Air Quality: Limits for common pollution	Prospecting Invasive Phase

Activity Including Size/ scale	Aspects and potential impacts	Mitigation type and Measures	Standards to be achieved	Compliance with standards	Phase and / or time period for implementation

		• Chipo Holdings (Pty) Ltd shall be responsible for ensuring that suitable access is maintained for public traffic to all relevant businesses and properties; and • All traffic accommodation measures are to conform to the latest edition of the South African Road Signs Manual.	Meet the requirements of the National Dust Control regulations, 2013, as published in the Government Gazette (No. 36974) of 1 November 2013 (GNR 827 of 1 November 2013), in terms of the National Environmental Management: Air Quality Act 39 of 2004	National Dust Control regulations, 2013, as published in the Government Gazette (No. 36974) of 1 November 2013 (GNR 827 of 1 November 2013), in terms of the National Environmental Management: Air Quality Act 39 of 2004 Approved dust fall monitoring programme	

			Dust fall monitoring		

Activity Including Size/ scale	Aspects and potential impacts	Mitigation type and Measures	Standards to be achieved	Compliance with standards	Phase and / or time period for implementation
			programme should be implemented. Dust fallout and Particulate Matter (PM) levels may not exceed the limits as set out in the Dust Control Regulations above. Monitoring dust stands occurring on site.		

	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.	**Prevent through controlling management measures.** • All workers will be sensitized to the risk of fire; • Smoking is only allowed in designated smoking areas and disposal of cigarette butts safely in sand buckets;	Mine Health and Safety Act (Act 29 of 1996) An Emergency Plan (including Fire Protection,	Impact avoided. No incidents of fires occurring on site.	Prospecting Invasive Phase

Activity Including Size/ scale	**Aspects and potential impacts**	**Mitigation type and Measures**	**Standards to be achieved**	**Compliance with standards**	**Phase and / or time period for implementation**

		• The Applicant shall ensure that the basic firefighting equipment is available on the site. Extinguishers should be located outside hazardous materials and • chemicals storage containers. Fire response and evacuation: • An Emergency Plan (including Fire Protection, Response and Evacuation Plan) is to be prepared by the Applicant and conveyed to all staff on the site. • Identify major risks to minimise the environmental impacts e.g., air pollution and contaminated effluent runoff.	Response and Evacuation Plan) Veld and Forest Fire Act, 1998 (Act No. 101 of 1998) [as amended] - Section 12 (1) Duty of the landowner to prevent fire from spreading to neighbouring properties.	No one smoking in unauthorised areas. Proof / records of training in terms of the risk of fire and of the emergency management plan. • Basic fire-fighting equipment located in the correct locations on site.	
	Increased risk to public and worker safety: If not fenced off, the public and workers may fall into	• A health and safety plan in terms of the Mine Health and Safety Act (Act 29 of 1996) should be compiled and implemented to ensure worker safety;	Mine Health and Safety Plan available on site and proof that it is	Health and safety plan in terms of the Mine Health and Safety Act	Prospecting Invasive Phase

	excavated areas and trenches.			(Act 29 of 1996)	

Activity Including Size/ scale	Aspects and potential impacts	Mitigation type and Measures	Standards to be achieved	Compliance with standards	Phase and / or time period for implementation
		• A health and safety control officer should monitor the implementation of the health • and safety plan for the operational phase; • Any health and safety incidents should be reported to the Site • Manager (SM) immediately; First aid facilities should be available • on site at all times; Workers have the right to refuse work in unsafe conditions; • Material stockpiles or stacks • should be stable and well secured to avoid collapse and • possible injury to site workers.	being implemented. Proof of training in awareness of health and safety procedures. Proof / records of health and safety audits available on request.		

		Access to excavation must be controlled; Excavated areas should be temporarily fenced off; and Excavations will be backfilled and landscaped as soon as possible.	No health and safety incidents reported. Proof / record of stockpile and stacks inspections taking place.		
Activity Including Size/ scale	**Aspects and potential impacts**	**Mitigation type and Measures**	**Standards to be achieved**	**Compliance with standards**	**Phase and / or time period for implementation**
			Health and safety signs on site at appropriate locations.		
	Potential creation of very limited extent short term employment opportunities for the local community, during the prospecting phase.	Local labour to be sourced where possible.			Prospecting Invasive Phase

	Multiplier effects on local economy will be positive, but very limited in extent and only short term.	Supplies to be bought locally as far as possible. -			Prospecting Invasive Phase

25. Financial Provision

25.1. Determination of the amount of Financial Provision

25.1.1. 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:

- Use drill hole capping and backfilling to make sure there are no safety issues connected to the drill boreholes.
- Clean up any pollution caused by waste materials or hazardous spills and get rid of the pollution's source.
- Re-vegetate disturbed areas with endemic plant species that exist natively in the area.
- Create an area that is resistant to soil erosion.

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

The Public Participation Process (PPP) is a requirement of several pieces of South African Legislation and aims to ensure that all relevant Interested and Affected Parties (I&AP's) are consulted, involved and their opinions are taken into account and a record included in the reports submitted to Authorities. The process ensures that all stakeholders are provided this opportunity as part of a transparent process which allows for a robust and comprehensive environmental study. The PPP for the as part of the prospecting right application needs to be managed sensitively and according to best practices in order to ensure and promote:

- Compliance with national legislation.
- Establish and manage relationships with key stakeholder groups
- Encourage involvement and participation in the environmental study and authorisation/ approval process.

As such, the purpose of the PPP and stakeholder engagement process is to:

- Introduce the proposed project.
- Explain the environmental authorizations required.
- Explain the environmental studies already completed and yet to be undertaken (where applicable).
- Determine and record issues, concerns, suggestions, and objections to the project.
- Provide opportunity for input and gathering of local knowledge.
- Establish and formalize lines of communication between the I&AP's and the project team.
- Identify all significant issues for the project; and
- Identify possible mitigation measures or environmental management plans to minimize and/or prevent negative environmental impacts and maximize and/or promote positive environmental impacts associated with the project.

Interested and affected parties have been consulted and provided an opportunity to comment on this Basic Assessment Report, EMPr including all decommissioning, closure and rehabilitation plans.

25.2. 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 activities of prospecting depend on the earlier stage (non-invasive). Prospecting is done in stages, with each stage affecting the activities and position of trenching and drilling to sample the soil. Hence, it is impossible to predict the precise locations and scope of soil sample and diamond core drilling. Prospecting activity mapping is also not possible.

The impacts will be of low or very low significance due to the narrow scope, relatively brief duration, and Environmental Impact Assessment of the prospecting activities. Borehole capping and re-vegetation will be done as part of the rehabilitation process.

25.3. 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 and will include borehole capping and re-vegetation. Detailed mitigation measures are provided in the EMPR to ensure the closure objectives are met.

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

The closure cost assessment will be conducted, if required. The report will be submitted to the Department of Mineral Resources & Energy together with the Final Basic Impact Assessment report, if required.

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

It is confirmed that the amount for financial provision is anticipated to be an operating cost and is provided for as such in the Prospecting Work Programme. Chipo Holdings (Pty) Ltd herewith confirms both its capacity and willingness to make the financial provision required should the prospecting right be granted.

26. Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including h) Monitoring of Impact Management Actions

i) Monitoring and reporting frequency

j) Responsible persons

k) Time period for implementing impact management actions

Mechanism for monitoring compliance

Table 20: Mechanisms for monitoring

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	• The existing SMP updated, where applicable for present and future activities should include the management of stormwater during excavation, as well as the installation of temporary stormwater and erosion control measures during prospecting, followed up by rehabilitation of the area. This Stormwater	Applicant Engineer	After rain / storm events; and Weekly

Table 21: Mechanisms for monitoring

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 including diamond core drilling, logging and sampling of the borehole core, trenching will involve the digging of excavation trenches down to approximately 3 meters below surface using graders and excavators. • Dust Suppression.		Management Plan to be monitored for implementation. • Visual inspections shall be done on a weekly basis with regard to the stability of the temporary water control structures, erosion and siltation.		
	Dust and air quality pollution	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. • Tracking of progress due to pollution control measure implementation;	Applicant Environmental Specialist	Monthly

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
		• 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. • Alien vegetation control and management. • Habitat and vegetation management.	Environmental Specialist	Visual inspections during all phases of the activities.

		• 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.		

27. 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.

28. Environmental Awareness Poster

Figure 39: Environmental awareness poster (Singo Consulting (Pty) Ltd, 2023)

Photo 4. Typical Example of She awareness & training

28.1. 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.
- ❖ Specialized 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.

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.

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.

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.

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.

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

The broad measures to control or remedy any causes of pollution or environmental degradation as a result of the proposed prospecting activities taking place are provided below:

- ❖ Contain potential pollutants and contaminants (where possible) at source.
- ❖ Handling of potential pollutants and contaminants (where possible) must be conducted in bunded areas and on impermeable substrates.
- ❖ Ensure the timeous clean-up of any spills.
- ❖ Implement a waste management system for all waste stream present on site.
- ❖ Investigate any I&AP's claims of pollution or contamination as a result of mining activities; and
- ❖ Implement the impact management objectives, outcomes and actions, as described in Section above.

It is of critical importance that the broad measures to control or remedy any causes of pollution or environmental degradation are applied during onsite prospecting activities.

29. Specific information required by the Competent Authority

No specific information has been required by the Competent Authority at this point in time among others financial provision will be reviewed annually.

30. 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:

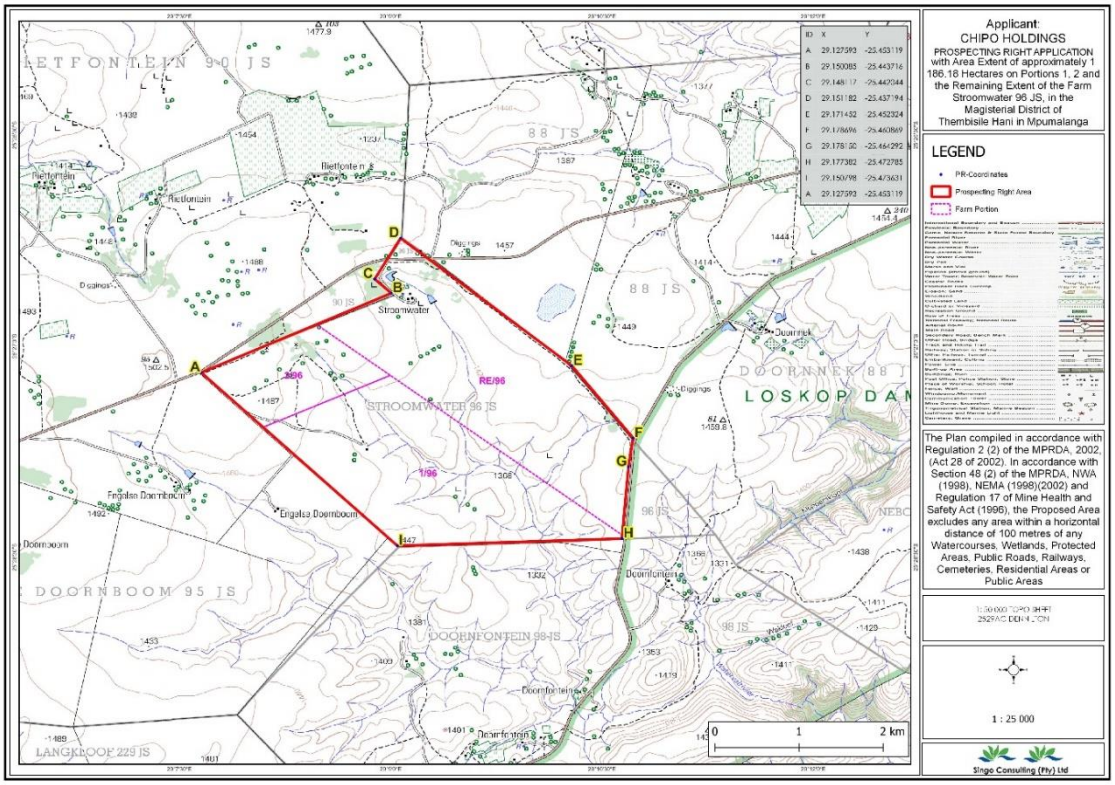
Name of company:

Date:

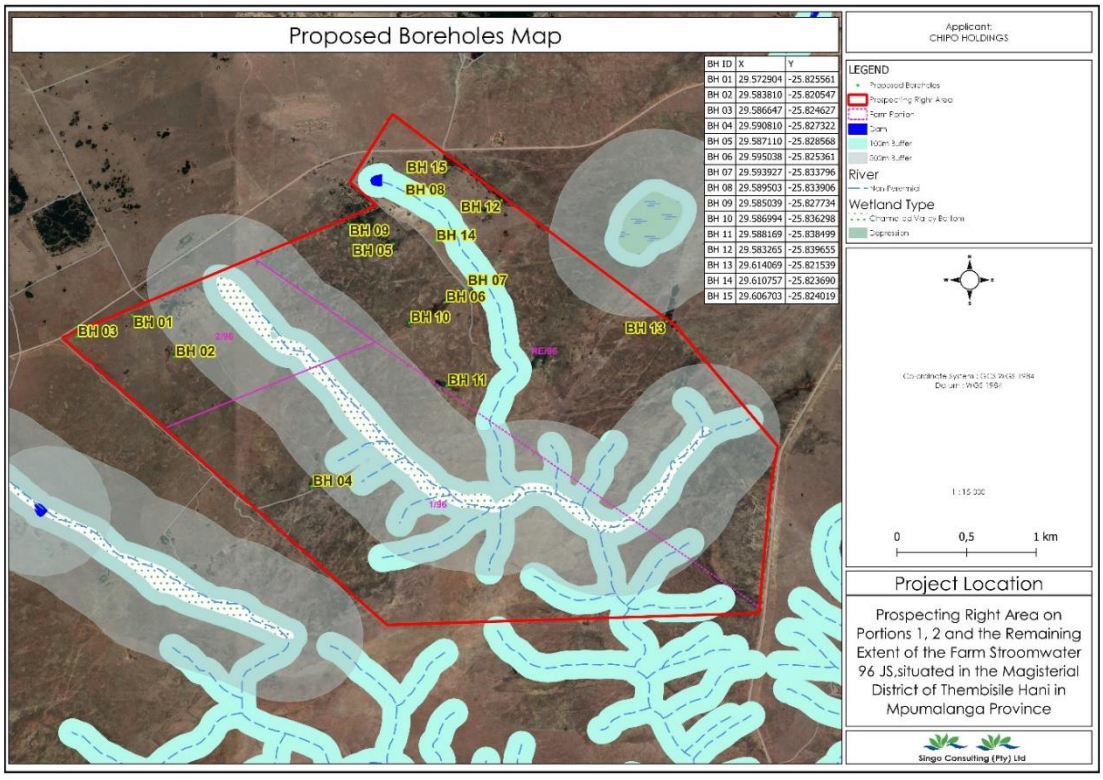
-END-

APPENDICES

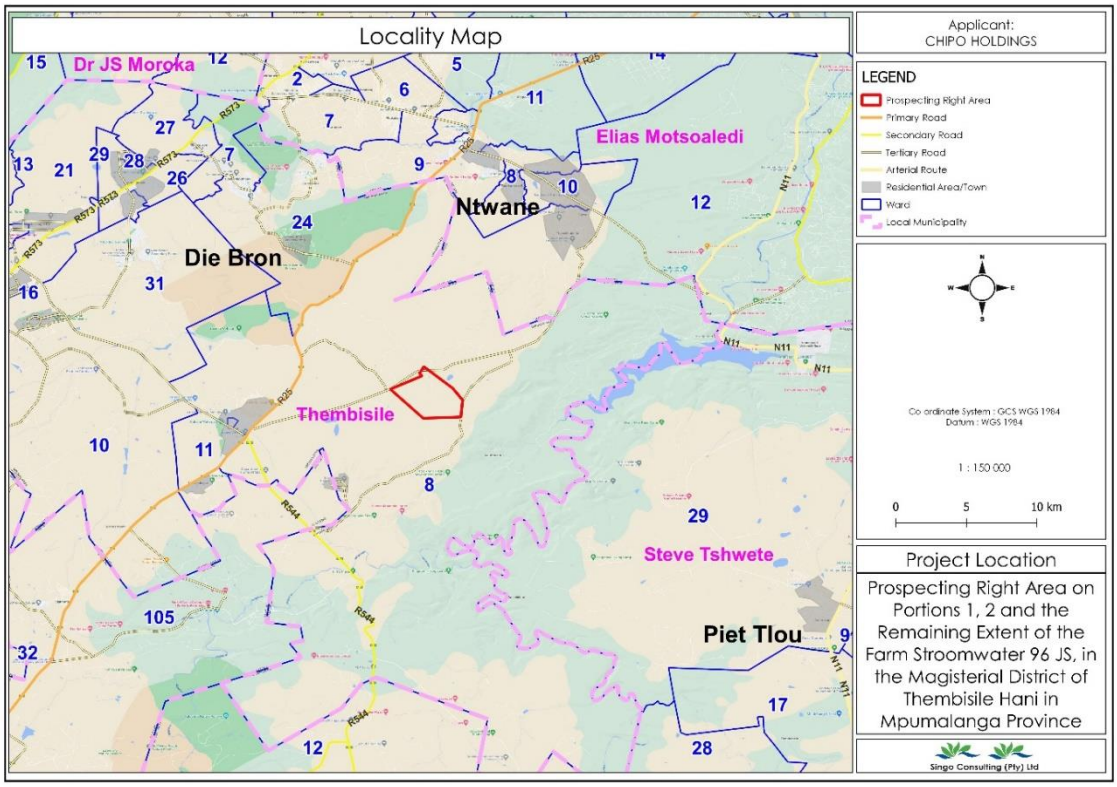
Appendix 1: Regulation Map



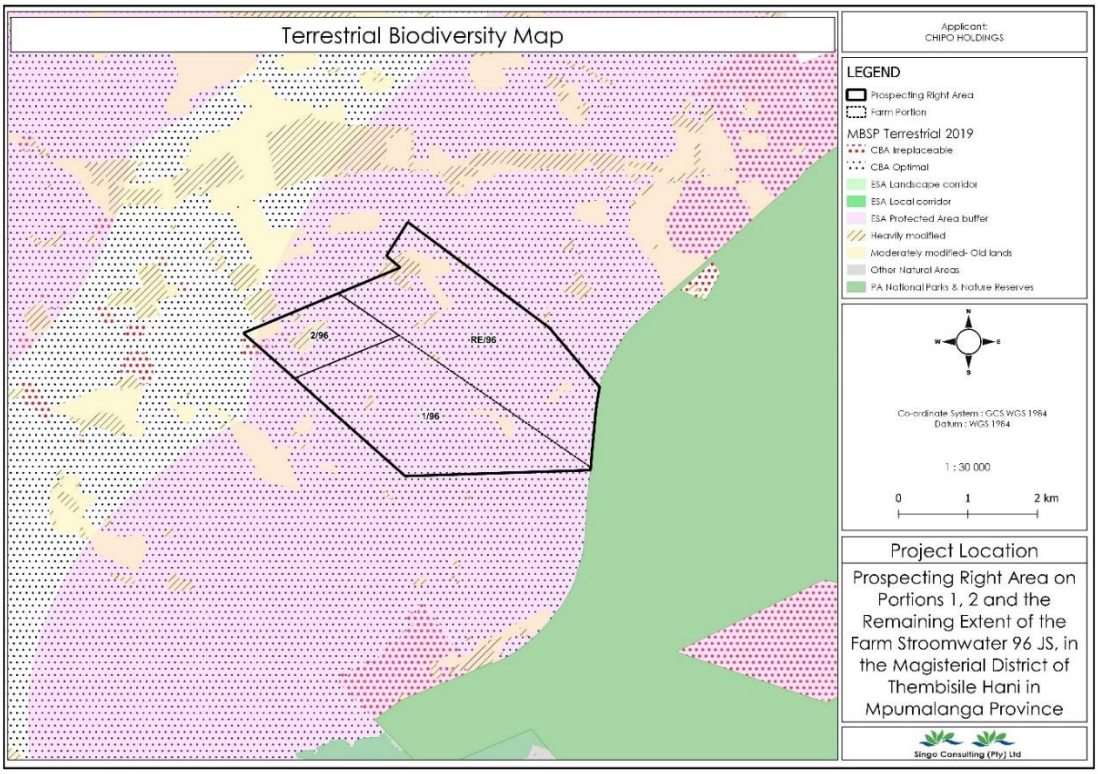
Appendix 2: Proposed Borehole Map



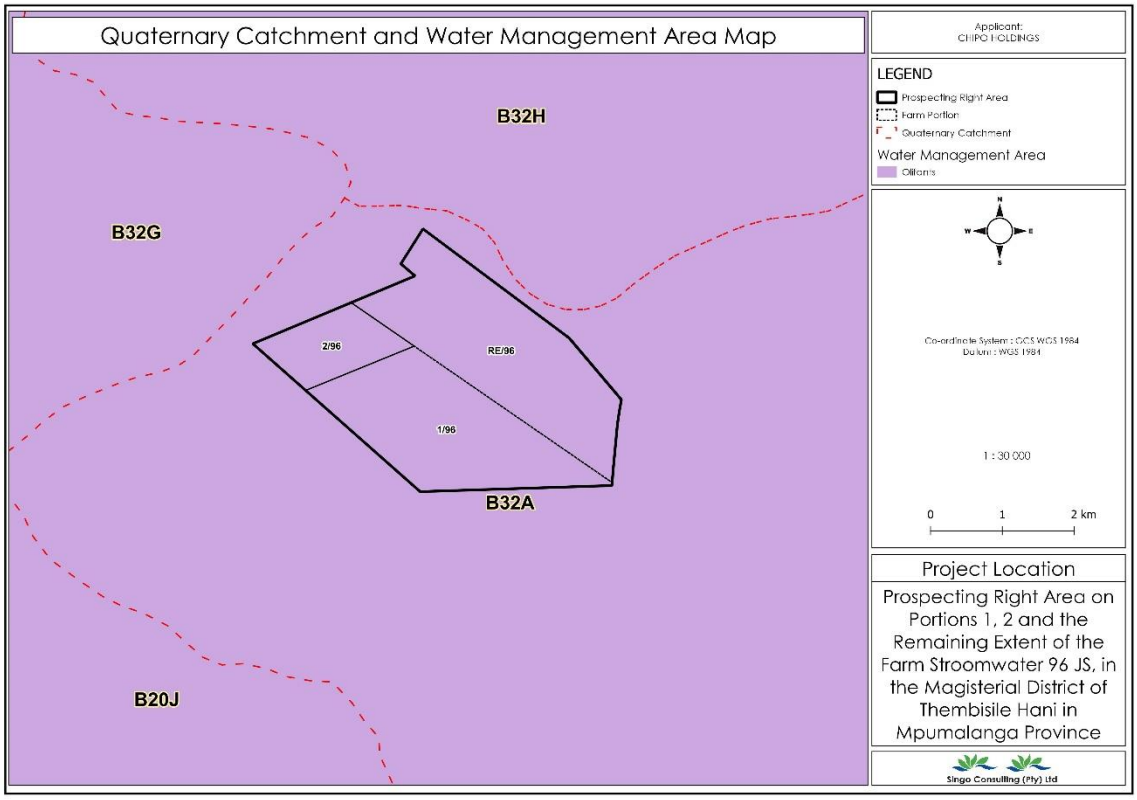
Appendix 3: Locality Map



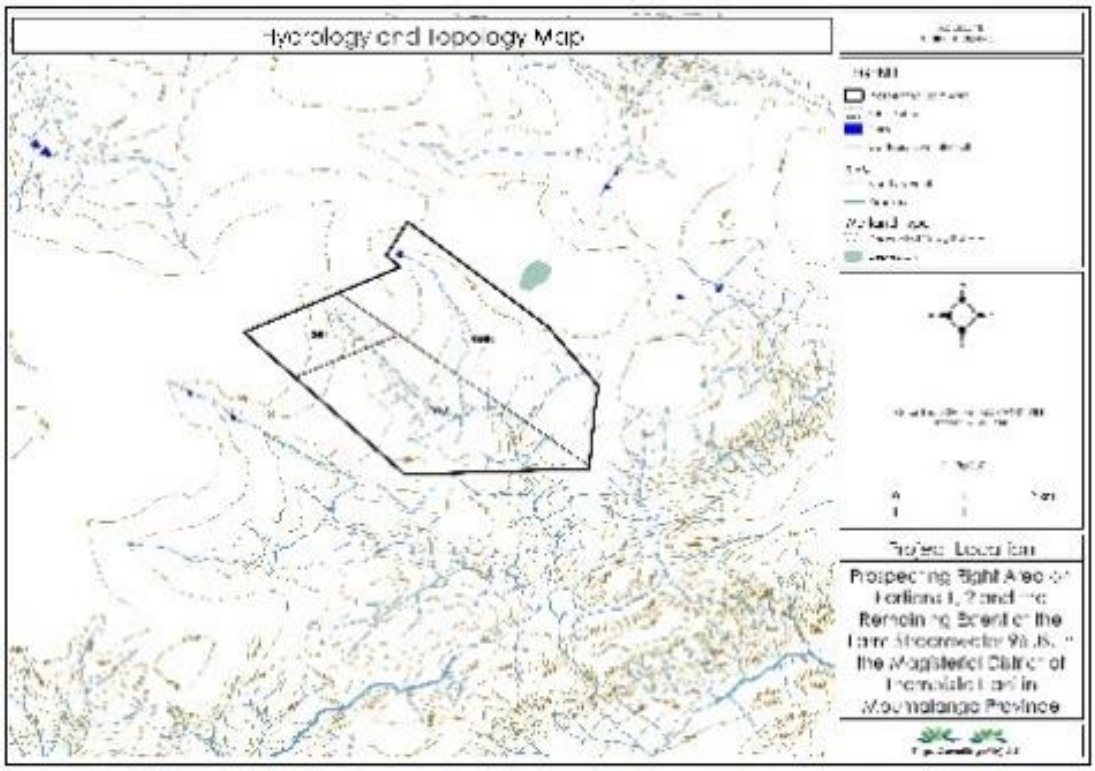
Appendix 4: Terrestrial Biodiversity Map



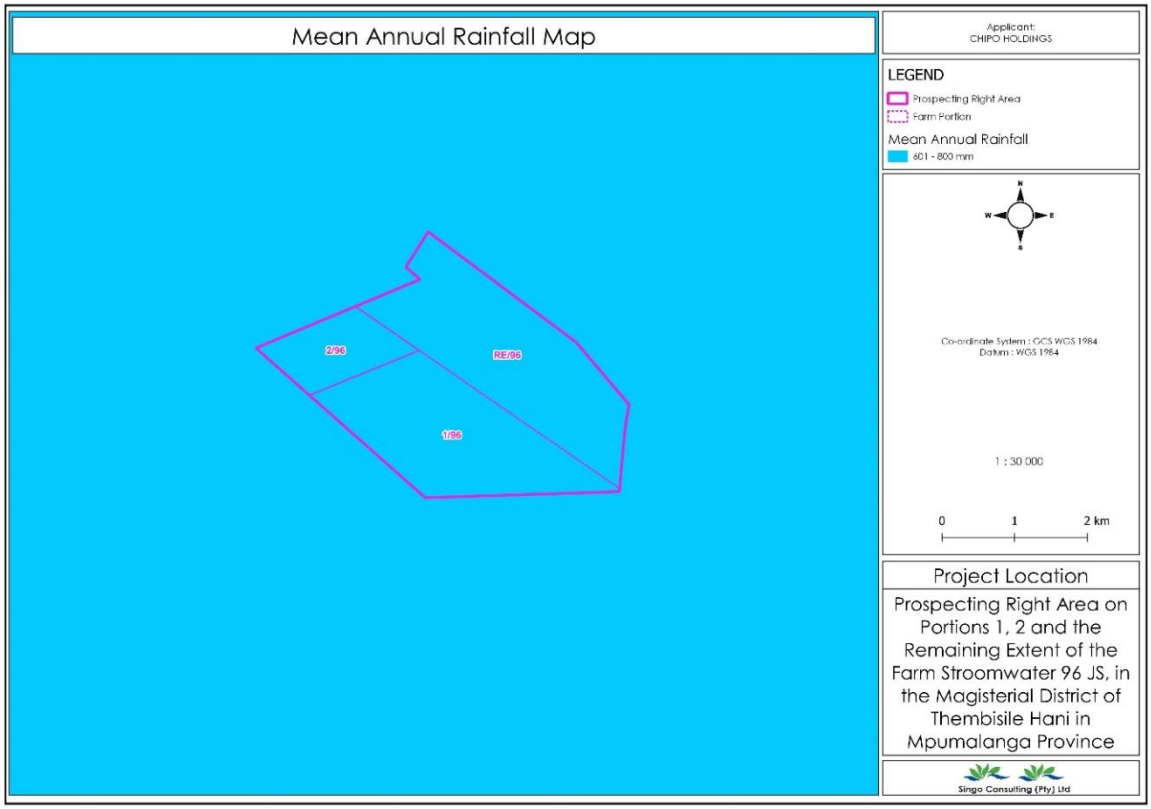
Appendix 5: Quaternary Catchment and Water Management Areas map



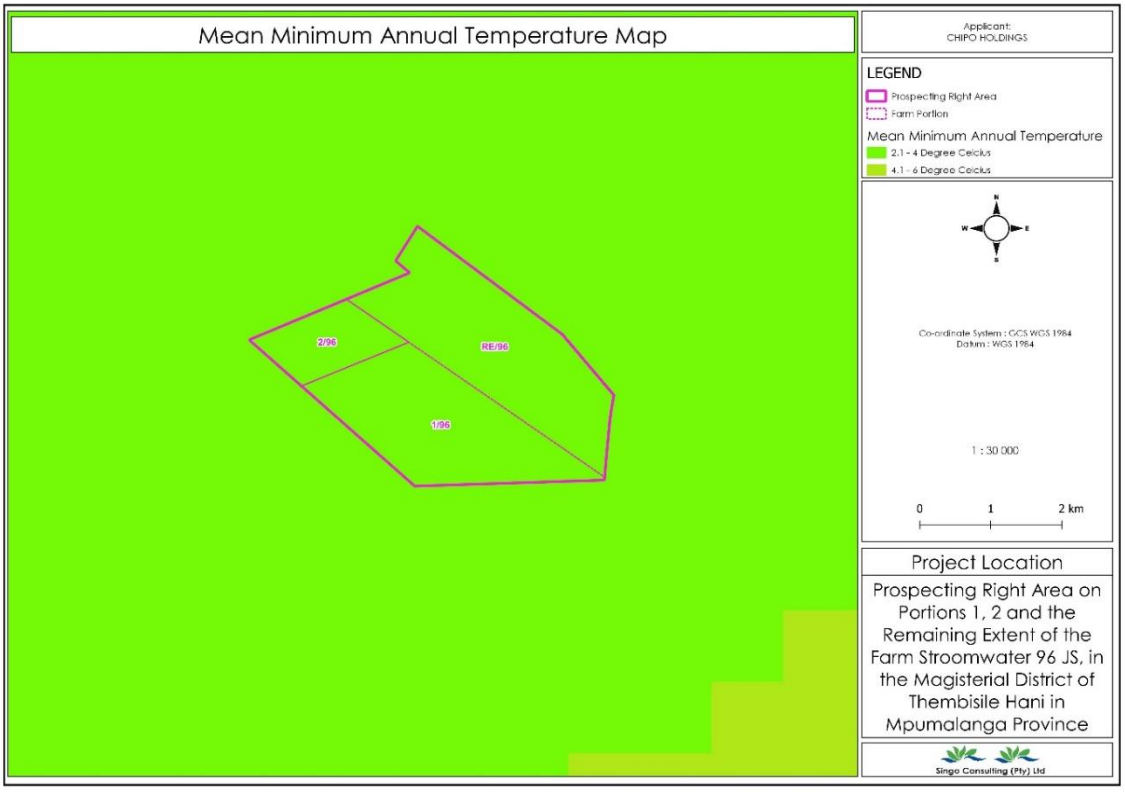
Appendix 6: Hydrology and Topology Map



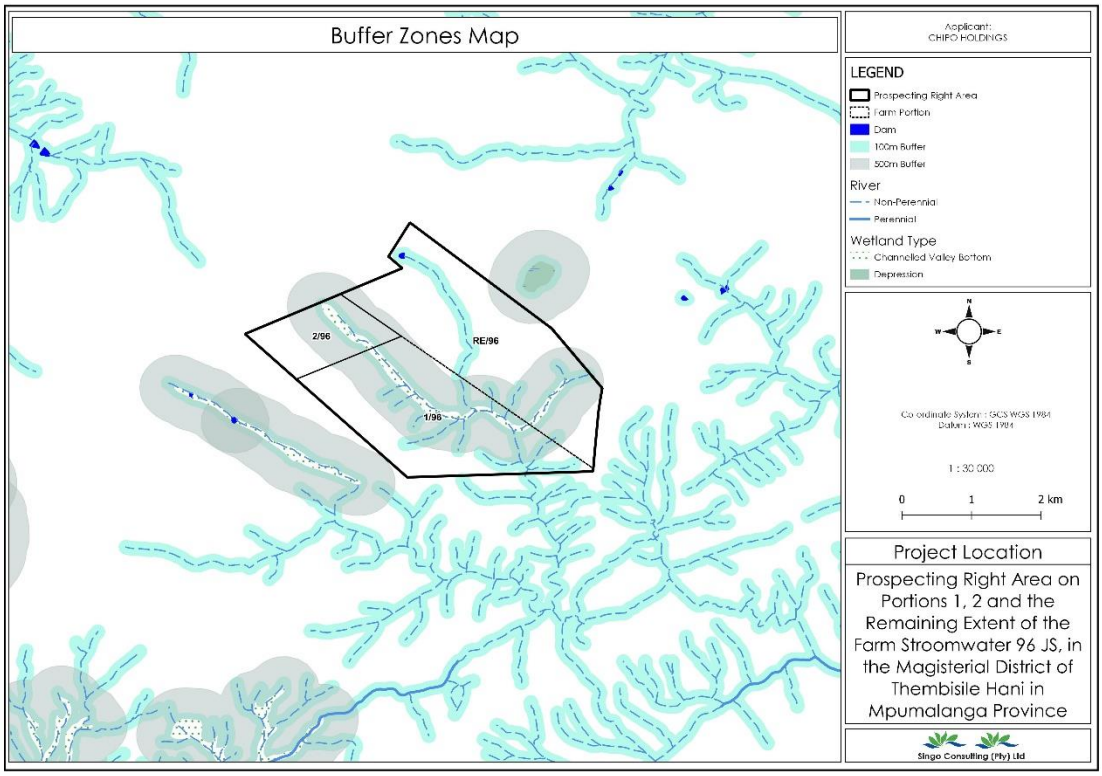
Appendix 7: Mean Annual Rainfall Map



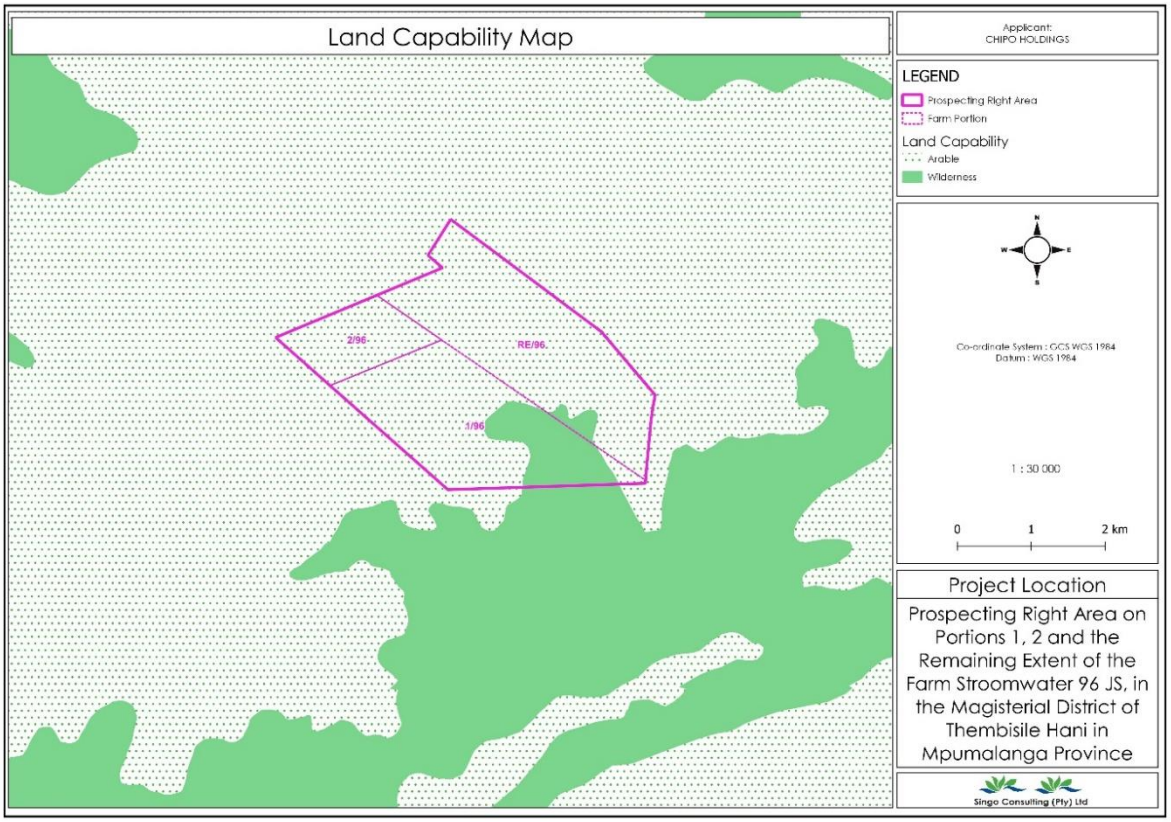
Appendix 8: Mean Minimum Annual Temperature Map



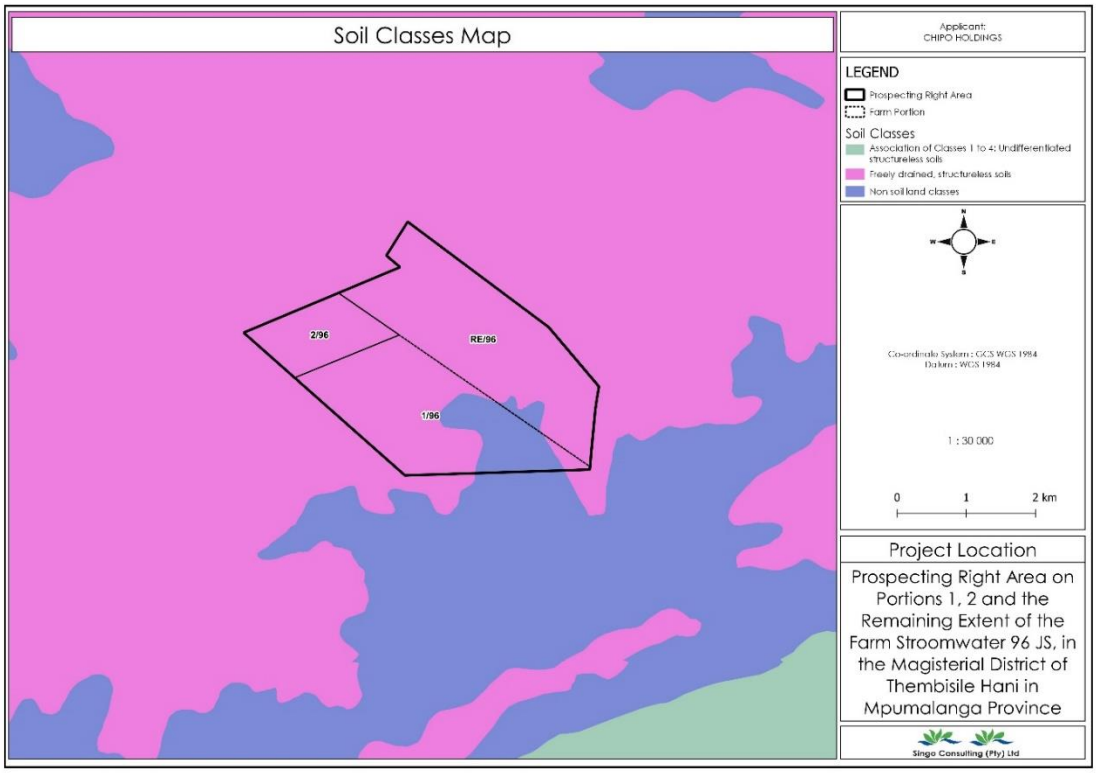
Appendix 9: Buffer Zones Map



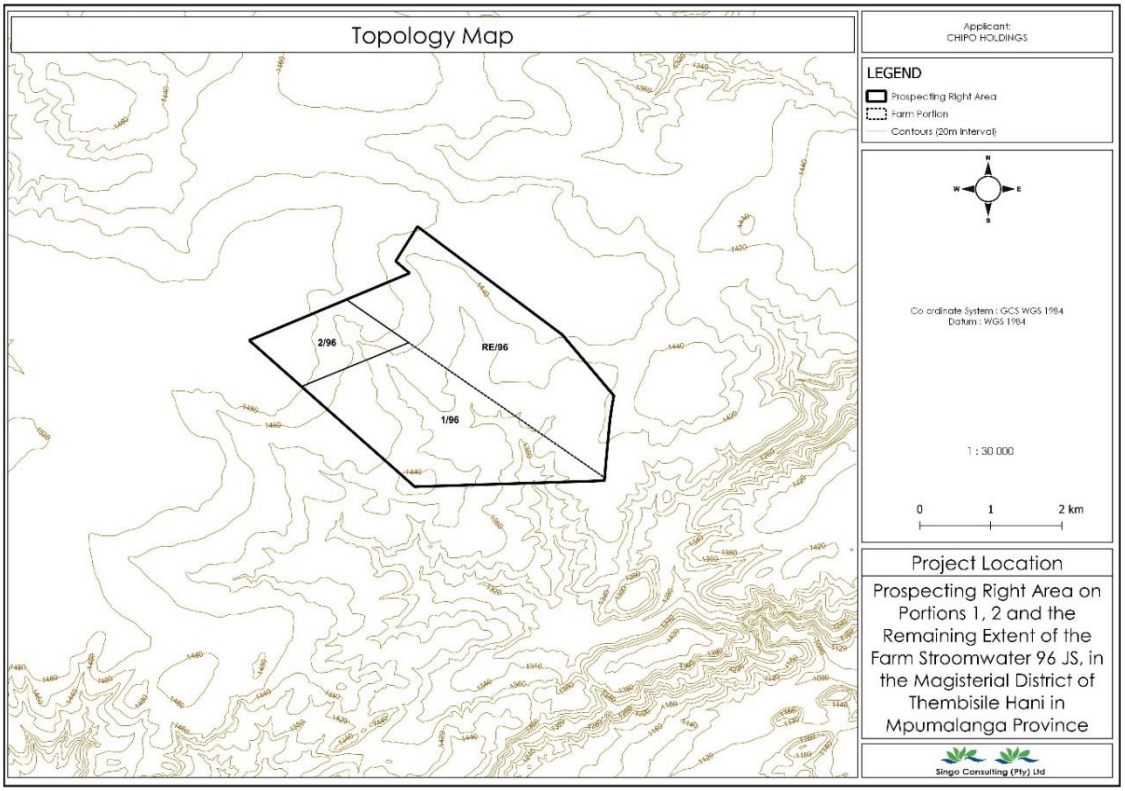
Appendix 10:Land Capability Map



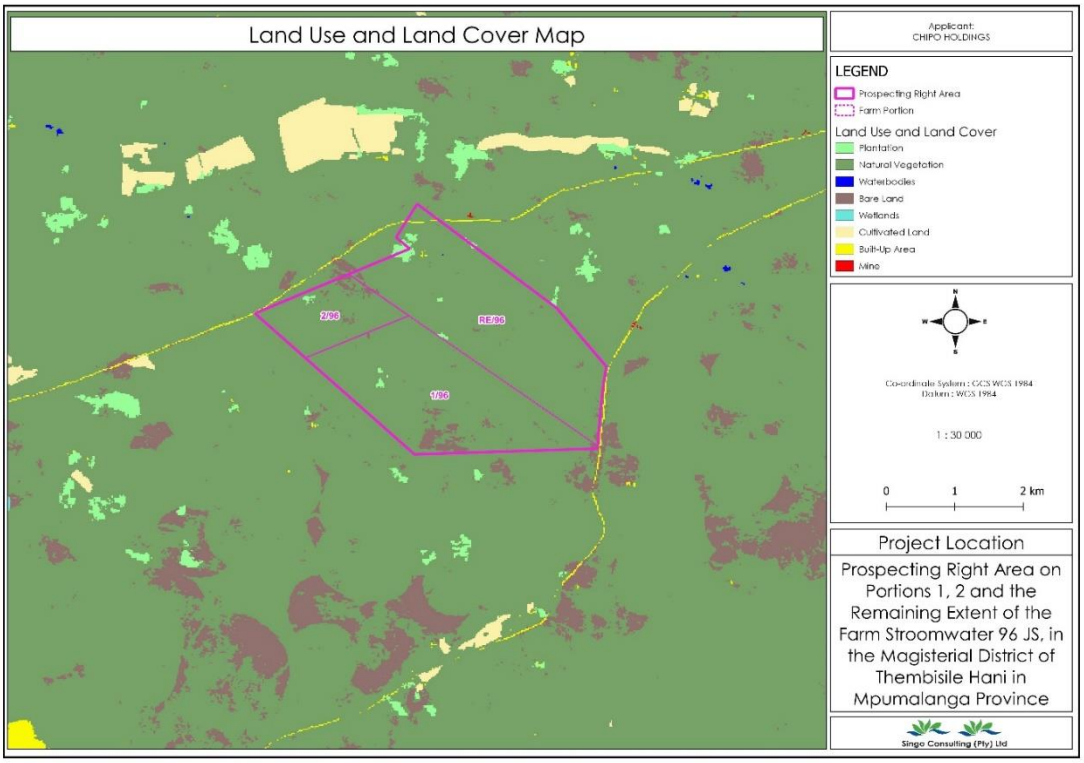
Appendix 11: Soil Classes Map



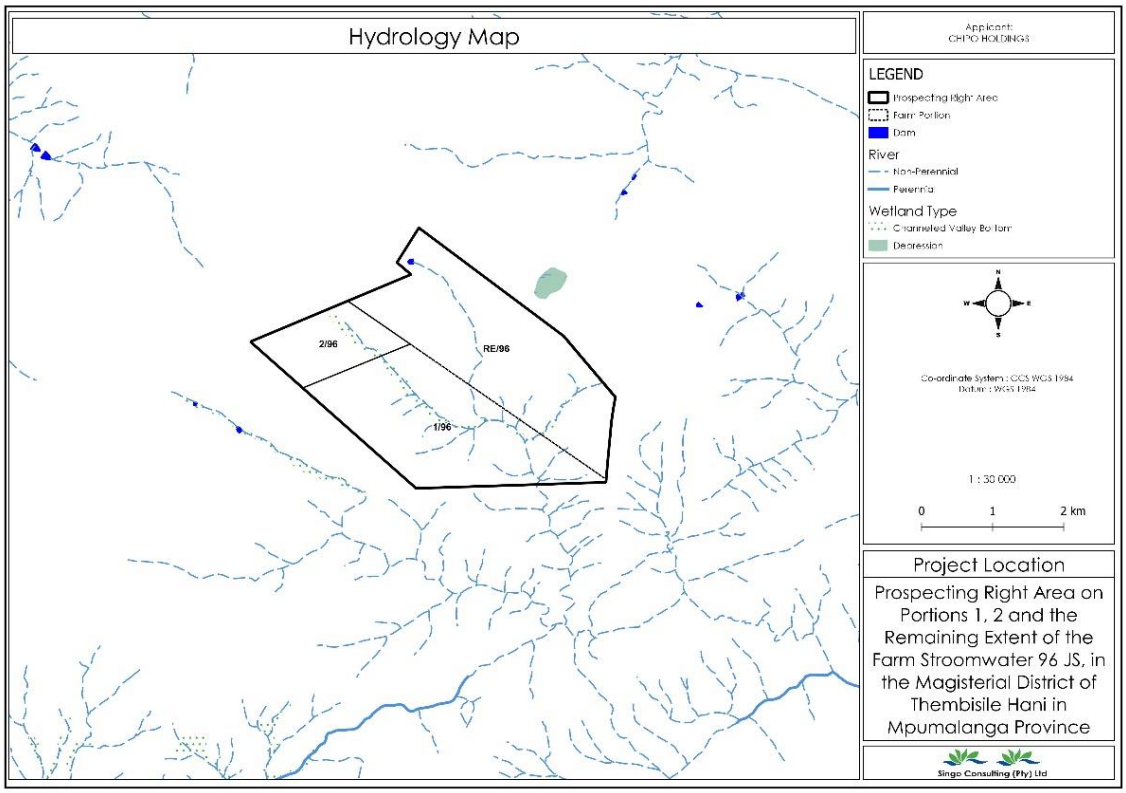
Appendix 12: Topology Map



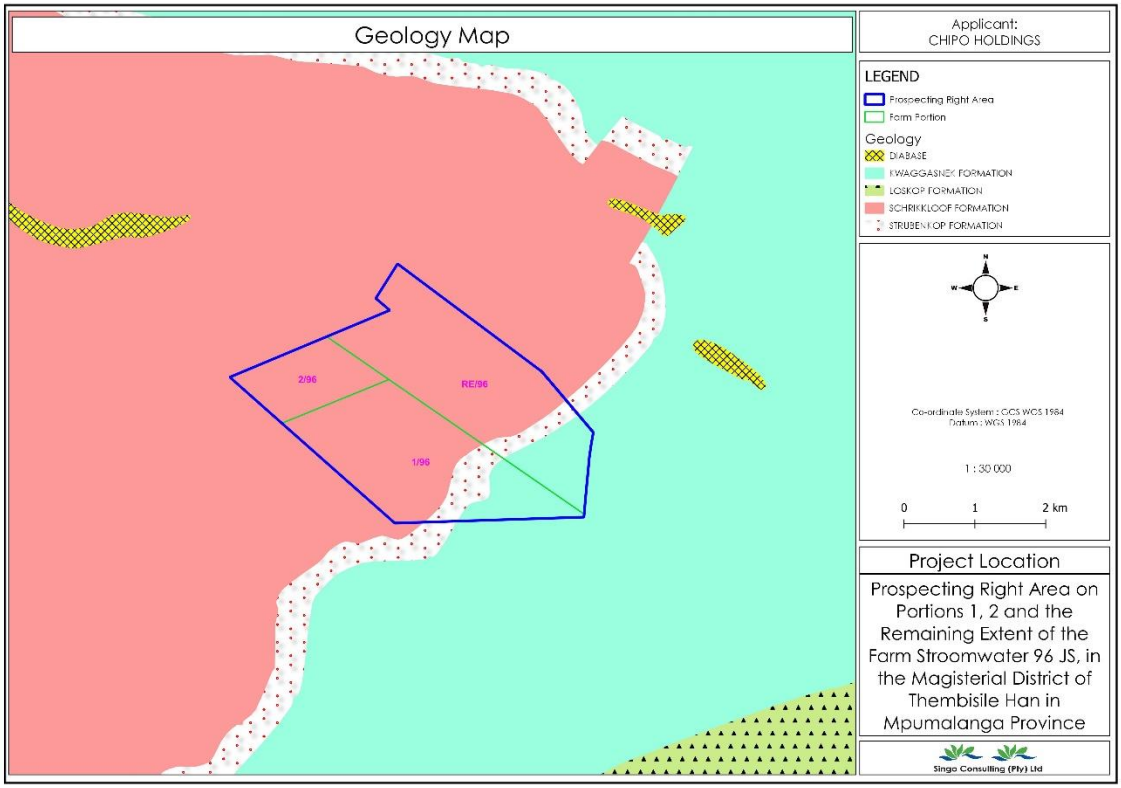
Appendix 13: Land Use and Land Cover Map



Appendix 14: Hydrology Map



Appendix 15: Geology Map



Appendix 16: Windeed search results

Deeds Office Property - List

JS, 96, MPUMALANGA

Lexis® WinDeed

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	2023/01/27 12:13	Farm Number	96
Reference	-	Registration Division	JS
Report Print Date	2023/01/27 12:18	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	T9767/1985	-	-
1	NATIONAL GOVERNMENT OF THE REPUBLIC OF SOUTH AFRICA	T37654/1986	-	-
2	NATIONAL GOVERNMENT OF THE REPUBLIC OF SOUTH AFRICA	T32767/1987	-	-
3	*** NO LONGER EXISTS - SEE ENDORSEMENTS ***	-	-	-
4	*** NO LONGER EXISTS - SEE ENDORSEMENTS ***	-	-	-
5	REPUBLIC OF SOUTH AFRICA	T49590/1988	-	-

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Mazithi, Mangcu

From: Mazithi, Mangcu <mazithi@singoconsulting.co.za>
Sent: Monday, 13 February 2023 11:42
To:
Cc:
Subject: INVITATION FOR COMMENT ON THE PROPOSED PROSPECTING RIGHT APPLICATION FOR COAL ON PORTIONS 1, 2 AND THE REMAINING EXTENT OF THE FARM STROOMWATER 96 JS WITH DMRE REF: MP 30/5/1/1/2/17897 PR.
Attachments: BID.PDF; Farm Portion.kml; REG 2.2.pdf; PR-Coordinate.csv

Good day,

Receive warm greetings from Singo Consulting (Pty) Ltd.

Singo Consulting (Pty) Ltd on behalf of **Chipo Holdings (Pty) Ltd**, hereby wish to inform you that it has submitted an **application for a Prospecting Right (PR) together with an Environmental Authorization (EA)** to the **Mpumalanga Department of Mineral Resources and Energy (DMRE)** for the purpose of searching for **Coal**, on **Portions 1, 2 and the Remaining Extent** of the farm **Stroomwater 96 JS**, which is situated under the Magisterial District of **Thembisile Hani** in **Mpumalanga Province with DMRE Ref.: MP 30/5/1/1/2/17897 PR.**

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 stakeholders must be notified of Chipo Holdings (Pty) Ltd.'s intention to obtain Prospecting Right for the above-mentioned mineral.

This invitation is being extended to you because the department that you represent might somehow be enforcing any of the Republic of South Africa's laws of which ensures; prevention of pollution & environmental degradation, promotes sustainable development & socio-economic development, or instead might be affected by prospecting activities. Hence you are being offered an opportunity to:

- **Register as an I&AP and to respond to the environmental compliance process;**
- **Raise issues of concerns and provide suggestions for enhanced benefits;**
- **Contribute to local knowledge;**
- **Comment on the draft Basic Assessment Report (BAR) & Environmental Management Programme Report (EMPr)**

Singo Consulting (Pty) Ltd has been appointed as an independent Environmental Assessment Practitioner (EAP) to manage the Environmental Authorization process, by conducting Environmental Impact Assessment, Public Participation for the proposed project and compile an Environmental Management Programme Report. A Basic Assessment process has commenced, for your participation kindly fill the registration and comment form at the end of the Background Information Document (BID) attached and register your comments, issues, questions that you may have about the proposed project. Should you need any clarity on the attached document or have any queries with regards to the project, please do not hesitate to contact the appointed Environmental Technician on the details provided below.

Please find the attached Reg2(2), PR Coordinates, KML & Background Information Document (BID) for detailed description of the proposed project and timelines.

1

If you know anyone who might be interested in this project, kindly forward this email to that person.

Kind regards

Mazithi, Mangcu

From:	Mazithi, Mangcu <mazithi@singoconsulting.co.za>
Sent:	Monday, 13 February 2023 11:36
To:	
Cc:	
Subject:	INVITATION FOR COMMENT ON THE PROPOSED PROSPECTING RIGHT APPLICATION FOR COAL ON PORTIONS 1, 2 AND THE REMAINING EXTENT OF THE FARM STROOMWATER 96 JS WITH DMRE REF: MP 30/5/1/1/2/17897 PR.
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Kind regards

Mazithi, Mangcu

From:	Mazithi, Mangcu <mazithi@singoconsulting.co.za>
Sent:	Monday, 13 February 2023 11:44
To:	
Cc:	
Subject:	INVITATION FOR COMMENT ON THE PROPOSED PROSPECTING RIGHT APPLICATION FOR COAL ON PORTIONS 1, 2 AND THE REMAINING EXTENT OF THE FARM STROOMWATER 96 JS WITH DMRE REF: MP 30/5/1/1/2/17897 PR.
Attachments:	BID.PDF; Farm Portion.kml; REG 2.2.pdf; PR-Coordinate.csv; Quaternary Catchment and Water Management Area.pdf

Good day,

Receive warm greetings from Singo Consulting (Pty) Ltd.

Singo Consulting (Pty) Ltd on behalf of **Chipo Holdings (Pty) Ltd**, hereby wish to inform you that it has submitted an **application for a Prospecting Right (PR) together with an Environmental Authorization (EA)** to the **Mpumalanga Department of Mineral Resources and Energy (DMRE)** for the purpose of searching for **Coal**, on **Portions 1, 2 and the Remaining Extent** of the farm **Stroomwater 96 JS**, which is situated under the Magisterial District of **Thembisile Hani** in **Mpumalanga Province with DMRE Ref.: MP 30/5/1/1/2/17897 PR.**

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 stakeholders must be notified of Chipo Holdings (Pty) Ltd.'s intention to obtain Prospecting Right for the above-mentioned mineral.

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- **Register as an I&AP and to respond to the environmental compliance process;**
- **Raise issues of concerns and provide suggestions for enhanced benefits;**
- **Contribute to local knowledge;**
- **Comment on the draft Basic Assessment Report (BAR) & Environmental Management Programme Report (EMPr)**

Singo Consulting (Pty) Ltd has been appointed as an independent Environmental Assessment Practitioner (EAP) to manage the Environmental Authorization process, by conducting Environmental Impact Assessment, Public Participation for the proposed project and compile an Environmental Management Programme Report. A Basic Assessment process has commenced, for your participation kindly fill the registration and comment form at the end of the Background Information Document (BID) attached and register your comments, issues, questions that you may have about the proposed project. Should you need any clarity on the attached document or have any queries with regards to the project, please do not hesitate to contact the appointed Environmental Technician on the details provided below.

Please find the attached Reg2(2), PR Coordinates, KML & Background Information Document (BID) for detailed description of the proposed project and timelines.

1

If you know anyone who might be interested in this project, kindly forward this email to that person.

Kind regards

Mazithi, Mangcu

From:	Mazithi, Mangcu <mazithi@singoconsulting.co.za>
Sent:	Monday, 13 February 2023 11:45
To:	
Cc:	
Subject:	INVITATION FOR COMMENT ON THE PROPOSED PROSPECTING RIGHT APPLICATION FOR COAL ON PORTIONS 1, 2 AND THE REMAINING EXTENT OF THE FARM STROOMWATER 96 JS WITH DMRE REF: MP 30/5/1/1/2/17897 PR.
Attachments:	BID.PDF; Farm Portion.kml; REG 2.2.pdf; PR-Coordinate.csv

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Mazithi, Mangcu

From:	Mazithi, Mangcu <mazithi@singoconsulting.co.za>
Sent:	Monday, 13 February 2023 11:47
To:	
Cc:	
Subject:	INVITATION FOR COMMENT ON THE PROPOSED PROSPECTING RIGHT APPLICATION FOR COAL ON PORTIONS 1, 2 AND THE REMAINING EXTENT OF THE FARM STROOMWATER 96 JS WITH DMRE REF: MP 30/5/1/1/2/17897 PR.
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Mazithi, Mangcu

From:	Mazithi, Mangcu <mazithi@singoconsulting.co.za>
Sent:	Monday, 13 February 2023 11:48
To:	
Cc:	
Subject:	INVITATION FOR COMMENT ON THE PROPOSED PROSPECTING RIGHT APPLICATION FOR COAL ON PORTIONS 1, 2 AND THE REMAINING EXTENT OF THE FARM STROOMWATER 96 JS WITH DMRE REF: MP 30/5/1/1/2/17897 PR.
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To:	
Cc:	
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From:	Mazithi, Mangcu <mazithi@singoconsulting.co.za>
Sent:	Monday, 13 February 2023 11:50
To:	
Cc:	
Subject:	INVITATION FOR COMMENT ON THE PROPOSED PROSPECTING RIGHT APPLICATION FOR COAL ON PORTIONS 1, 2 AND THE REMAINING EXTENT OF THE FARM STROOMWATER 96 JS WITH DMRE REF: MP 30/5/1/1/2/17897 PR.
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From:	Mazithi, Mangcu <mazithi@singoconsulting.co.za>
Sent:	Monday, 13 February 2023 11:57
To:	
Cc:	
Subject:	INVITATION FOR COMMENT ON THE PROPOSED PROSPECTING RIGHT APPLICATION FOR COAL ON PORTIONS 1, 2 AND THE REMAINING EXTENT OF THE FARM STROOMWATER 96 JS WITH DMRE REF: MP 30/5/1/1/2/17897 PR.
Attachments:	BID.PDF; Farm Portion.kml; REG 2.2.pdf; PR-Coordinate.csv

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Kind regards

Mazithi, Mangcu

From:	Mazithi, Mangcu <mazithi@singoconsulting.co.za>
Sent:	Wednesday, 15 February 2023 10:43
To:	
Cc:	
Subject:	LANDOWNER ENGAGEMENT FOR PROSPECTING RIGHT AND ENVIRONMENTAL AUTHORISATION APPLICATION FOR COAL ON PORTION 1, 2 AND THE REMAINING EXTENT OF THE FARM STROOMWATER 96 JS (DMRE REF: MP 30/5/1/1/2/17897 PR).
Attachments:	BID.pdf; Farm Portion.kml; REG 2.2.pdf; 309597232.pdf; Landowner Notification Letter.pdf

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A Windeed search was conducted in order to find out who the owner of the property in question is, and the outcomes shows that **the National government of the Republic of South Africa** is the landowner. Please see the attached **Landowner Notification Letter, BID, Regulation 2.2 map, KML 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 stakeholders must be notified of Chipo Holdings (Pty) Ltd.'s intention to obtain Prospecting Right for the above-mentioned mineral.

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

We are looking forward to hearing from you.

Kind regards

1

Mazithi, Mangcu

From: Mazithi, Mangcu <mazithi@singoconsulting.co.za>
Sent: Monday, 13 February 2023 12:06
To:
Cc:
Subject: REQUEST FOR SENSITIVITY MAPS
Attachments: REG 2.2.pdf; Farm Portion.kml

Good day, Phumla

Receive warm greetings from Singo Consulting (Pty) Ltd.

I am kindly requesting sensitivity maps for **portion 1, 2 and the remaining extent** of the farm **Stroomwater 96 JS**, situated in the Magisterial District of Middleburg in Mpumalanga Province.

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

Your assistance will be highly appreciated.

Kind regards

Appendix 28: SAHRA POS

Portion 1, 2 and the Remaining extent of the farm Stroomwater 96 JS, (DMRE Ref.: MP 30/5/1/1/2/17897 PR)

Add new comment Subscribe to: This post 8 reads

CaseHeader | LocationInfo | Admin | Images

Status: DRAFT

HeritageAuthority(s): SAHRA
MPHRA

Case Type: Section 38 (8) - Statutory Comment Required

Development Type: Mining

ProposalDescription:
Prospecting Right Application by Chipo Holdings (Pty) Ltd in respect of Coal on Portion 1, 2 and the Remaining extent of the farm Stroomwater 96 JS, situated in the Magisterial District of Thembisile Hani in Mpumalanga Province with DMRE Ref.: MP 30/5/1/1/2/17897 PR.

ApplicationDate: Saturday, February 25, 2023 - 17:28

CaseID: 20750

Applicants: Thabo Thomas

Consultants/Experts: Ndinannyi Kenneth

OtherReferences:

CaseReference	Department	ApplicationType	DeadlineDate
MP 30/5/1/1/2/17897 PR	Department of Mineral Resources - Mpumalanga	Prospecting Rights	14/04/2023

ReferenceList:

AdditionalDocuments

1. BID.pdf

Appendix 29: Screening Report

Appendix 30: Baseline Studies