BASIC ASSESSMENT REPORT & ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

JULY 2020

PROSPECTING RIGHT APPLICATION FOR COAL ON PORTION 1 & 4 OF THE FARM SPRING GROVE 227 IT MAGISTERIAL DISTRICT ERMELO PROVINCE MPUMALANGA

PREPARED BY:

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PREPARED ON BEHALF OF:

JAMENTS
HOME OF THE FUTURE

PREPARED FOR:

Department of Minerals and Resources

mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

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Saveways Crescent Centre,

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DMR REF: MP 30/5/1/1/2/ 15751 PR

mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT and ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED).

NAME OF APPLICANT	:	JAMENTS (PTY) LTD (2014/115748/07)
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FILE REFERENCE NUMBER SAMRAD: MP 30/5/1/1/2/ (15751) PR

1. IMPORTANT NOTICE

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

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

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

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

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

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

2. Objective of the basic assessment process

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

(a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context.

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

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

(d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage , and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on the these aspects to determine:

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

(ii) the degree to which these impacts—

(aa) can be reversed.

(bb) may cause irreplaceable loss of resources; and

(cc) can be managed, avoided or mitigated.

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

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

(ii) identify suitable measures to manage, avoid or mitigate identified impacts; and (iii) identify residual risks that need to be managed and monitored.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDIXES

PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

Singo Consulting (Pty) Ltd has been appointed as an independent Environmental Assessment Practitioner (EAP) to manage the Environmental Authorisation process by conducting an Environmental Impact Assessment, Public Participation for the proposed project and compile an Environmental Management Programme report.

2. Contact Person and correspondence address

a) Details of the EAP

Details of the EAP that prepared the report

Name of the Practitioner:	Takalani Rakuambo
Designation	Junior Consultant
Tel No	(013) 692 0041
Cell No	.+27 82 767 4011
Fax No	+27 86 515 4103
Email	takalani@singoconsulting.co.za

Details of the EAP who reviewed the report

Name of the Practitioner:	Mr Ndinannyi Kenneth Singo
Designation	Principal EAP
Tel No	(013) 692 0041
Cell No	.+27 78 272 7839
Fax No	+27 86 515 4103
Email	Kenneth@singoconsulting.co.za

b) Expertise of the EAP

The qualifications of the EAP

(with evidence)

Please refer to Annexure B for the Curriculum Vitae.

Education

PhD (Candidate) Environmental Geology, MSc Environmental Management, BSc (Hons) Mining & Environmental Geology.

Professional Affiliations

MR. N.K Singo is a registered competent person with the South African Council of Natural Science Professions (SACNASP: Earth Science Reg. No: 400069/16), Geological Society of South Africa (GSSA), the Land Rehabilitation Society of Southern Africa (LaRSSA) and South African Affiliates of the International Association for Impact Assessment. Kenneth holds an MSc in Environmental Management (University of South Africa (UNISA)) and a BSc (Hons) in Mining and Environmental Geology (the University of Venda). He is a final year Ph.D. (Geology, Applied Environmental Mineralogy and Geochemistry) candidate at the University of Johannesburg.

Kenneth has knowledge of Mine Water and Mine Environmental Management (acid mine drainage, heavy metal assessments and tailings management) in various commodities including coal, gold, magnesite and base metals (Cu, Pb, Zn). He has extensive knowledge of defunct mining waste and waste water impact assessments in communities residing in the vicinity of those mines. This knowledge was gained through MSc. Kenneth has sound knowledge of risk assessment, both in terms of human health and the environment. He is experienced in the appraisal of potential constraints, as well as devising means of mitigation through remedial strategy development, feasibility and validation.

During his PhD studies, Kenneth learned how to operate within contaminated lands. His PhD largely focused on disused mines (gold, copper and magnesite) ranging from Phase I and Phase II investigations to development of remedial strategies (i.e. Phase III). His PhD further equipped him to intensively understand the waste classification, profiling and understanding of the implications associated with the management of waste, landfill disposal profiling and development of beneficiation strategies.

Summary of the EAP's past experience

(In carrying out the Environmental Impact Assessment Procedure)

Please refer to Annexure C: Singo Consulting profile

c) Location of the overall Activity

The following table presents the location and associated cadastral details associated with the area in question.

Table 1: Location Details

Farm Name:	Spring Grove 227 IT
Application area (Ha)	1756.56 hectares
Magisterial district:	Ermelo

Distance and direction from nearest town	Approximately 11.56 Km west of Lothair Approximately 23.53 Km south west of Mpuluzi Approximately 58.03 East of Ermelo
21-digit Surveyor General Code for each farm portion	0000T0IT000000000227000010 0000T0IT000000000227000040

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

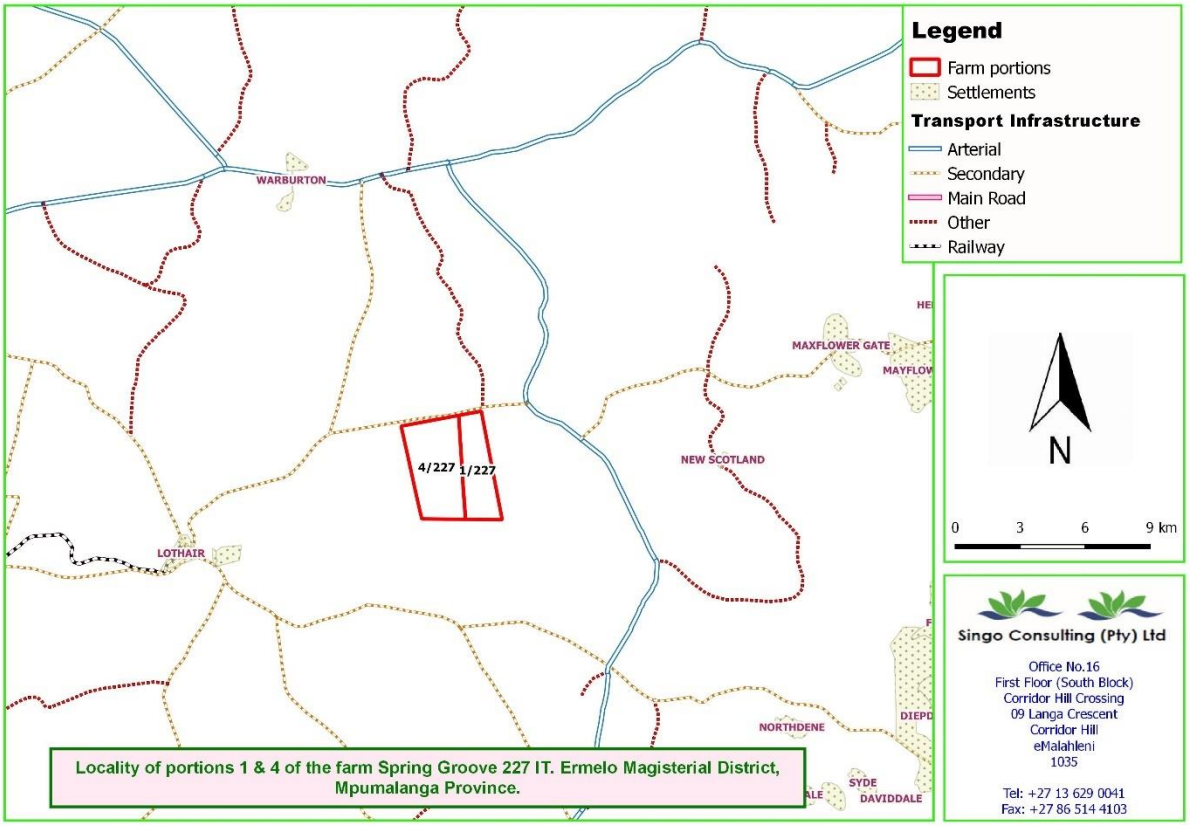


Figure 1: Locality of proposed site project (proposed properties are mapped in red).

The Proposed Prospecting Right area is situated within magisterial District of Ermelo under jurisdiction of Msukaligwa Local Municipality, Mpumalanga province.

The proposed site for JAMENTS (Pty)Ltd 's prospecting Right application is located on Farm Spring grove 227 IT within a Portions 1 & 4. This Farm is located 11.56 km West of Lothair, 23.53 km South-West of Mpuluzi & 58.03 km East of Ermelo and access road via R33 and N17.

e) Description of the scope of the proposed overall activity

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

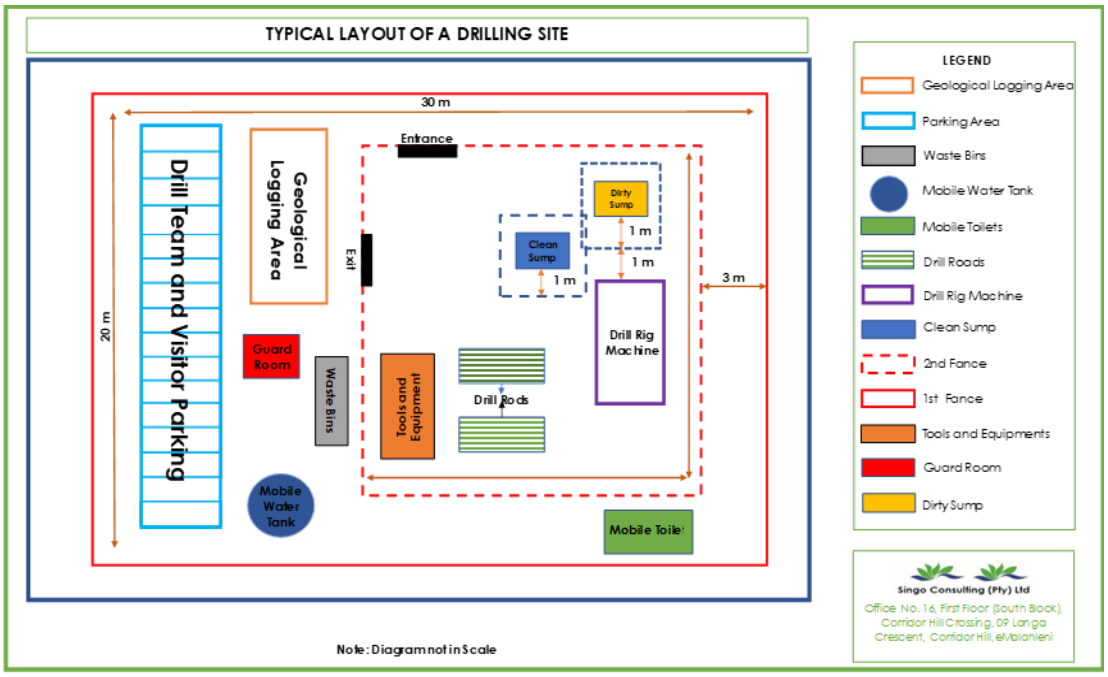
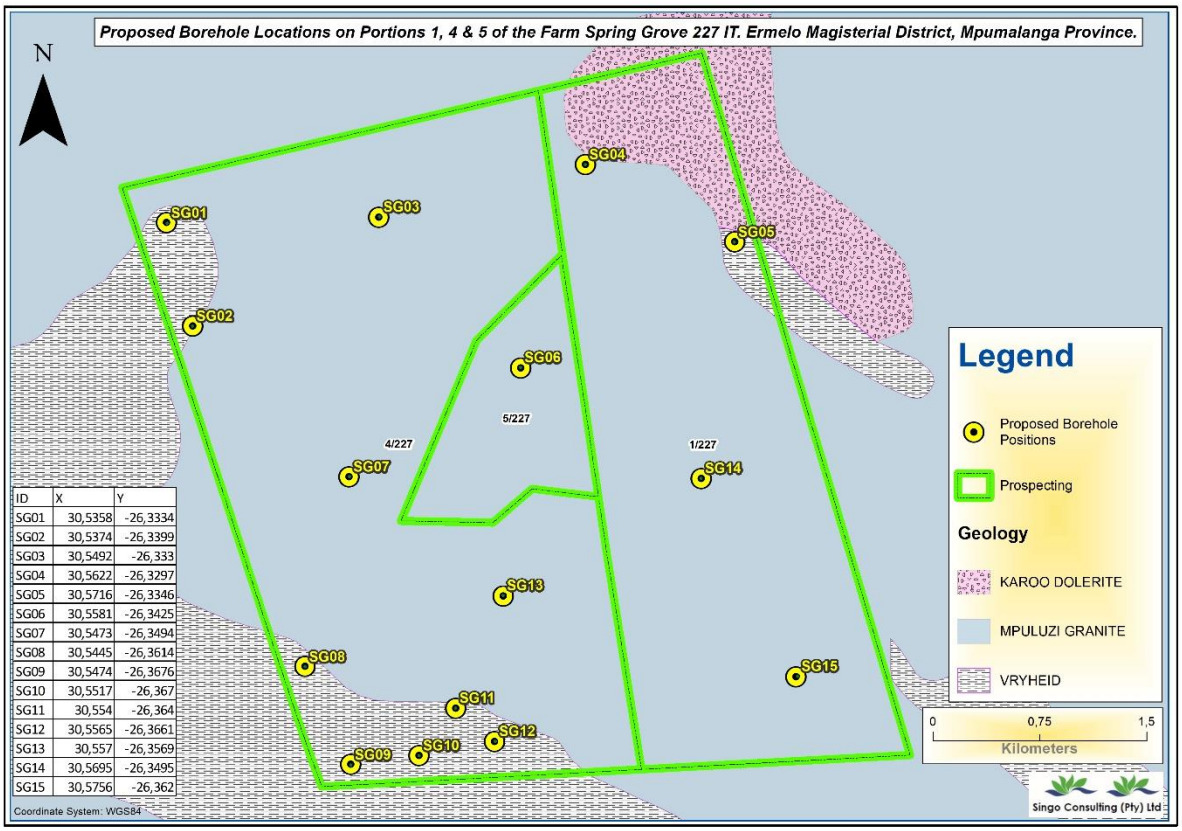


Figure 2: The drill site layout plan showing areas where specific activities will take place in the project area.



ID	X	Y
SG01	30,5358	-26,3334
SG02	30,5374	-26,3399
SG03	30,5492	-26,333
SG04	30,5622	-26,3297
SG05	30,5716	-26,3346
SG06	30,5581	-26,3425
SG07	30,5473	-26,3494
SG08	30,5445	-26,3614
SG09	30,5474	-26,3676
SG10	30,5517	-26,367
SG11	30,554	-26,364
SG12	30,5565	-26,3661
SG13	30,557	-26,3569
SG14	30,5695	-26,3495
SG15	30,5756	-26,362

Figure 3: Proposed boreholes map of the anticipated project area.

The detailed geology and coal potential of the area is relatively known, and as such exploration work will commence from a very advanced level. The Prospecting Work Programme was therefore designed in phases, each phase conditional on the success of the previous phase and will include:

Phase 1: Data acquisition and a Desktop study

A desktop study of all available data for the area will be undertaken to accumulate as much regional and historical data around the area as possible. This includes published geological reports, infrastructure mapping, satellite imagery and existing geophysical information (if available).

Phase 2: Drilling

Targets that have been prioritised through detailed desktops will be tested by initial diamond or percussion drilling.

It should be noted that no bulk sampling will be undertaken as part of this Prospecting Works Programme. Should the initial evaluation of the deposit indicate a sufficient size and grade, bulk sampling may be required. In this event, the Prospecting Works Programme will be amended, and a new Environmental Authorisation Process will be required for submission to

the DMR. The activities associated with the Prospecting Work Programme will be scheduled over a period of five years as is detailed in the following table:

Table 2: Prospecting Timeframes and Activities

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 core 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 boreholes)	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/mineral grade quality modeling	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 boreholes)	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/mineral quality modelling	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

As is clear from the information provided above, each of the phases is dependent on the results of the preceding phase. The location and extent of drill sites, and possible diamond drilling can therefore not be determined at this stage. Mapping of the prospecting activities could thus not be undertaken. In the subsequent sections (Section ii) more details are provided in terms of each of the prospecting activities.

The applicant must submit a plan indicating the location of drilling activities, once these areas have been finalized to at least all landowners, as well as the Department of Mineral Resources and the Department of Water and Sanitation.

(i) Listed and specified activities

Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) requires, upon request by the Minister that an Environmental Management Plan be submitted and that the applicant must notify and consult with Interested and Affected Parties (I&APs). Section 24 of the NEMA requires that activities, which may impact on the environment must obtain an environmental authorisation from a relevant authority before commencing with the activities. Such activities are listed under Regulations Listing Notice 1 Government Notice (GN) 983, Listing Notice 2 GN 984 and Listing Notice GN 985 (dated 4 December 2014) of NEMA. The proposed prospecting activity triggers:

NEMA Government Notice 983: Listing Notice 1:

Activity 20: "Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource…"

Activity 27: "The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation…"

Please refer to the following table for the details in terms of the listed activities.

Table 3: 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 E.g. for mining**, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)	**Aerial extent of the Activity** **Ha or m²**	**LISTED ACTIVITY** (Mark with an **X** where applicable or affected).	**APPLICABLE LISTING NOTICE** ***(GNR 983, GNR 984 or GNR 985)***	**WASTE MANAGEMENT AUTHORISATION** (Indicate whether an authorisation is required in terms of the Waste Management Act). **(Mark with an X)**
Prospecting Area	0.6 ha / 1756.56 ha 30*20=600m²*15 boreholes=9000 m² 9000m²÷10000=0.9 ha	**X**	GNR 327 Listing Notice 1, Activity 20.	Not required
Vegetation clearing	0.9 ha		Not Listed	
Drilling	0.9 ha		Not Listed	

Table 4: Summary of the drilling activities

Drilling method	Diamond drilling
Number of boreholes	15
Depth of boreholes	100m
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* 600m²=9000 m² 9000 10000=0.9ha

ii) Description of the activities to be undertaken

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

The following section presents a detailed description of all the activities associated with the proposed Prospecting Application. Due to the nature of the Prospecting Works Programme, and the fact that the specific prospecting activities required are dependent on the preceding phase, assumptions are presented where required. These assumptions are based on similar projects undertaken by the Applicant and therefore be regarded as indicative of what will be undertaken.

Access Roads

Access to the site will be required during pegging of holes, and drilling activities (Phase 2 and 3) Access requirements can only be determined after Phase 1 has been concluded. Several existing roads and tracks already traverse the proposed prospecting site and where practicable, these roads will be used. During pegging activities, vehicle access will have gained to site through the veld and the establishment of a track to gain repeated access to a borehole site will not be required. Once drill sites have been identified, temporary access roads may be established for repeated access to the drill site if the identified drill site cannot be access via existing roads and tracks.

Water Supply

There are boreholes located on the site. However due to lack of sufficient rainfall (drought) water will not be given for drilling purpose. Hence, air flush is preferred by the client. In case, where the water will be given, it is anticipated that water brought onto the site, will be sourced from the water body located in the farm.

In case of water flush boreholes are chosen, continuous water supply will be required during drilling, at an estimated rate of 5,000 litres per hour. Additional water requirements relate to the potable water supply for employees and workers.

A temporary 260 litre on-site vertical water storage tank for drinking water and widespread use by persons will be provided at the drill site.

Ablution

Ablution facilities at the drill site will involve the installation of drum or tank type portable toilets.

Temporary Office Area

A temporary site office shaded area will be erected at the drill sites. No on-site electricity generation using generators will be undertaken. Meals will be provided to the staff and workers as no heating and / or cold storage facilities will be available. A shaded eating area will be provided.

Accommodation

No accommodation for staff and workers will be provided on-site and all persons will be accommodated in nearby towns (i.e. Lothair, Empuluzi & Ermelo). Workers will be transported to and from the prospecting site daily. Night security staff will be employed once equipment has been established on site.

Blasting

As the Prospecting Works Programme does not allow for bulk sampling, no blasting will take place.

Storage of Dangerous Goods

During the drilling activities limited quantities of diesel fuel, oil and lubricants will be stored on site. The only dangerous good that will be stored in any significant quantity is diesel fuel. A maximum amount of 60 m^3 will be stored in above ground diesel storage tanks.

Detailed Prospecting Activities

Phase 1: Data acquisition and a Desktop study

A desktop study of all available data for the area will be undertaken to accumulate as much regional and historical data around the area as possible. This includes published geological reports, infrastructure mapping, satellite imagery and existing geophysical information will be targeted.

Phase 2: Drilling

Targets generated during the desktop study will be investigated on the ground and tested by initial diamond or percussion drilling. A drilling program will be undertaken to delineate and give a preliminary assessment of the coal potential of the deposit identified. Should delineation and initial evaluation of the deposit indicate a sufficient size and grade to warrant further evaluation, an appropriate bulk sampling program will be undertaken to establish grade and confirm its viability for mining.

Figure 4 : Typical example of air flush drilling machine with the compressor mounted on the truck, hand auger drill and tractor mounted auger drill (all will possibly be used in sand and clay exploration).

e) Policy and Legislative Context

Table 5: Policy and Legislative Context

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the policy and legislative context
A description of the policy and legislative context within which the development is proposed, including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process.		E.g. In terms of the National Water Act a Water Use License has/ has not been applied for.
Legislation		
NEMA, No. 107 of 1998 (as amended) Listing Activity 20 of Listing Notice 1 in terms of Regulation 983 of 2014	Prospecting activities	In terms of the NEMA, No. 107 of 1998 (as amended), an application for Environmental Authorization was submitted to the DMR. The application was acknowledged by the DMR Ref: (MP 30/5/1/1/2/15751 PR). The DMR, as the administrator, requests the submission of the Basic Assessment Report and EMP within 90 days of the acknowledgement letter. Jaments (Pty) Ltd appointed Singo Consulting as an independent EAP to undertake the Basic Assessment Process associated with the Prospecting Right Application. All potential impacts of the proposed prospecting activities have been assessed. The EMPr includes mitigation measure implementation, which will apply throughout prospecting.
As per the Constitution of South Africa, specifically, everyone has a right to: **an environment that is not harmful to their health or wellbeing; and have**	Prospecting activities	An EMPr for proposed prospecting activities has been drafted to ensure that prospecting activities are conducted in such a manner that significant environmental impacts are avoided. Where significant impacts cannot

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the policy and legislative context
the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that: prevent pollution and ecological degradation promote conservation secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.		be avoided, they will be minimized and mitigated to protect the environmental right of South Africans.
MPRDA, No. 28 of 2002 Section 16 (as amended)	Prospecting activities	The applicant submitted a Prospecting Right Application to the DMR, which the DMR accepted Ref: (MP 30/5/1/1/2/15751PR). The conditions and requirements attached to the granting of the prospecting right will apply to the prospecting activities.
NEMA Biodiversity Act, 2004		The EMPr will regulate the applicant's implementation of biodiversity management measures. This is particularly relevant to all species of Mpumalanga Bushveld Complex and other Natural Area in which the project area falls.
National Water Act (NWA), Act 36 of 1998	N/A	No water use license is required for this application. Water required for drilling activities will be obtained from a legal source in the area or brought in via a mobile water tanker. Appropriate dust extraction/ suppression equipment will be a condition imposed on the drill contractor for drill rigs.
National Environmental Management: Waste Act, Act 59 of 2008 (NEMWA) (as amended)	Management measures environmental awareness plan	Waste generation will be minimized by ensuring employees of the drilling contractor are subjected to the appropriate environmental awareness campaign before drilling commences. All waste generated during the drilling activities will be disposed of

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the policy and legislative context
		in a responsible legal manner. Proof of legal disposal will be maintained on site.
National Heritage Resources Act (NHRA), 25 of 1999	Management measures	Should archaeological artefacts or skeletal material be discovered in the area during development activities, activities will be stopped, and the South African Heritage Resource Agency (SAHRA) will be notified for an investigation and evaluation of the discoveries.
Municipal plans and policies		
Local Municipality Integrated Development Plan (IDP) 2015-2016	N/A	The prospecting and mining of key minerals like Coal are highlighted in the IDP. It also highlights the need to preserve the natural environment in the area by conducting mineral exploration that is minimally invasive to the environment.
Municipality 2014-2034 Spatial Development Framework (SDF)		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.
Standards, guidance and spatial tools		
South African National Biodiversity Institute (SANBI) Biodiversity GIS (bgis.sanbi.org)	Baseline environmental description.	Used during desktop research to identify sensitive environments in the prospecting rights area.
QGIS Desktop: Version 2.18.10.	Baseline environmental description and mapping.	Used during desktop research to map the locality and sensitive environments in the prospecting rights area.

f) Need and desirability of the proposed activities

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

JAMENTS (PTY) LTD (2014/115748/07) intends to be a leading independent coal mining company and an increasingly important supplier of quality coal to the local and international market. The vision of the company is to build a world-class mining group. Therefore, developing a coal mining group of global significance.

The definition of Prospecting in terms of the MPRDA states: "intentionally searching for any mineral by means of any method which disturbs the surface or subsurface of the earth, including any portion of the earth that is under the sea or under other water…". The company therefore applied for prospecting on the properties as discussed in this report to determine the presence of coal, and whether these are feasible to enter into further studies towards a Mining Right.

Proposed project will contribute to favourable economic impacts on both local, regional and National scale. This will result into creation of jobs for the community and Skills development opportunity. Mining of Coal will contribute to the growth of the economy. Coal can be used for electricity generation (mainly targeted Eskom). It will contribute to industrial & commercial use like for example fuel source for generation of steam to provide heat and power. Therefore, if this prospecting right application is granted the coal produced can ease the current shortages of the resource.

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

Preferred Site

As discussed in the previous section, **JAMENTS (PTY) LTD (2014/115748/07)** applied for prospecting rights over the area. Based on the outcomes of that competitor study, the possibility to encounter further coal Reserves was identified. The site is therefore regarded as the preferred site and alternative sites are not considered.

The Mpumalanga province is rich in coal resources, which can provide major employment opportunities in the area. coal Mine mined around Mpumalanga contribute employment Opportunity around the province and contribute to the growth of the economy. Part of Coal

dominant in Mpumalanga province Ermelo, Emalahleni, Middleburg and Bethal. Mpumalanga province contribute to growth of the economy.

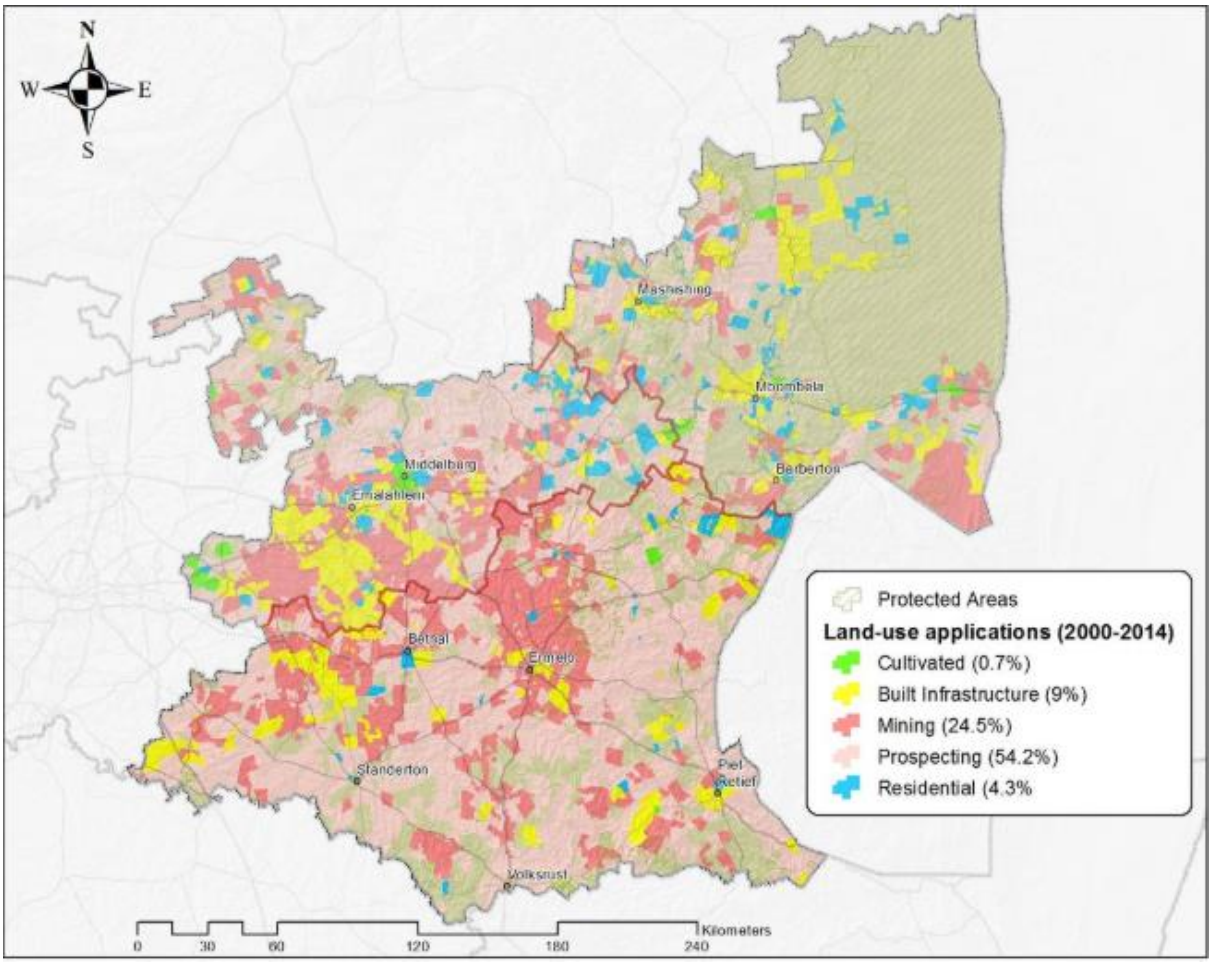


Figure 5: Prospecting and mining projects in Mpumalanga

Technological and Site Activity Alternatives

Due to the nature of the proposed prospecting activities future land use alternatives will not be compromised. Once a viable reserve has been confirmed a comprehensive social and environmental impact assessment will be required (in accordance with legislation), during which time alternative land use to mining would be investigated.

In terms of the technologies proposed, these have been chosen based on the long-term success of the company in terms of their prospecting history. The prospecting activities proposed in the Prospecting Works Programme is dependent on the preceding phase as previously discussed, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

The location of intrusive drilling activities will be determined during Phase 1 of the Prospecting Works Programme. All infrastructure will be temporary and/or mobile.

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

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

Each of the phases are dependent on the results of the preceding phase. The location and extent of coal sampling, and possible core drilling can therefore not be determined at this stage. Mapping of the prospecting activities could thus not be undertaken.

The stakeholder consultation phase has been completed at this time, and therefore the comments raised by I&APs have been incorporated in this section.

i) Details of the development footprint alternatives considered

(With reference to the site plan provided as Appendix 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:
the property on which or location where it is proposed to undertake the activity.

(a) the type of activity to be undertaken.
(b) the design or layout of the activity.
(c) the technology to be used in the activity.
(d) the operational aspects of the activity; and
(e) the option of not implementing the activity)

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

The **JAMENTS (PTY) LTD (2014/115748/07)** company therefore applied for prospecting on the properties as discussed in this report to determine the presence of coal, and whether these are feasible to enter into further studies towards a Mining Right.

k) The type of activity to be undertaken

In terms of the technologies proposed, these have been chosen based on the long-term success of the company in terms of their prospecting history. The prospecting activities proposed in the Prospecting Works Programme is dependent on the preceding phase as previously discussed, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

l) The design or layout of the activity

The location of activities will be determined based on the location of the prospecting activities, which will only be determined during Phase 1 of the Prospecting Works Programme. All infrastructure will be temporary and/or mobile [refer to Section d (ii) of the report for which includes a typical layout of drill sites to be established].

m) The technology to be used in the activity

In terms of the technologies proposed, these have been chosen based on the long-term success of the company in terms of their prospecting history. The prospecting activities proposed in the Prospecting Works Programme is dependent on the preceding phase as previously discussed, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

n) The operational aspects of the activity

Due to the nature of the prospecting activities, no permanent services in terms of water supply, electricity, or sewerage facilities are required.

The activities will commence with desktop study (as previously discussed), which will comprise of literature search. This manner of survey will ensure that the client can clearly delineate areas which are regarded as suitable for further investigation and no unnecessary surface disturbance will be undertaken.

Based on the outcomes of the desktop study, drilling and coal sampling will be undertaken for target areas only. Drilling and sampling are a minimal impact exploration method in terms of environmental disturbance. After the preliminary exploration work, the anomalies identified will be ranked for exploratory drilling. Site activities as it relates to exploratory drilling will comprise the establishment of the drill pad (drill pad clearing and compaction), drilling operations (drill maintenance, refuelling, core extraction and core storage) and rehabilitation activities (drill pad ripping and re-vegetation). No feasible alternative to the proposed exploratory drill methods currently exists. Impact associated with the drilling operations will be managed through the implementation of a management plan, developed as part of the application for authorisation.

o) The option of not implementing the activity.

The option of not approving the activities will result in a significant loss to valuable information regarding the mineral status (in terms of coal) present on these properties. In addition to this, should economical reserves be present, and the applicant does not have the opportunity to prospect, the opportunity to utilize these reserves for future phases will be lost.

In addition to the above, the SDF of the Ermelo Local municipality, states that various strategies and associated policies should be adopted to ensure effective spatial development. In terms of Section 5.1 of the SDF the municipality must provide alternative means of support for rural/informal population to decrease dependence on the environment and subsistence agriculture. For this purpose, the following policies are adopted:

- Maximise economic benefit from mining industrial, business, agricultural and tourism development within the area; and

- ❖ Promote a climate for economic development. Improve public and investor confidence in the region through crime reduction and infrastructure development.

p) Details of the Public Participation Process Followed

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

Identification of Interested and Affected Parties

The Public Participation Process (PPP) seeks to provide all stakeholders including potential players and all applicable I&APs, state departments, state bodies and the competent authority (CA) with an opportunity to obtain accurate, reliable and understandable information on the environmental impacts of the proposed activity and to provide all of the aforementioned to communicate their approval, concerns, objections and questions regarding the proposed project. The above helps compile a well-detailed report on the Basic Assessment Report & the Environmental Management Programme report. The PPP was carried out in accordance with the criteria of the EIA Regulations, 2014 (as amended, 07 April 2017) particularly Chapter 6 of this Regulation.

Settlements were search using the 1:50 000 topographical maps, aerial imagery, title deed searches and through consultation. There are no communities located on the said property, however, few informal houses were observed. All the affected portions are not state owned but rather privately owned. Other I&APs identified, include Organs of State, who have jurisdiction over, or might have an interest in the proposed protecting activities, adjacent and other landowners, non-governmental organisations and other organisations and / private persons.

The announcement of the proposed project was first made public on 27 March 2020 in the Highvelder Newspaper which was circulated covering the project area proposed. The respective landowners of portion1 & 4 within Spring Grove 227 IT were found via Windeed Search and consulted with the Background Information Document(BID) through phone calls and emails. Stakeholders have since been consulted from the 07 June 2020 to review and comment on the BID for the first 30 days of consultation. Site notices were plugged around the site during site visit on the 09 June 2020, which is also a notification form for landowners and adjacent landowners. The various portions within the Farm Spring Grove 227 IT . Singo Consulting Limited obtained the details for each landowner from the Title Deed search done. Landowner/s were contacted and informed of the said application via email .

Deeds List/proof

Printed: 2020/04/01 09:20

windeed
A LexisNexis® Product

Farm List

Date Requested	2020/04/01 09:20
Deeds Office	MPUMALANGA
Registration Division	IT
Farm Name	SPRING GROVE
Farm Number	227
Remaining Extent	NOT SELECTED

PORTION LIST

Portion	Owner	Title Deed	Registration Date	Purchase Price (R)
1	REPUBLIC OF SOUTH AFRICA	T16778/1963	1963/07/05	R0.00
4	SAPPI MANUFACTURING PTY LTD	T3698/2009	2009/05/04	R8493337.00
5	PUCKRIN CEDRIC ELDRID	T3697/2009	2009/05/04	R0.00

DISCLAIMER

This report contains information gathered from our suppliers and we do not make any representations about the accuracy of the data displayed nor do we accept responsibility for inaccurate data. WinDeed will not be liable for any damage caused by reliance on this report. This report is subject to the terms and conditions of the WinDeed End User Licence Agreement (EULA).

Proof of Newspaper Publication on Highvelder News

Chanté is 'n volwaardige kampioen

Chanté Boonstra het onlangs by Ermelo Gholfklub vir die agste agtereenvolgende jaar as die vroue-klubkampioen weggestap.

Dié gesogte titel het sy vir die eerste keer in 2013 op die ouderdom van 13 bekom en sederdien elke jaar daarna.

Boonstra het vertel dat dit altyd vir haar 'n eer is om enige kompetisie te wen, maar dat dit 'n groter eer is om aan haar klub se klubkampioenskap deel te neem en as die vroue-kampioen gekroon te word.

"Dit is hier waar jy jouself uitdaag om jou spel van die vorige jaar te verbeter en dit is altyd lekker om dié trofee saam 'n groot naam soos Eddie Daniels te lig."

Dié kranige 20-jarige het reeds op die ouderdom van nege saam met haar oupa, mnr. George Smith en haar pa, mnr. Rudi Boonstra die gholfbaan leer ken.

Boonstra het eers net balle rond geslaan om haarself besig te hou terwyl hulle gespeel het, maar haar liefde vir die sport het vinnig ontwikkel.

Sy en haar oupa het voor sy dood byna elke dag gaan gholf speel en sy het op die ouderdom van 11 jaar vir die eerste keer aan kompetisies deelgeneem.

Volgens Boonstra het sy haar beste gholf op Umhlali gholfbaan in Balito gespeel waar sy 'n 69 gespeel het.

Haar gunsteling-baan is Middelburg-gholfbaan vir die rede dat sy haar meeste kompetisies op dié baan gewen het.

"Een van my ander gunstelinge is Highland Gholfbaan in Dullstroom."

Pezula in Knysna, Elements Privaat Gholf Reservaat- en Eye of Africa-gholfbane is van die bane waarvan sy droom om nog op te kan speel.

Hoewel sy nog nie 'n kolhou geslaan het nie, hoop sy om een binnekort agter haar naam te kan skryf.

Boonstra sal graag eendag professioneel wil gholf speel, en glo dat dit nooit te laat is om jou drome te bewaarheid nie.

"Dit is vir my net so belangrik om ook my graad te voltooi en vir my gesin te kan voorsien, daarom wil ek graag eers my graad voltooi."

Vir haar is haar twee-jarige seuntjie, Declan, haar grootste motivering en geniet sy dit om hom van haar passie te leer.

Boonstra het vertel dat sy Jason Day vir sy nederigheid op die baan bewonder.

Haar raad vir muwelinge in die sport is om nooit moed op te gee nie.

"Wanneer dit voel asof jy nie uit die slegte deel van jou spel kan kom nie, hou net moed en hou aan speel, dit is dié tye wanneer jy die meeste leer."

Chanté Boonstra is onlangs vir die agtste agtereenvolgende jaar as Ermelo Gholfklub se vroue-klubkampioen aangewys. (Foto: Verskaf)

FOTO: Chanté Boonstra speel 'n sethou. (Foto: Verskaf)

NOTICE OF PUBLIC PARTCIPATION FOR PROSPECTING RIGHT AND ENVIRONMENTAL AUTHORISATION APPLICATION

ISIZULU

Isaziso senqubo yokuLindela ilungelo Lesicelo ngokoMthetho Wezokumbiwa kanye Nezimbiwa (i-MPRDA) (Umthetho 28 ka 2002) ngokuthola Amalahle ku NXENYE u-1,2,3 no RE we Famu I-Belport 226 IT kanye no 1-3 we Famu I-Spring Grove 227 IT, esendaweni iMagisterial District Ermelo, eSifundazweni sase Mpumalanga.

ISIMEMO SOKUPHAWULA NOKUVEZA IMIBONO MAYELANA NALE APPLICATIONI

Ngaleso sikhathi kunikezwe isaziso ngokoMthetho Wezokumbiwa phansi kanye nePetroleum Development Act (MPRDA) (Umthetho 28 ka 2002) kanye nemigomo ye-EIA 2014, ekhishwe ngaphansi kwesaziso sikaHulumeni Nombolo 982 kuGazethi Nombolo 3822 yomhla ziyi-4 kuZibandlela wezi-2014 ukuthi kuchitshiyelwe ngomhlaka 7 Ephreli 2017 ukuthi I-**Jaments (Pty) Ltd** ifake isicelo selungelo Lokuthola Ukumbiwa phansi kwale minerali eshiwo ngenhla nge-**DMR Ref MP 30/5/1/1/2/15751 PR.**

Njengengxenye yenqubo ye-EIA, ikakhulukazi inqubo yokubamba iqhaza komphakathi kule phrojekthi ehlongozwayo, Amaqembu Athintekayo Nathintekayo (IAPs) ayamenywa ukuba abhalise futhi alethe ngomusa noma yikuphi ukuphawula noma ukukhathazeka ukufinyelela kuNkosazana **Takalani Rakuambo** kungakadluli lwesibili, umhlaka **28 Aprili 2020**, kusetshenziswa imininingwane yokuxhumana enikezwe ngezansi.

Umphakathi ubuye futhi umenywe ukuthi ubukeze futhi uphawule ngombiko Oyisisekelo Wokuhlola Okuyisisekelo kanye ne-EMPr. Umbiko oyilwayo we-EMPr uzotholakala ukuthi ubuyekezwe isikhathi sezinsuku ezingama-30 zekhalenda le-**29 Aprili 2020 - 28 Meyi 2020**. Lo mbiko uzotholakala eDavel Public Library.

Ngeminye imininingwane, ukubhalisa njengeNhlangano Enentshisekelo noma Ethintekayo, sicela uthinte: -

JAMENTS (PTY) LTD
45 Alwyn Van Zyl Street, Ermelo, Mpumalanga, 2350
Tel: +27 81 412 8530
Cell: 074 897 7977
Fax: 086 5144 103
Email: Simelanegb@gmail.com

ENGLISH

Notice of the Prospecting Right Application Process as per the Minerals and Petroleum Resources Development Act (MPRDA) (Act 28 of 2002) for the prospecting of Coal On portion: 1,2,3 & RE of the Farm Belport 226 IT and 1-3 of the Farm Spring Grove 227 IT, situated in the Magisterial District Ermelo, Mpumalanga Province.

INVITATION TO COMMENT

Notice is hereby given in terms of the Mineral and Petroleum Development Act (MPRDA) (Act 28 of 2002) and EIA regulations 2014, published under Government Notice No. 982 in Gazette No. 3822 of 4 December 2014, amended on 7 April 2017 that **Jaments (Pty) Ltd** has applied for a Prospecting Right for the above-mentioned mineral with **DMR Ref: MP 30/5/1/1/2/15751 PR**

As part of the EIA process, more especially the public participation process for this proposed project, Interested and Affected Parties (I&APs) are invited to register and kindly submit any comments or concerns to reach **Miss Takalani Rakuambo by no later than Tuesday, the 28th of April 2020**, using the contact details provided below. The public is also invited to review and comment on the Draft Basic Assessment Report and EMPr. The draft EMPr report will be available for review for 30 days calendar period **29 April 2020 – 28 May 2020.** This report will be available at Davel Public Library.

For more information, to register as Interested or Affected Party, please contact: -

Singo Consulting (Pty) Ltd

Office No. 16, First Floor (South Block),
Corridor Hill Crossing, 9 Langa Crescent,
Corridor Hill, eMalahleni (Witbank), 1040
Tel: 013 692 0041
Cell: 078-548-1244/079-930-4772
Fax: 086-514-4103
Email: takalani@singoconsulting.co.za
Email (Alt): admin@singoconsulting.co.za

The Proposed application directly affects portions owned by PTY LTD (PTN 01), JOHANNES UYS TRUST (PTN 02) Kindly contact us immediately so that a formal meeting can be arranged with you, to formally notify, discuss activity to be undertaken & conditions of accessing your land. Your assistance will be highly appreciated.

NOTICE OF PUBLIC PARTCIPATION FOR PROSPECTING RIGHT AND ENVIRONMENTAL AUTHORIZATION APPLICATION

ISIZULU

Isaziso senqubo yokuLindela ilungelo Lesicelo ngokoMthetho Wezokumbiwa kanye Nezimbiwa (i-MPRDA) (Umthetho 28 ka 2002) ngokuthola ibhola lobumba. Engxenyeni eyi-RE of the Farm Volhording 265 IS, esendaweni iMagisterial District Ermelo, eSifundazweni saseMpumalanga.

ISIMEMO SOKUPHAWULA NOKUVEZA IMIBONO MAYELANA NALE APPLICATIONI

Ngaleso sikhathi kunikezwe isaziso ngokoMthetho Wezokumbiwa phansi kanye nePetroleum Development Act (MPRDA) (Umthetho 28 ka 2002) kanye nemigomo ye-EIA 2014, ekhishwe ngaphansi kwesaziso sikaHulumeni Nombolo 982 kuGazethi Nombolo 3822 yomhla ziyi-4 kuZibandlela wezi-2014 ukuthi kuchitshiyelwe ngomhlaka 7 Ephreli 2017 ukuthi I-**Siphiwe Intsikelelo Trading & Enterprise (Pty) Ltd** ifake isicelo selungelo Lokuthola Ukumbiwa phansi kwale minerali eshiwo ngenhla nge-**DMR Ref MP 30/5/1/1/2/15707 PR**.

Njengengxenye yenqubo ye-EIA, ikakhulukazi inqubo yokubamba iqhaza komphakathi kule phrojekthi ehlongozwayo, Amaqembu Athintekayo Nathintekayo (IAPs) ayamenywa ukuba abhalise futhi alethe ngomusa noma yikuphi ukuphawula noma ukukhathazeka ukufinyelela kuNkosazana Rudzani Shonisani kungakadluli lwesibili, umhlaka **28 Aprili 2020**, kusetshenziswa imininingwane yokuxhumana enikezwe ngezansi.

Umphakathi ubuye futhi umenywe ukuthi ubukeze futhi uphawule ngombiko Oyisisekelo Wokuhlola Okuyisisekelo kanye ne-EMPr. Umbiko oyilwayo we-EMPr uzotholakala ukuthi ubuyekezwe isikhathi sezinsuku ezingama-30 zekhalenda le-**29 Aprili 2020 - 28 Meyi 2020**. Lo mbiko uzotholakala eDavel Public Library.

Ngeminye imininingwane, ukubhalisa njengeNhlangano Enentshisekelo noma Ethintekayo, sicela uthinte: -

SIPHIWE INTSIKELELO TRADING & ENTERPRISE (PTY) LTD
1686 Magaliesberg Country Estate, Longmore Street, Pretoria, 1803
Tel: +27 81 4128 530
Email: dihloma@gmail.com

ENGLISH

Notice of the Prospecting Right Application Process as per the Minerals and Petroleum Resources Development Act (MPRDA) (Act 28 of 2002) for the prospecting of Ball Clay. On portion: RE of the Farm Volhording 265 IS, situated in the Magisterial District Ermelo, Mpumalanga Province.

INVITATION TO COMMENT

Notice is hereby given in terms of the Mineral and Petroleum Development Act (MPRDA) (Act 28 of 2002) and EIA regulations 2014, published under Government Notice No. 982 in Gazette No. 3822 of 4 December 2014, amended on 7 April 2017 that **Siphiwe Intsikelelo Trading & Enterprise (Pty) Ltd** has applied for a Prospecting Right for the above-mentioned mineral with **DMR Ref: MP 30/5/1/1/2/15707 PR**

As part of the EIA process, more especially the public participation process for this proposed project, Interested and Affected Parties (I&APs) are invited to register and kindly submit any comments or concerns to reach **Miss Rudzani Shonisani** by no later **than Tuesday, the 28th of April 2020**, using the contact details provided below. The public is also invited to review and comment on the Draft Basic Assessment Report and EMPr. The draft EMPr report will be available for review for 30 days calendar period **29 April 2020 – 28 May 2020**. This report will be available at Davel Public Library.

For more information, to register as Interested or Affected Party, please contact:-

Singo Consulting (Pty) Ltd

Office No. 16, First Floor (South Block),
Corridor Hill Crossing, 9 Langa Crescent,
Corridor Hill, eMalahleni (Witbank), 1040
Tel: 013 692 0041
Cell: 078-548-1244/079-930-4772
Fax: 086-514-4103
Email: rudzani@singoconsulting.co.za
Email (Alt): admin@singoconsulting.co.za

Proof of Placement of site notices around the Prospecting area

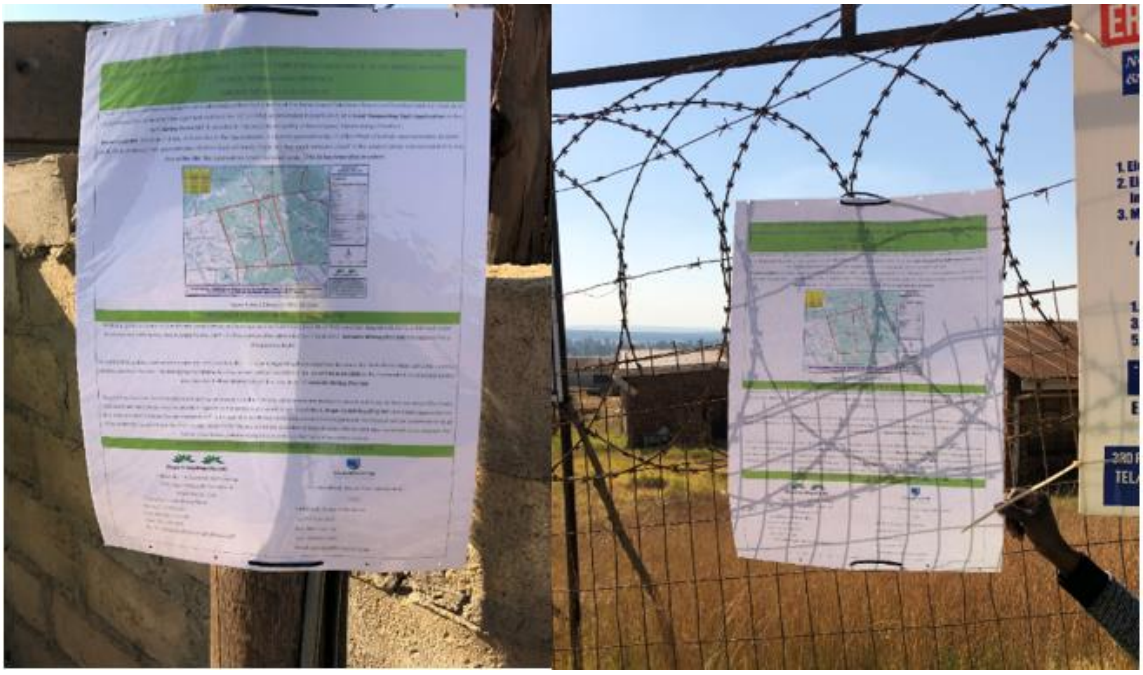


Table 6: List of Stakeholders

Names of I&AP's	Organization
Dept. Land Affairs	Landowner
Sappi Manufacturing (Pty) Ltd	Landowner
Puckrin Cedric Eldrid	Landowner
Mr. B Zwane	Msukaligwa Local Municipality
Ms. Tebogo M Ms. Lindokuhle M Ms. Sibongile L	Gert Sibande District Municipality
Mr. R Luyt	Department of Agriculture, Rural Development, Land & Environment Affairs
Ms. R Chavalala	Department of Agriculture, Forestry and Fisheries
Mr. S Nevondo	Department of Water and Sanitation
Mrs. P Lindoor, Mr. V Khoza	Commission on Restitution of Land Rights
Ms. P Nkosi	Mpumalanga Tourism and Parks Agency/Biodiversity
Mr. M Wayleaves	Eskom
Mr. J Oliver Mrs. R Barkhuizen	Sanral
Ms. T Mavulwana	Transnet

Issues and Response Register

All comments received by Stakeholders are included in the table below.

(ii) Summary of issues raised by I&APs

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

Table 7: Issues raised by Stakeholders

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received(Call, Fax, emails)	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
AFFECTED PARTIES					
Landowner/s	X				
Republic of South Africa (Ptn 1) rural development & land reform Department: Rural Development and Land Reform REPUBLIC OF SOUTH AFRICA William Nyoni William.Nyoni@drdlr.gov.za Happy Motha Happy.Motha@drdlr.gov.za	X	05/06/2020(email)			Error! R eference source not found.

Fedrick Motha E: Fedrick.Motha@drdlr.gov.za George Mhlanga E: George.Mhlanga@drdlr.gov.za					
sappi **Sappi Manufacturing (Pty) Ltd (Ptn 2)** T: 011 883 8082 C: 082 601 3123 E: steve.binnie@sappie.com Louise van Wyk (Ms) Area Environmental Manager Mpumalanga E: Louise.vanWyk@sappi.com	X	05/06//2020(email) 30/06/2020 (email)	• Objection to the application, based on the impact on operations and the environmental sensitivity of the proposed prospecting area. • We reiterate that a new industry cannot exercise the right to operate on an existing industry's property, without impacting the industry operations significantly. • The approval of this application will have significant detrimental impact on an existing industry.	Thank you for raising your concerns regarding the proposed project area. Kindly note that you will be registered as an I&AP of the said project.	Error! Reference source not found.
Puckrin Cedric Eldrid (Ptn 3) T: 012 460 6859 C: 083 250 6939 E: puckrin@lowcircle.co.za	X	05/06/2020(email)			Error! Reference source not found.
Lawful occupier/s of the land					
N/A					

Landowner or lawful occupier on adjacent properties					
Municipal councillor					
Cllr C:	X				
Local Municipality: Msukaligwa					
MM Office E: 'bzwane@msukaligwa.gov.za'	X	25/03/2020(email)			Error! R eference source not found.
District Municipality: Gert Sibande					
Tebogo M	X	25/03/2020(email)			Error! R eference source not found.

E: TebogoM@gsibande.gov.za Lindokuhle M E: LindokuhleM@gsibande.gov.za Sibongile Lekalake E: sibongilel@gsibande.gov.za					
agriculture, rural development, land & environmental affairs MPUMALANGA PROVINCE REPUBLIC OF SOUTH AFRICA 13 De Jager Street Ermelo 2351 T: 017 811 4830	X				
Organs of state (Responsible for infrastructure that may be affected: Roads, Departments, Eskom, Telkom& DWA)					
water & sanitation Department: Water and Sanitation REPUBLIC OF SOUTH AFRICA Nevondo Seani E: NevondoS@dws.gov.za	X	27/03/2020(email)			Error! R eference source not found.

agriculture, forestry & fisheries Department: Agriculture, Forestry and Fisheries REPUBLIC OF SOUTH AFRICA Rhulani Chavalala Tel.: 013 754 0729 Cell: 078 608 3909 E: RhulaniC@daff.gov.za	X	27/03/2020(email)			Error! R eference source not found.
SANRAL nrstat@nra.co.za	X	27/03/2020(email)			Error! R eference source not found.
Eskom Wayleaves E: WayleavesNWOU@eskom.co.za	X	27/03/2020(email)			Error! R eference source not found.
TRANSNET Yuza Chabalala E: Yuza.Chabalala@transnet.net Tshilidzi Mavulwana	X	25/03/2020(email) 05/06/2020(email) 18/06/2020(email)	Kindly indicate if there's a railway line or any other Transnet property in the	Kindly review the Regulation 2.2 Map. According to this map and our site assessment, we did not come across any	Error! R eference source not found.

Transnet Freight Rail WTB E: Tshilidzi.Mavulwana@transnet.net				railway line or Transnet property within the project area or in close proximity to the project area	
Communities					
Lothair					
Dept. Land affairs					
COMMISSION ON RESTITUTION OF LAND RIGHTS Petruscha Elaine Lindoor Petruscha.Lindoor@drdlr.gov.za Vusi Kleinboy Khoza E: Vusi.Khoza@drdlr.gov.za	X	25/03/2020(email) 27/04/2020(email) 05/06/2020(email) 09/06/2020(email)	According to our database there are currently no land claims lodged against the property	Comment captured	**Error! Reference source not found.**
Tribal leaders	X				
N/A					
Dept. of Environmental affairs					

environmental affairs Department: Environmental Affairs REPUBLIC OF SOUTH AFRICA T Ramavhona E: TRamavhona@environment.gov.za	X	27/03/2020(email) 05/06/2020(email)			Error! R eference source not found.
Other competent authority					
Mpumalanga TOURISM AND PARKS AGENCY Phumla Nkosi E: Phumla.Nkosi@mtpa.co.za	X	07/2020(courier)			
SAHRA					
https://sahris.sahra.org.za /node/add/heritagereports		07/2020(online submission)			
Other Affected Parties					
Interested parties					

4 The Environmental attributes associated with the alternatives

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

As discussed in the previous section, JAMENTS PTY (LTD)applied for prospecting rights over the area interest in the close vicinity of the coal mines. Based on the outcomes of that study, the possibility to encounter further coal Reserves on the properties subject to this Prospecting Right Application was identified.

The company therefore applied for prospecting on the properties as discussed in this report to determine the presence of coal, and whether these are feasible to enter into further studies towards a Mining Right. No alternative is available that will have an impact on a different setting than the environment discussion provided for below.

4.1 Baseline Environment

(a) Type of environment affected by the proposed activity

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

4.2 Topography

The proposed prospecting right application falls within Mpumalanga region. The dominant vegetation types such as grass, shrubs and few trees. The proposed prospecting area has elevation from approximately 1720 meters above sea level as seen in the topology map below.

The topography of the project area is classified as relatively flat to gentle undulating plains. The flow of water during rainy seasons flows from the area of high elevation to the area of low elevation as it is indicated or displayed by contour lines and the water will flow from eastern side to the western side of the project area. The contour lines are 20 m apart from each other.

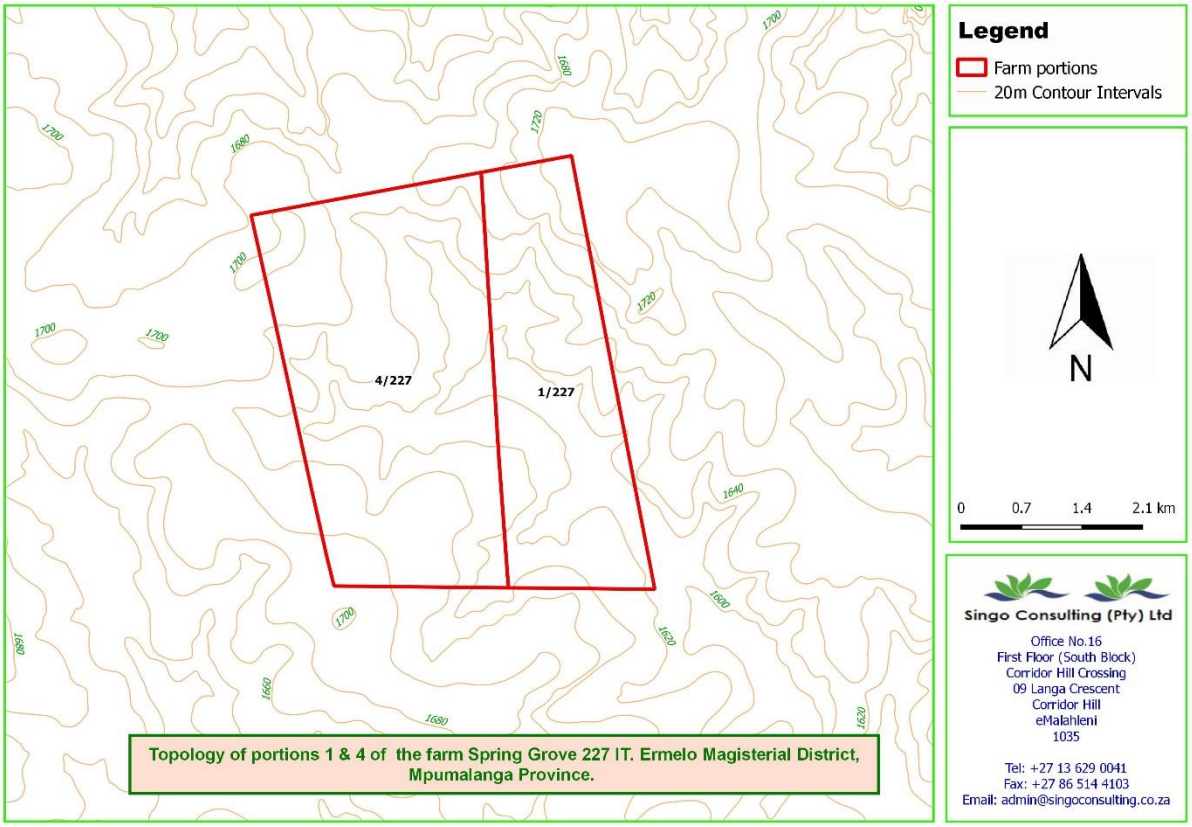


Figure 6: Topographical map

5 Climate

5.1 Regional Climate

The study area is situated in the Mpumalanga Highveld Region climate with dry cold winters and warm summers with thunderstorms. Frost and hail occur frequently during winter and summer, respectively.

Rainfall and Precipitation

Historic rainfall data for the area indicates that rainfall season January, November and December. Ermelo dry period is June and July, in terms of average January is the rainiest season. July has the least rainy days. The average annual amount of rainy days is 106 days.

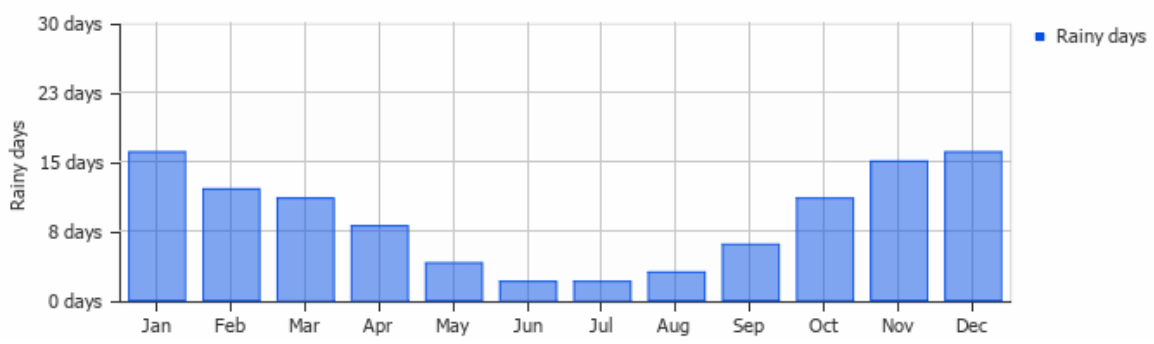


Figure 7: Monthly Average Rainy days of Ermelo (South African Weather and climate Service 2019)

Average Temperature data for the area indicates the warmest months January, February and December. The warmest months is January and the coolest months is July.

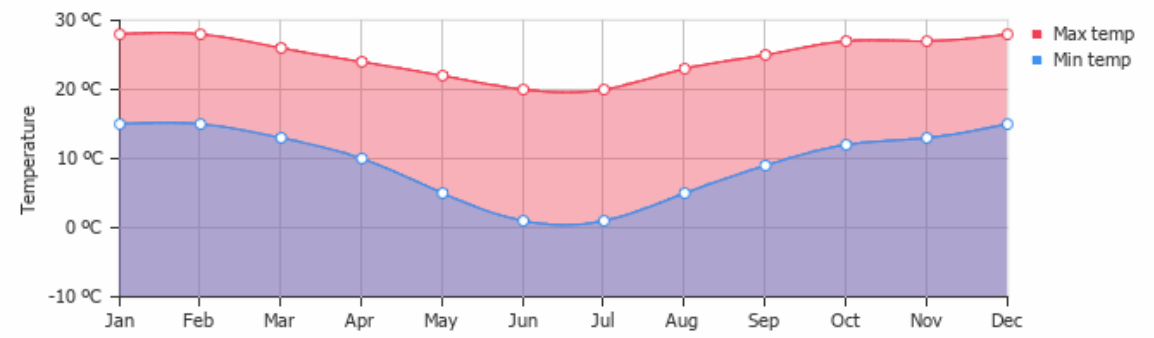


Figure 8: Average Temperature of Ermelo (South African Weather and climate Service 2019)

5.2 Geology

i. Regional Geology

Karoo Geology

In general, the coal deposits in South Africa are hosted by the Karoo Supergroup, which was deposited in the Gondwana basin that covered parts of Africa, Antarctica, South America and Australia. The basal Stratigraphy of the Karoo Supergroup comprises the Dwyka Group which is a Late Carboniferous to Early Permian (~320Ma) sequence of glacial and periglacial sediments including diamictite, till moraine, conglomerate, sandstone, mudstone and varved shale.

This is overlain by the Ecca Group which is an Early to Late Permain (~260 Ma) sequence comprising sandstone, siltstone, mudstone and significant coal seams deposited in a terrestrial basin on a gently subsiding shelf platform. In the surrounding Witbank Coalfield areas, the Ecca Group is overlain by the Beaufort Group, which is Early Triassic (~260 to 210 Ma), comprising

multi-coloured mudstone and sandstone with only minor coal accumulation, and was deposited in a fluvial environment. The Molteno Formation rests unconformably on the Beaufort Group and comprises Late Triassic (~210 Ma) coarse, immature sandstone with minor argillaceous layers derived from braided streams. This in turn is overlain by the Elliot Formation consisting of red mudstone and sandstone and the Clarens Formation comprising Aeolian sandstone. At the top of the Karoo Supergroup stratigraphy is the Drakensburg Group, which comprises Early to Middle Jurassic (~180 Ma) flood basalts.

ii. Local Geology

The Witbank Coalfield was first exploited in 1895 and became the most significant production area in South Africa supporting many collieries. Six coal seams (numbered 1 through 6 from the base upwards) are contained in a 70-thick succession comprising dominantly of sandstone with subordinate siltstone, mudstone and shale (Vryheid Formation). The partings between the seams are remarkably constant although seam splitting is common.

The distribution and attitude of the No.1 and No.2 Seams is largely determined by the pre-Karoo topography and all seams are controlled by the present-day erosion surface. Generally, the No.1, 2, 4 and 5 Seams are considered economic based on seam thickness and quality. Intrusive dolerite dykes and sills are ubiquitous and devolatilization of the coal seams can be significant. The area is underlain by thin sequences of sedimentary rocks of the Dwyka Group which represent re-worked glacial tillite. They rest unconformably on an uneven floor of older pre-Karoo rocks composed of granite, gabbro, diabase and felsite.

The basement and Dwyka Group are unconformably overlain by the coal bearing Vryheid Formation of the Ecca Group comprising the six recognised coal seams separated by sedimentary packages consisting mainly of sandstone and thinly laminated siltstone with subordinate mudstone and shale. The lithological units are variable in thickness but are readily identifiable in all boreholes throughout the area.

The Colliery coal seams are contained within the Vryheid Formation of the Karoo Sequence and are underlain by strata of the Dwyka Group. Due to the presence of palaeohighs, as well as present day erosion, not all the coal seams are developed in all the reserve areas.

The Stratigraphy of the colliery reserve area is typical of the Witbank Coalfield. Four main coal seams are present: they are, numbered in ascending, stratigraphic order, the No.1 Seam, No.2 Seam, No.4 Seam and No.5 Seam. The Landau coal reserves are primarily contained in the No.1, No. 2 and No.4 Seams.

Sediments of shale, siltstone and sandstone overlie and separate the various coal seams. Underlying the lowermost coal seam is a coarse grained diamictite. The overburden thickness and preservation of the coal seams is dependent on the surface topography and the pre-Karoo basement floor. In general, the depth of weathering does not extend deeper than the

first couple of metres and the overburden thus comprises hard, competent material. Consequently, the weathering seldom has any significant impact on the slope stability of the highwall or on the quality of the coal seams. The overburden and inter-burden lithologies do vary across the reserve.

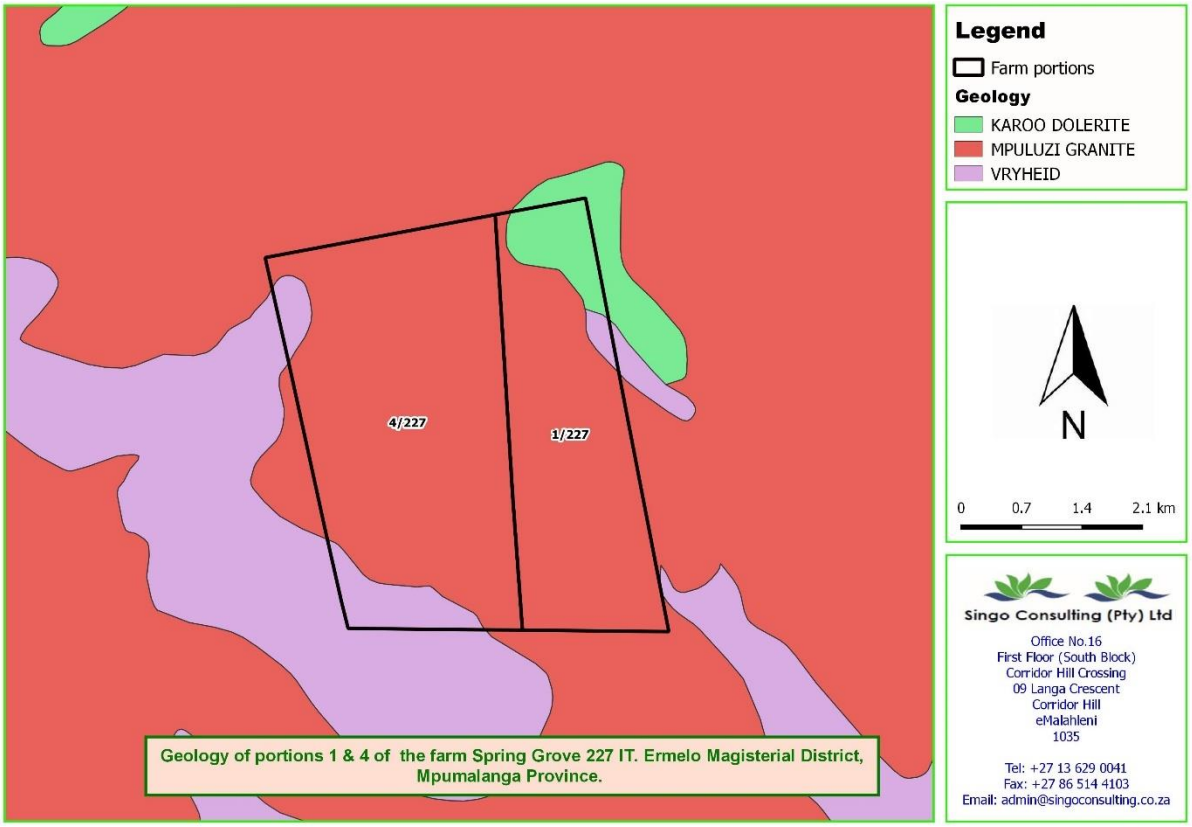


***Figure 9**: Geological map confirming the project falling within Mpuluzi Granite, Karoo Dolerite and Vryheid*

The project area lies within the Vryheid formation which is known to host significant resources of coal.

iii Coal Geology

The No. 1 Seam rests unconformable on Dwyka sediments, consisting of reworked tillites, diamictites and glacial varves. Due to the basal erosional unconformity, the lower contact of the No. 1 Seam is very undulating contributing to a substantial variation in seam thickness. The upper contact of the No. 1 Seam with the overlying coarse arenites is mostly erosional. The erosional contact contributes further to the varying seam thickness. The erosional unconformity becomes more pronounced as the coal seam approaches the palaeo-geographical highs.

It is expected that The Number 1 coal seam is well developed in the prospecting area and represents the main economical target.

The No. 2 Seam is developed about 5 meters above the No. 1 seam and consists of a relatively thick sequence of carbonaceous shale, and mixed coal.

The coal seam is expected to be reasonably developed in the prospecting area and also represents an economical prospecting target.

The No 3, 4 and 5 Coal seams is upper coal seams are not expected to be preserved in the area due to erosion.

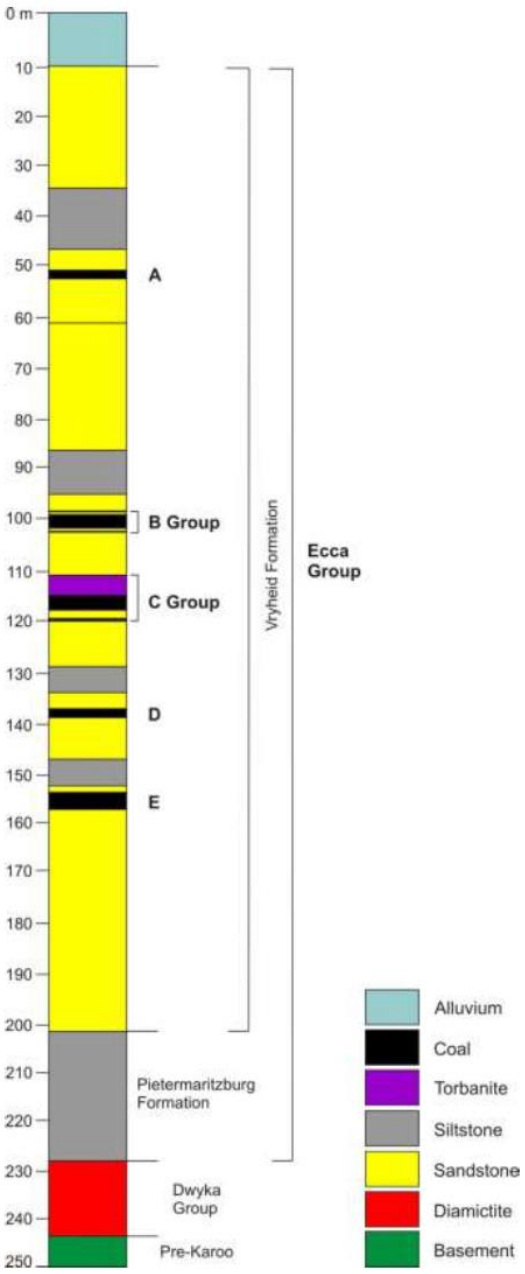


***Figure 10**: Stratigraphic column of the Karoo Supergroup in Ermelo Coalfield including the underlying pre-Karoo basement rocks (after Greenshield, 1986)*

Ermelo Coalfield the thickness of the Vryheid Formation varies between 170-359 m (Greenshield, 1986). Two stratigraphic marker 48 horizons occur within the sequence that may be useful in exploration drilling (Stavrakis,1991), these are glauconitic sandstone unit, which overlies the B Seam package and bioturbated siphonicnus-zone that occur below C Seam and which may be used as a marker to terminate exploration drilling. Waker (2003) thick C shale (sandy bioturbated mudstone) in the floor of E seam, which he felt made a prominent end hole (EOH) when D and E seam are being targeted. The overlying Volksrust Formation is only present along the western and Southern escarpment areas, where it can achieve a thickness of up to 106 m (Greenshield, 1986).

Coal Seams

The coal seams in Ermelo Coalfield are generally flat lying to slightly undulating and as for the witbank and Highveld coalfields, are separated by fine to coarse-grained sandstone, siltstone and mudstones. The A, D and E seam are usually too thin to be of economic interest and historically C seam group was the most important in the Carolina-Breyton area and B Seam group in Ermelo area. Rapid seam thickness variations characterise coalfield.

The E Seam may reach a thickness of up to 3 m but is of economic importance only in isolated patches in the north of the Ermelo Coalfield (Greenshields, 1986). The coal is mostly bright and banded, has a competent sandstone roof and floor and is sometimes split by a thin sandstone or carbonaceous fines parting (Greenshields, 1986).

In the central and southern part of the coalfield, it is developed as a torbanite or as a carbonaceous siltstone or mudstone unit, and locally becomes too thin for mining (Greenshields, 1986). The coal of the D Seam is of good quality, but in general is too thin (0.1-0.4 m) to be of economic importance (Greenshields, 1986). The coal is not split by partings and consists of large amounts of vitrain and occasional durain bands (Greenshields, 1986; Jeffrey, 2005a). The C Seam group has been one of the main seam packages of economic importance throughout the Ermelo Coalfield.

It is usually split by several partings which can lead to miscorrelation of the seams (Greenshields, 1986). In general, the C Seam is subdivided into the C Upper (CU) and C Lower (CL) seams. The CU Seam is well-developed over the entire coalfield and is often split by partings of different lithologies, such as sandstone, siltstone or mudstone, reaching a composite thickness of 0.7-4 m. It has historically been mined in several collieries of the Ermelo Coalfield, including the Golfview, Usutu, Goedehoop, Union, and Kobar collieries (Greenshields, 1986), as well as more recently at the Ferreira opencast mine.

The CL Seam is not developed throughout the entire coalfield, but where developed is between 0.5 and 2 m thick. It locally grades into carbonaceous siltstone and mudstone, which often form the roof of the seam, whereas the floor mostly consists of sandstone. It has historically been mined at the Savmore, Anthra, Ermelo, Golfview, and Wesselton mines (Greenshields, 1986; Paulsen and Stone, 2002). Several other mines in and around the towns of Ermelo and Breyten have at times extracted coal from this seam including the Spitzkop, Bellevue, Grenfell, Usutu, Consolidated Marsfield, and Union collieries. The CL was also the main target seam at CCL's Ferreira opencast mine, and it is also currently being mined underground at their Penumbra mine, where it occurs at an average depth of around 100 m. It is the thickest of all the coal seams intersected here, reaching a thickness of more than 1.50 m over large parts of the project area. Locally seam floor rolls may negatively influence the thickness of the CL Seam in the Ermelo Coalfield.

The B Seam group varies in thickness from 1-2.7 m and may be split into three units. Greenshields (1986) terms these the B1, B and BX seams, but they are more commonly referred to as the B Lower (BL), B Upper (BU) and BX seams. Greenshields (1986) notes, that the quality of the B Seam is in general inferior to that of the C Seam. This seam tends to be somewhat better developed in the north-eastern and eastern parts of the Ermelo Coalfield and has historically been mined at the Droogvallei, Spitzkop, Savmore, and Consolidated Marsfield collieries, and was the seam mined at Coal's Mooiplaats Colliery, where it is between 0.6-2.87 m thick. The BU was mined at the end of the mine life at the old Usutu Colliery, and the BL at the Ferreira mine. At Mooiplaats the BU Seam occurs at depths of between 90 and 140 m and ranges in thickness between 0.15 m in the southeast to over 3 m in the north.

The A Seam occurs only in the northern and central parts of the coalfield, where it varies in thickness from 0-1.5 m (Greenshields, 1986). Wakerman (2003) provides a weighted average thickness of 0.94 m for the seam in the Sheepmoor exploration area. Over most of the Ermelo Coalfield however this seam has been removed by erosion. Like in the Witbank and Highveld coalfields for the No. 5 Seam, the A Seam is overlain by a green glauconitic sandstone that forms a useful marker horizon and denotes the transition from a fluvio-deltaic to a marine depositional environment.

Land use

The environmental and current land use practiced in the applied property natural, Plantation, grazing of livestock such as Cattle, Goats, sheep and water bodies within the property, Building

activity very close to the proposed project. The proposed prospecting area is located on natural environmental features as confirmed by GIS specialist on the map below (*Figure 13*).

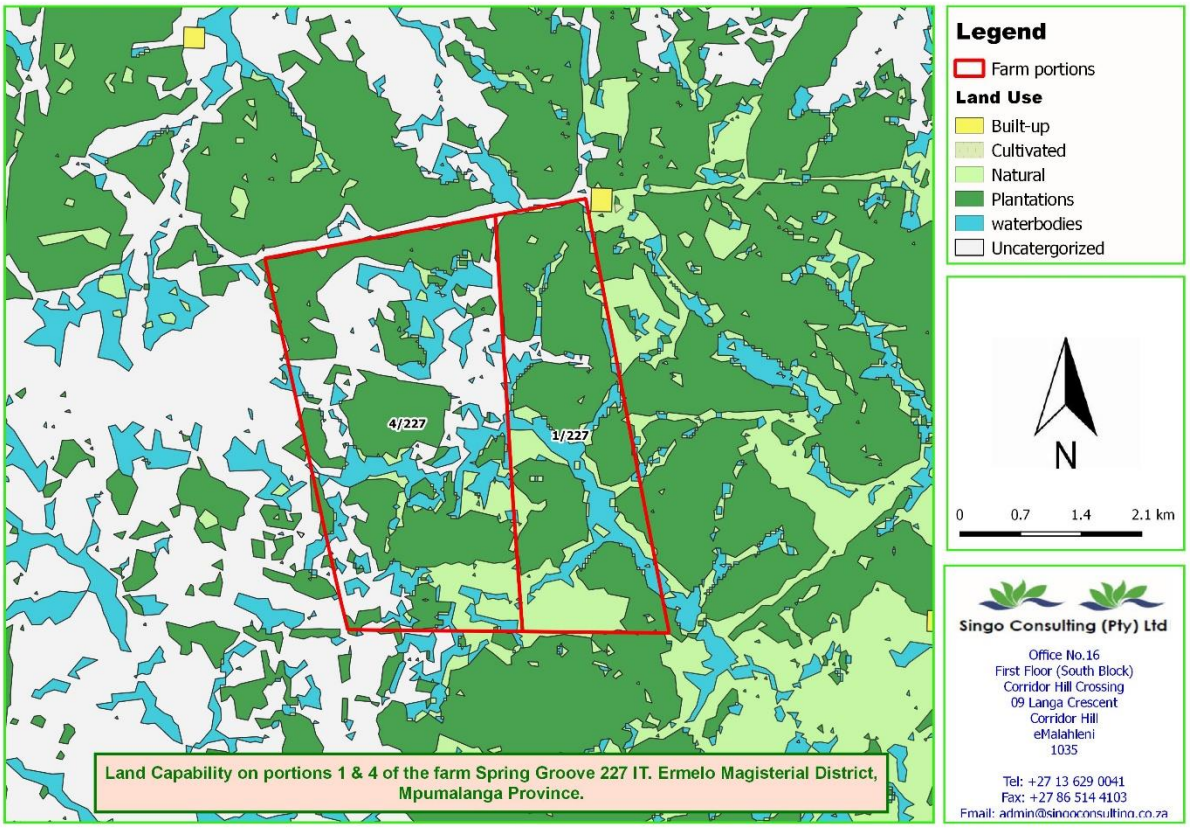


***Figure 11**: Land use map of the proposed project area*

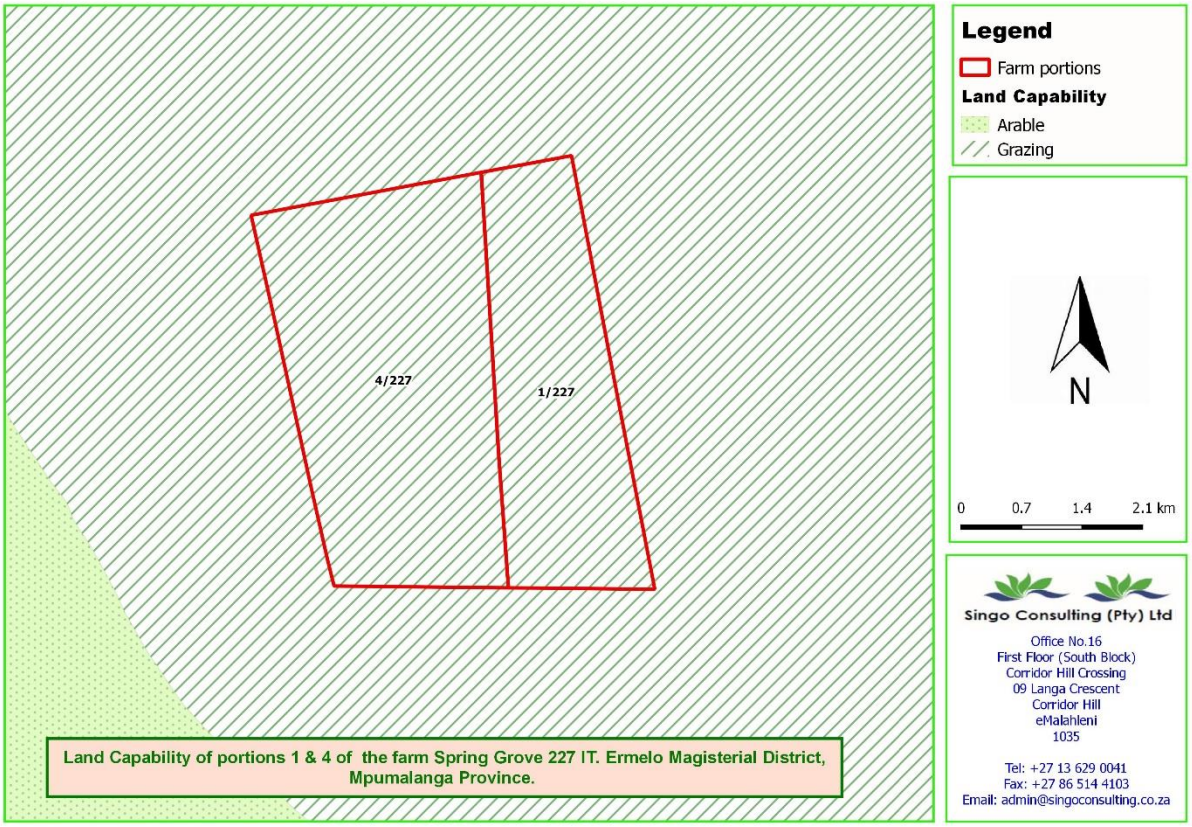


Figure 12: *Land Capability map of the proposed project area*

Soil

From a desktop study that was conducted, a map in Figure was produced. This map shows that the coal project area is covered with undifferentiated structureless soils. This type of soil is characterized by sand, red soil which is less productivity due to dominating of sand soils have severe limitations that reduce the choice of plants or that require special conservation practices, soils and miscellaneous areas have limitations that preclude commercial plant production and restrict their use to recreational purposes, wildlife habitat, or esthetic purposes.

The top soil of many parts of the property and on alternative site is disturbed or degraded by erosion as the property is used for grazing and the permit area is located in a steep slope where rain water easily flows in a high speed to the Northern side where there is Douglas dam. As it is highlighted below on Figure the project falls under soil classes 1 to 4 as stated in the soil classification map. Soil classes from 1 to 4 has favourable physical properties and it also has low base status, restricted soil depth, excessive or imperfect drainage, high erodibility.

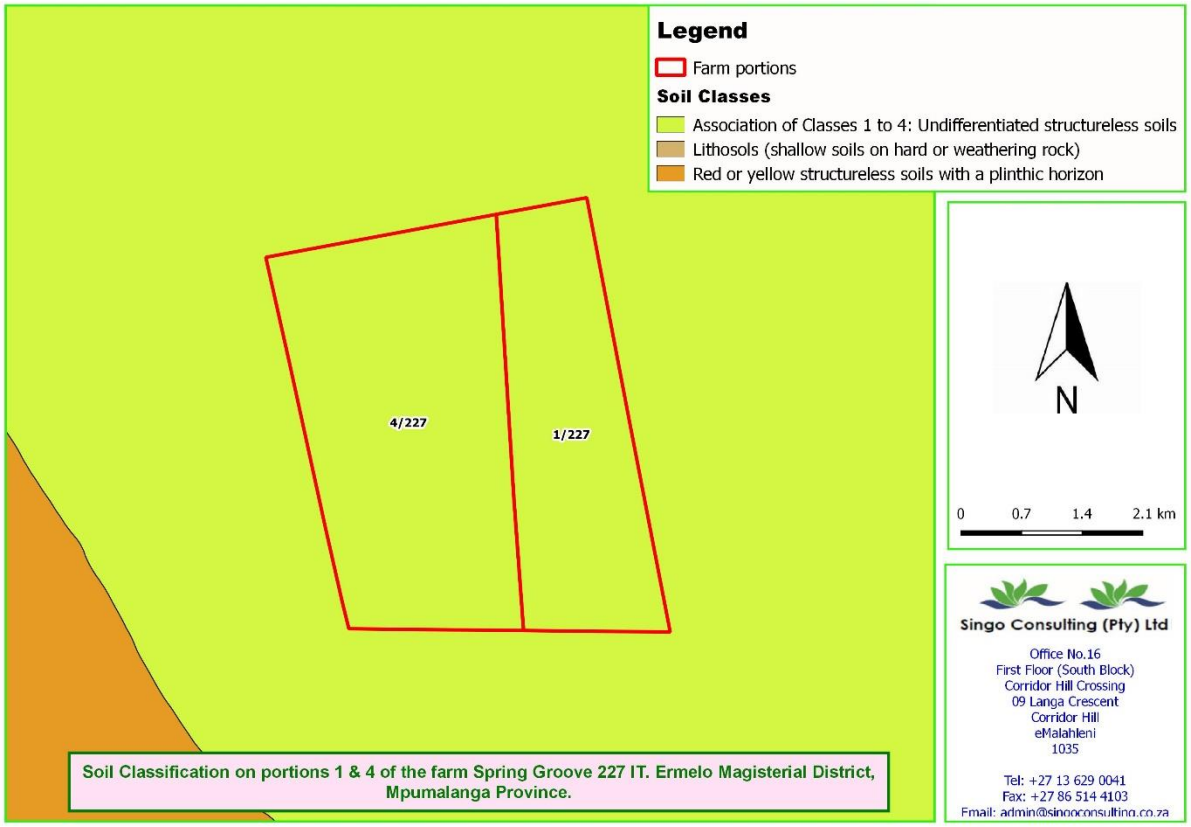


***Figure 13**: Map showing soil classes in the project area.*

Soil classes table

Soil Classes	Land Capability
Class 1	Has few limitations that restrict its use; it may be used safely and profitably. Suitable land with negligible limitations and is highly productive requiring only simple management practices. When it used for crops it need ordinary management practice to maintain productivity. They are easily worked and are also fairly well supplied with plant nutrients or are highly responsive to inputs of fertilizer.
Class 2	Has some limitations that reduce the choice of plants or require moderate conservation practice. Suitable land with minor limitations which either reduce production or require more than simple management practices to sustain the use. Slight to moderate salinity or sodicity, easily corrected, but likely to persist is taken to

	imply that strong subsoil acidity, costly to correct and likely to reappear, would disqualify land from Class II.
Class 3	Has severe limitations that reduce the choice of plants or require special conservation practices. Suitable land with moderate limitations which is moderately suited to a proposed use, but which requires significant inputs to ensure sustainable use.
Class 4	Has very severe limitations that restrict the choice of plants, require very careful management. Marginal land with severe limitations which make it doubtful whether the inputs required to achieve and maintain production outweigh the benefits in the long term.
Class 5	Land in this class has little or no erosion hazard but have other limitations impractical to remove that limit its use largely to pasture, range, woodland or wildlife food and cover. These limitations restrict the kind of plants that can be grown and prevent normal tillage of cultivated crops. Pastures can be improved and benefits from proper management can be expected.

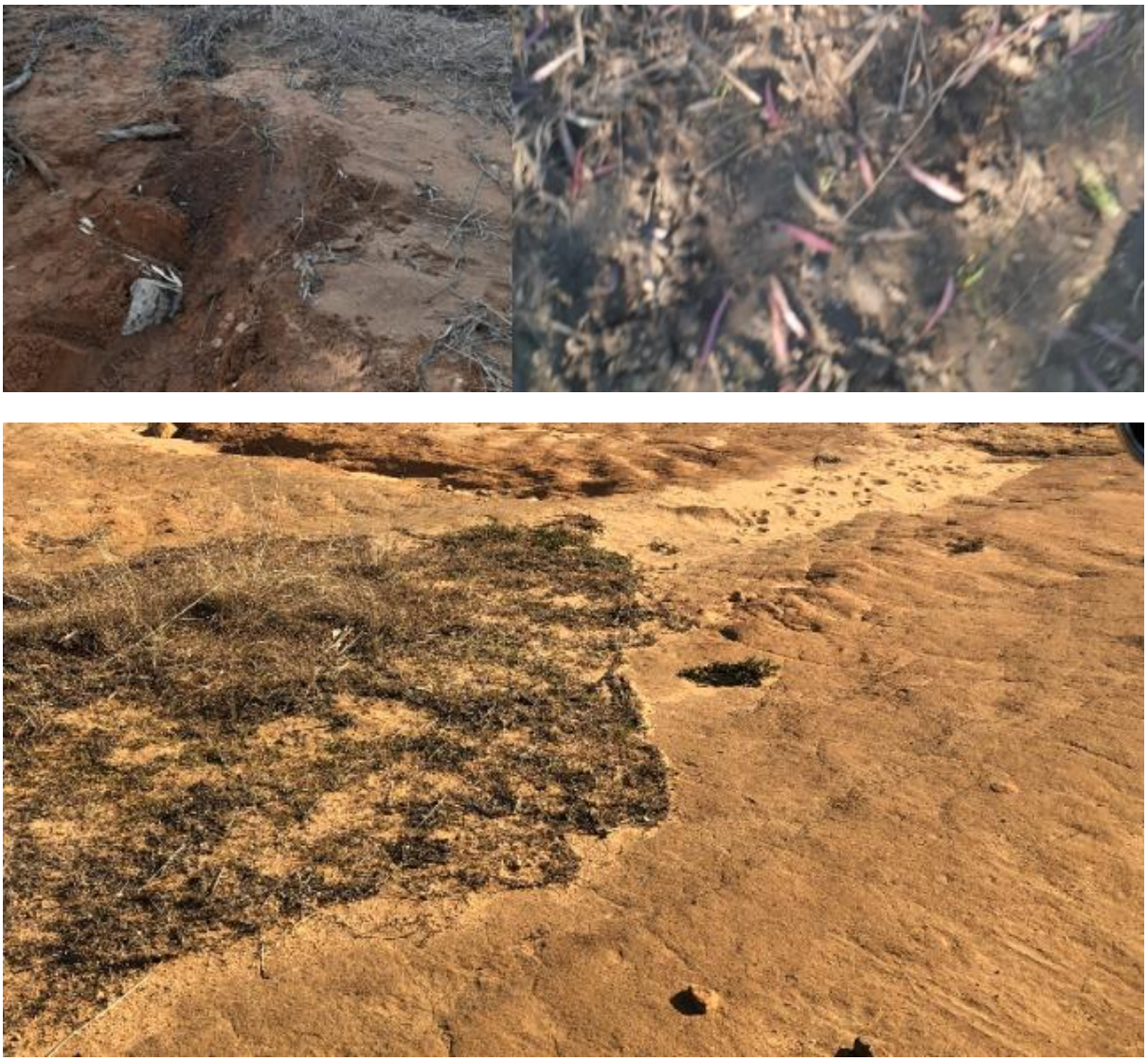


Figure 14: Type of soil found within the proposed project area

Water Resources

Portion 1 & 4 of the farm Spring 227 IT falls within the Usutu Mhlatuze Water Management Area, situated in the quaternary catchment W55D. Quaternary catchment W55D has a mean annual runoff of 50.50 mcm, with a mean annual precipitation of 902 mm and a total area of 271 km2.

There are several wetlands surrounding the prospecting area which are as follows: channelled valley-bottom wetland, unchanneled valley-bottom wetland, flat, seep, perennial and non-perennial river. The channelled valley-bottom wetland and unchannelled valley-bottom wetland are approximately 100m- 200m in vicinity of the prospecting area. However, there are streams/ rivers observed within the prospecting area.

The rock types underlying the study site can be divided into two distinct aquifers, namely a shallow weathered aquifer and a deeper fractured aquifer (source: Trans alloys Groundwater Model – MVB Groundwater Consulting).

Shallow aquifer: This aquifer mainly comprises unconsolidated sand and clay. The depth of weathering based on the geological borehole logs and some field investigations varies between 0m to 12m in depth. Recharge to this aquifer occurs from rainfall as well as from surface water sources. (source: Trans alloys Groundwater Model – MVB Groundwater Consulting).

Deep fractured aquifer: A deeper fractured aquifer also underlies the study area in the fresh shale, sandstone and coal seams underlying the weathered material. The primary porosity of the Ecca Group rocks does not allow significant groundwater flow, except where the porosity has been increased by subsequent secondary structures, such as faults and dykes. No dykes were however, detected in the study area.

Surface Water

During the desktop study, hydrological map in figure above was produced. The hydrological map illustrates that the project is under water management area of Usutu Mhlatuze . The project area has perennial or non-perennial river flowing through the area. There is a perennial river flowing on the southern part of the project area.

The hydrological map above illustrates channelled valley-bottom wetlands. This project falls within Quaternary catchment boundary W55D. The wetlands show where the water shows settlement. Wetlands are like giant sponges. They store water collected through wet periods, reduce flooding. In addition, wetlands provide habitat for wildlife and healthy wetlands naturally attract wildlife. Runoff for the catchment is 50.50 mcm within an area of 271 km.

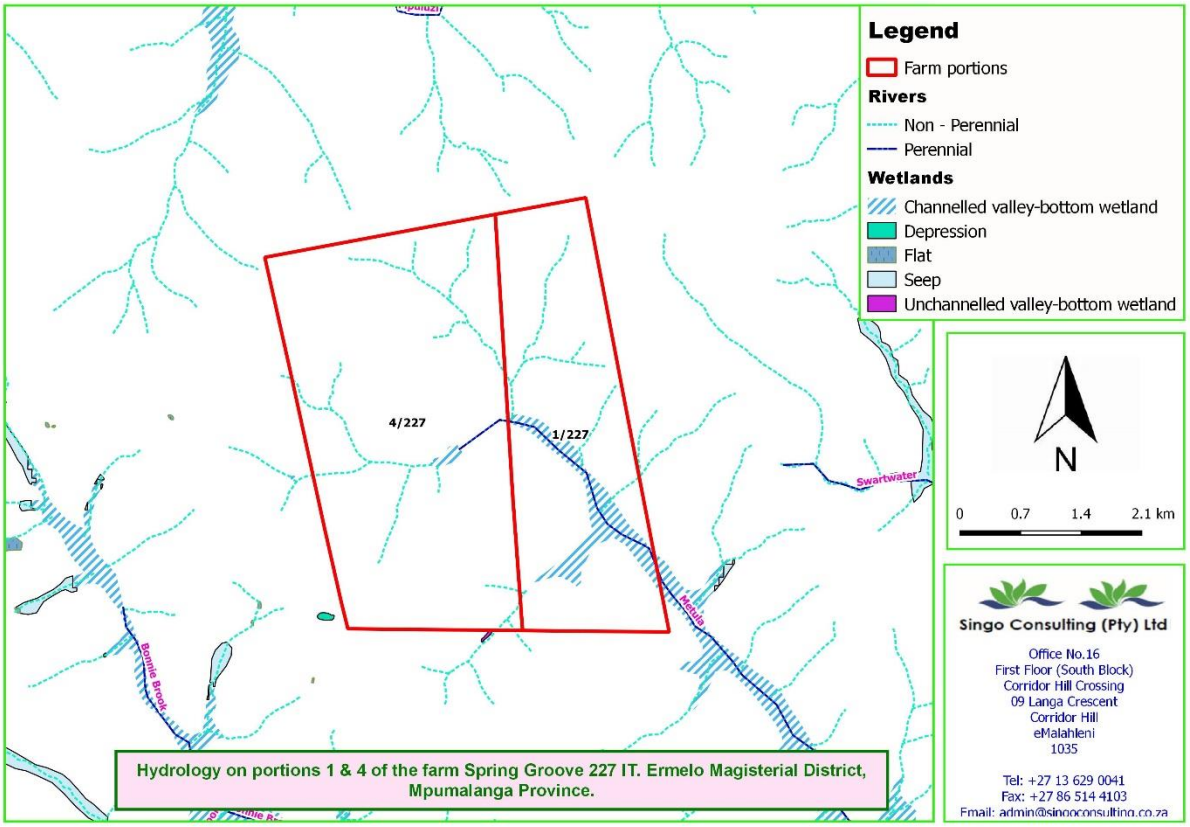


***Figure 15**: Surface water conditions*

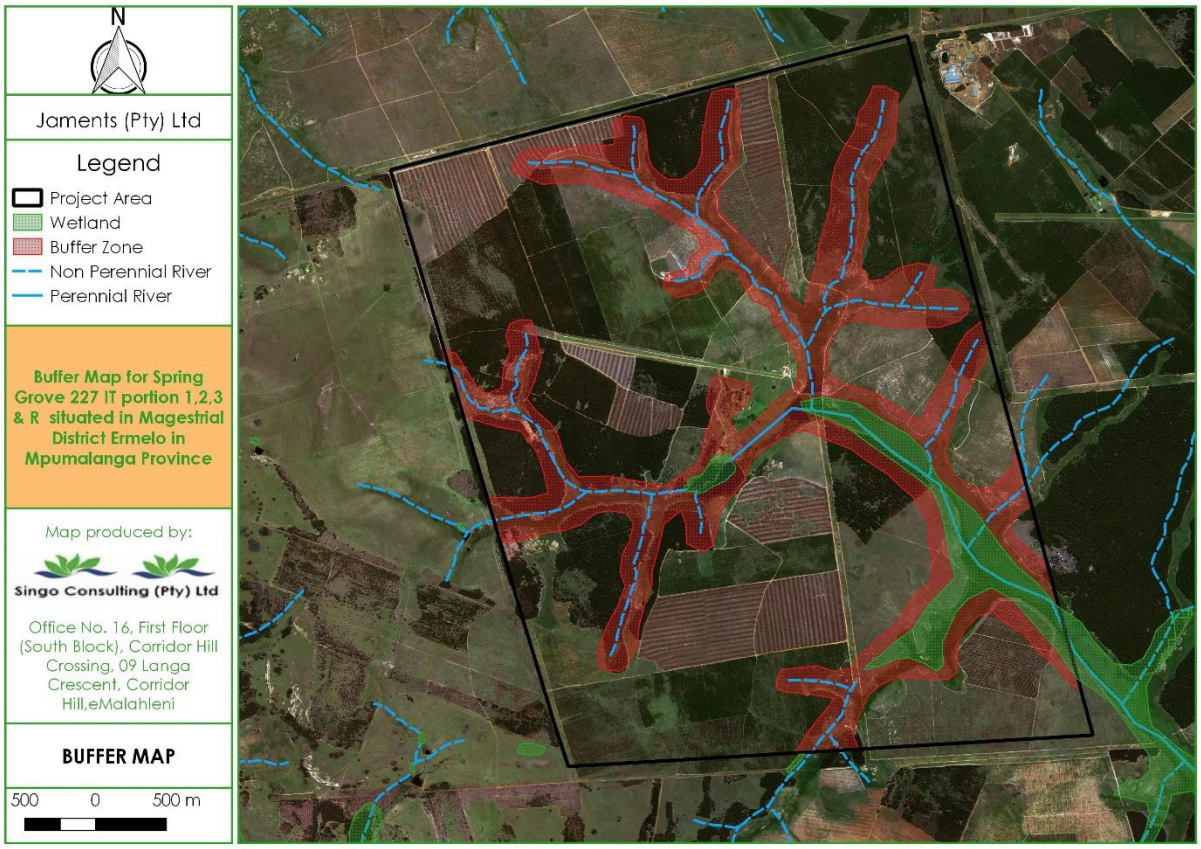


Figure 16: Buffer map of the project area

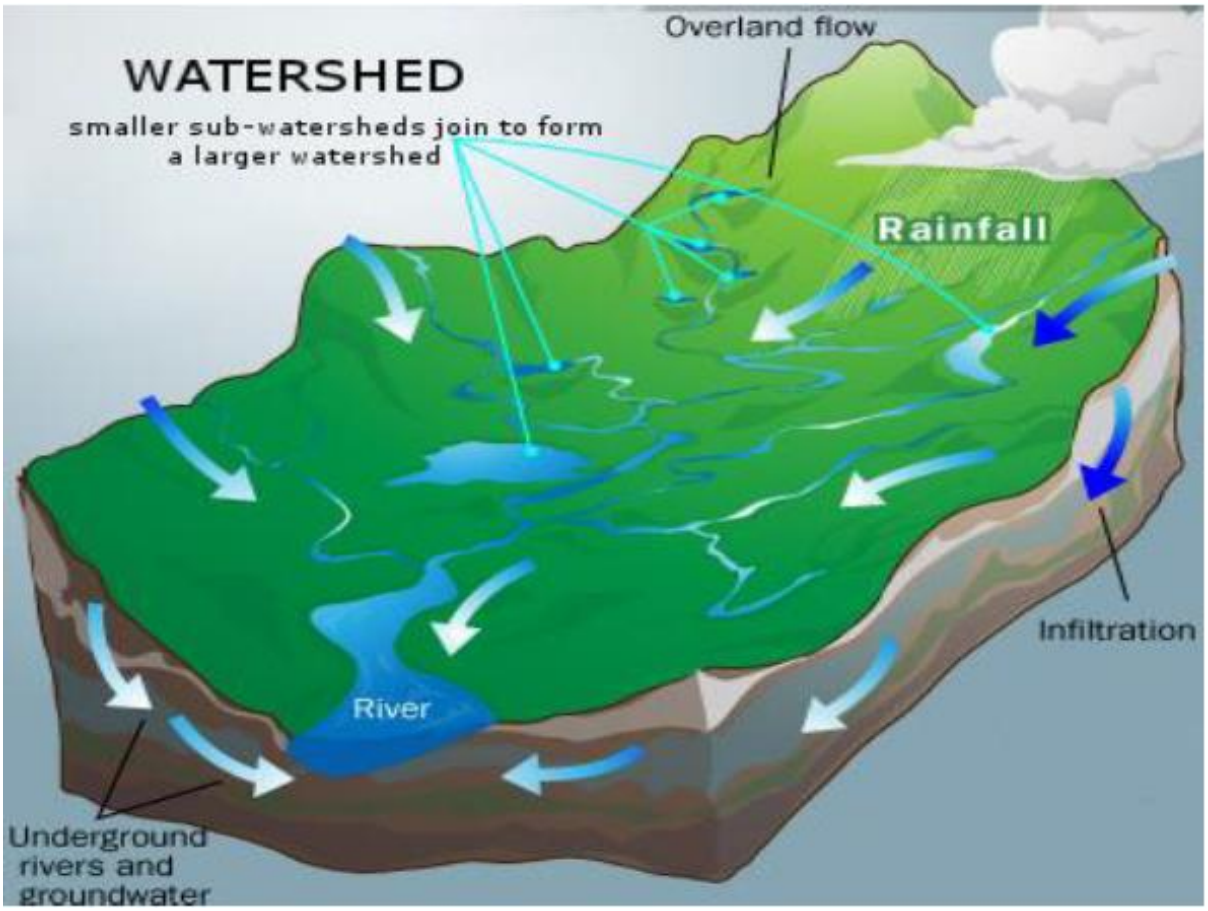


***Figure 17**: Watershed Diagram.*

source: http://www.wheatleyriver.ca/welcome/what-is-a-watershed/

Figure 18 above is a conceptual modelled extracted from WRIG, Canada article. This conceptual watershed diagram interprets similar situation of what the present study is about. The water Watershed Diagram in figure 17 proposes a typical watershed that begins with small head-water streams in the higher elevations of the drainage basin. Water flows downhill from the drainage divide into larger streams, ultimately joining a river. As more tributary streams intersect the river, the volume of water increases. This river eventually flows downstream into an even larger river at the convergence.

All these areas will remain undisturbed to prevent any negative impacts that may be posed to these areas as a result of drilling activities. After site assessment buffer zones will be constructed to show areas where there must not be any drilling, these buffers will be mapped using Qgis 2.14.9, within the buffer zones there will be no any drilling activities and this will prevent any contamination and damaging the natural state of wetland, streams, and river within the prospecting Critical Biodiversity Area.

Critical Biodiversity

The map below in figure 18 presenting critical biodiversity of the area, it is confirmed that the prospecting area is situated in heavily modified, moderately modified and other natural areas. There are no critical species will be affected by the proposed project as there are no critical plants and sensitivity within and around the proposed prospecting area. Therefore, no critical species will be harmed even though identified during the operation of proposed project as Eco will be onsite every day to monitor the operation. Although the area is characterised by Moist sandy Highveld Grassland according to the GIS specialist, the area is heavily modified by other activities which leads to vanished of these Moist Sandy Highveld grassland mentioned on the vegetation type section.

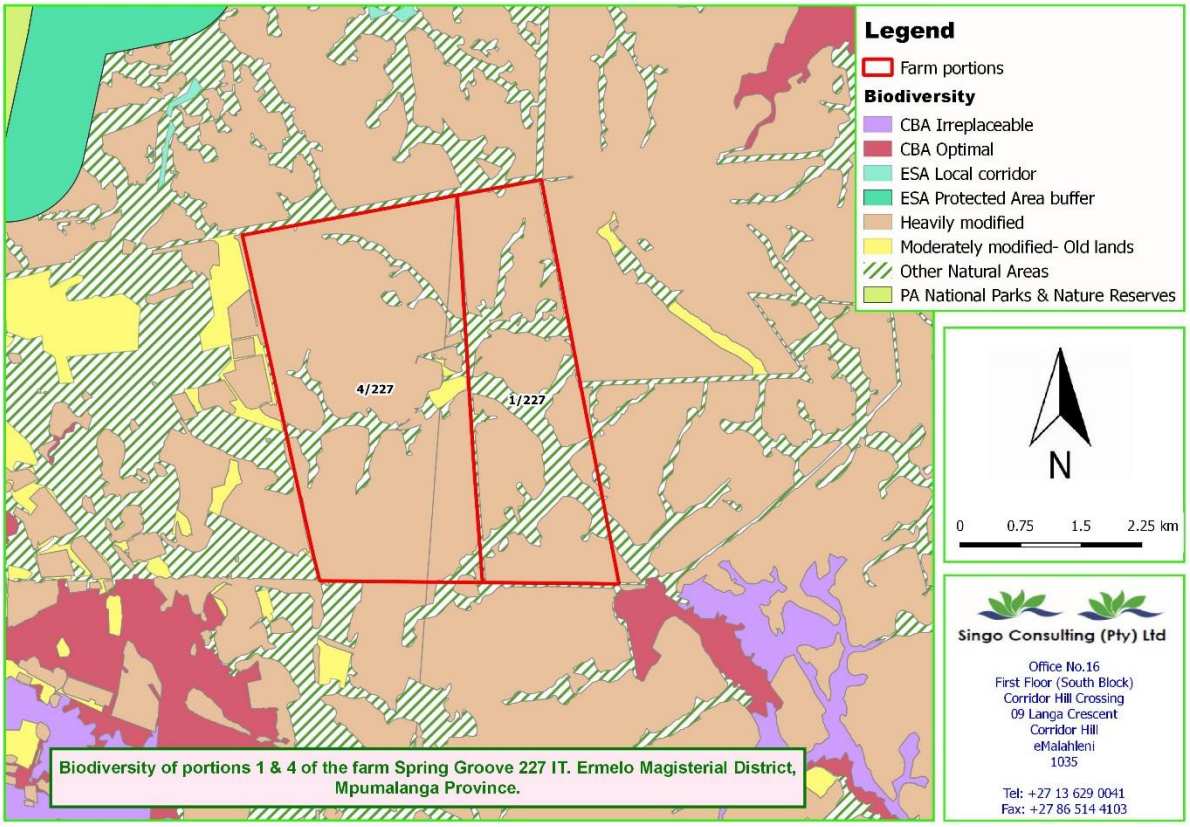


***Figure 18**: Critical Biodiversity area*

Groundwater

The groundwater systems in the Mpumalanga coalfields are composed of three distinct superimposed aquifers. They are upper weathered Ecca aquifer, the fractured aquifers within the unweathered Ecca sediments and the aquifer below the Ecca sediments. The following aquifer description extracted from Hodgson et al. (1998) is relevant to the project area as shown in Table

Table 8: *Aquifer description extracted from Hodgson et al. (1998) for the project area.*

Type of Aquifer	**Description**
The Weathered Aquifer.	• The Ecca sediments are weathered to depths between 5 and 12 m below surface throughout the area. • This aquifer is recharged by rainfall. The percentage recharge to this aquifer is estimated to be in the order of 1% to 3% of the annual rainfall (Kirchner et al. (1991) and Bredenkamp (1995)) • Highly variable recharge values can be found from one area to the next due to the attributes composition of the weathered sediments.
Fractured Ecca Aquifer	• The pores within the Ecca sediments are well-cemented and do not allow any significant flow of water; and • All groundwater movement therefore occurs along secondary structures, such as fractures and joints in the sediments.
Coal Seam Aquifer	• Hodgson et al. (1998) states that of all the unweathered sediments in the Ecca, the coal seams often have the highest hydraulic conductivity. The permeability of the coal seam aquifer is in the order of 0.1 meters per day (m/d)

Natural vegetation (Flora)

According to Mucina and Rutherford (2005), Farm Schoongezicht 308 JS falls under Moist Sandy Highveld Grassland vegetation sort in its pristine condition as dominated by entire stands of Redgrass Themeda triandra (Gm 11). This vegetation type grows in Gauteng, North-west, Mpumalanga and the Free State provinces. It grows in areas between rocky ridge from Pretoria to Witbank, extending onto ridges in the Softberg and Roossenekal region as well as west of Krugersdorp centred in the vicinity of Derby and Potchefstroom, extending southwards and northeast wards.

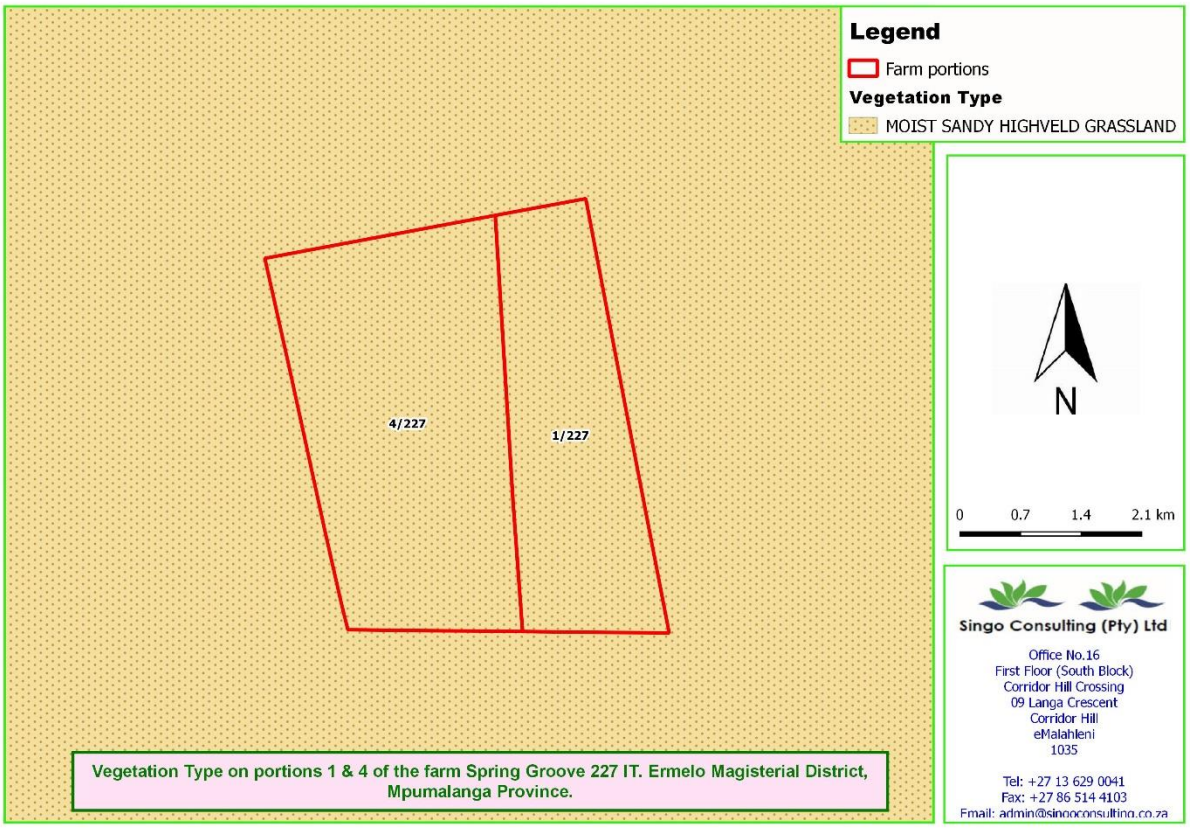


Figure 19: *Vegetation map (project falls within Moist Sandy Highveld Grassland).*

This vegetation type is considered Endangered with a 24% conservation target. It is poorly conserved with small patches protected in statutory reserve and private reserves. Almost half of the vegetation has been transformed mostly by cultivation, plantations, urbanisation and dam-building. Cultivation may also have had an impact on an additional portion of the unit where old lands are currently classified as grasslands in the land-cover classifications and poor land management has led to degradation of significant portions of the remainder of this unit.

Figure 20: Type of vegetation in and around the prospecting area

Fauna

Domestic fauna was observed during site assessment such as goats, cows, sheep and birds like doves although no wild fauna was observed at the time of the site inspection. Should any wild fauna enter the mining area there will be no impact on the proposed mining activity as they will be able to move away or through the site, without being harmed.

No protected or red data species could be identified within the footprint area of the proposed processing area. The fauna at the site will not be impacted by the proposed processing activity, as they will be able to move away from or through the site unharmed. Workers must be educated and managed to ensure that no fauna at the site is harmed. Upon commencement of the proposed processing activities, the processing area will be fenced off to prevent livestock, such as cattle, goats and sheep, from wandering into the work areas.

***Figure 21**: Type of animals found on site during assessment.*

Heritage Resources

History A brief overview of the pre-historic and historic information is provided below. This brief overview contextualizes the Eastern Highveld area and is necessary to understand the meaning and significance of heritages resources which may exist within the study area. The following prehistoric and historic influences are located within the Mpumalanga Province:

Stone Age and rock art site.

There are approximately 400 rock art sites distributed throughout the Mpumalanga. Rock art found within the Mpumalanga province can be divided into San rock art and Khoi Khoi herders. There are four (4) sites within eMalahleni and the rest are distributed in areas such as

Lydenburg, White river, Kruger National Park, Nelspruit, the Nsikazi District and Ermelo. No Stone Age or rock art sites were identified during the HIA field survey at the project study area.

Should any Stone Age or rock of significance be exposed during the construction or rather operational phase of the project, the South African Heritage Resources Agency (SAHRA) should be notified immediately, all development activities should be stopped, and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notified to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the required mitigation measures.

Iron Age remains.

Early Iron Age remains are distributed throughout the Mpumalanga Province and reflect indications of the first farming communities in the province. However, no sites of Early Iron Age remain are located on or within the vicinity of the study area.

No Late Iron Age remains are well represented within the Mpumalanga Province and include influences from early arrivals (Bakona Clans), Swazi expansions, Bakgatla Chiefdoms in the Steelpoort Valley, Ndzundza Ndebele settlements, corbelled stone huts and stone walled settlements. However, no site of Late Iron Age remains are located on or within the vicinity of the study area.

Historical period and coal mining history.

In 2002 there were ten operating collieries in the Ermelo Coalfield, most of which are small to medium sized. Mining in this coalfield has been dormant for some time with most mines closed with reserves. Of the total saleable production of 222.551 Mt in 2001, the Ermelo Coalfield contributed about 7.2 million tons. Most of the high-grade steam coal produced by Xstrata Coal SA in the Ermelo Coalfield is destined for export. In the past, the now closed Ermelo Mines and Usutu Colliery supplied Eskom's Camden power station, with defunct Majuba Colliery supplying the Majuba power station. Camden is being brought back on-stream by the end of 2004 and will be supplied by a black empowerment consortium operating Golang Colliery, incorporating Golfview Colliery and the former Usutu Colliery (Journal of South African Institute of Mining February 2005)

Vernacular stone archaeological heritage.

A unique stone architectural heritage was established in the Eastern Highveld from the second half of the 19th century well into the early 20th century. During this time period stone was used to build farmsteads and dwellings, both in urban and in rural areas. Although a contemporary stone architecture also existed in the Karoo and in the Eastern Free State Province of South

Africa a wider variety of stone types were used in the Eastern Highveld. There are however no sites of vernacular stone archaeological heritage on or within the vicinity of the study site.

Regulation 17(7) states that there will be no erection or construction of any building, roads or railways within a horizontal distance of 100 m (buffer zone) of structures considered historically or culturally important. Prospecting/mining activities located within the buffer zone will be subject to the restrictions and conditions, determined by Regulation 17(7)(a) risk assessment; or 17(7)(b) the Chief Inspectors of Mines.

A Heritage Impact Assessment was not undertaken as part of the development of the impact assessment.

Based on available Geographic Information System data, graves are present within the prospecting area. It appears that the no graves are in close proximity to houses / residences within the prospecting area.

As outlined in Section d)ii), page 15 of this report, prospecting will be undertaken in phases; the first phase being a desktop assessment, followed by drilling.

Based on the outcome of these activities, desktop study and potential drill sites will be determined. Potential heritage impact will only occur once desktop study has been used to identify sites for drilling, and it is therefore recommended that the Heritage Impact Assessment be undertaken prior to drilling activities, and that the Heritage Impact Assessment be conducted over identified localised drill sites and access routes, as opposed to the entire exploration area.

This recommendation will be submitted to the South African Heritage Resource Agency (SAHRA) for approval.

Socio-Economic Environment

Msukaligwa Local Municipality is located within the Mpumalanga Province and is situated in the jurisdictional area of the Gert Sibande District Municipality in Mpumalanga. It covers an area of about 6016 km² in extent (IDP 2013/2014). The Municipality estimated population density of 24.8. The Gert Sibande District Municipality is made up of seven admin units, namely:

- Davel / Kwadela.
- Ermelo/Wesselton.
- Breyten /Kwazanele,

• Chrissiesmeer / Kwachibikhulu,

• Warburton / Nganga,

• Lothair / Silindile

• Sheepmoor

The municipality will be focusing on facilitating Public Private Partnerships in order to Accelerate Shared Economic Growth and Development, Tourism development and Marketing, Environmental Management ,Youth and Woman Development , HAST programme, Promotion and Support of People with disability, Economic Diversification and Beneficiation of its Mineral and Agricultural Resources and community development.

The municipality's responsibilities include amongst others the supply of basic services such as water, sanitation, electricity, roads infrastructure, community facilities and all infrastructure that support the delivery of basic services. In addition to the municipality's responsibilities, it should be noted that this municipality is also a Water Services Authority.
Msukaligwa Municipality is one of the Municipalities in Mpumalanga characterized by sensitive natural environment including water catchment areas that supply water to major rivers like, Vaal River, Usutu River and others.

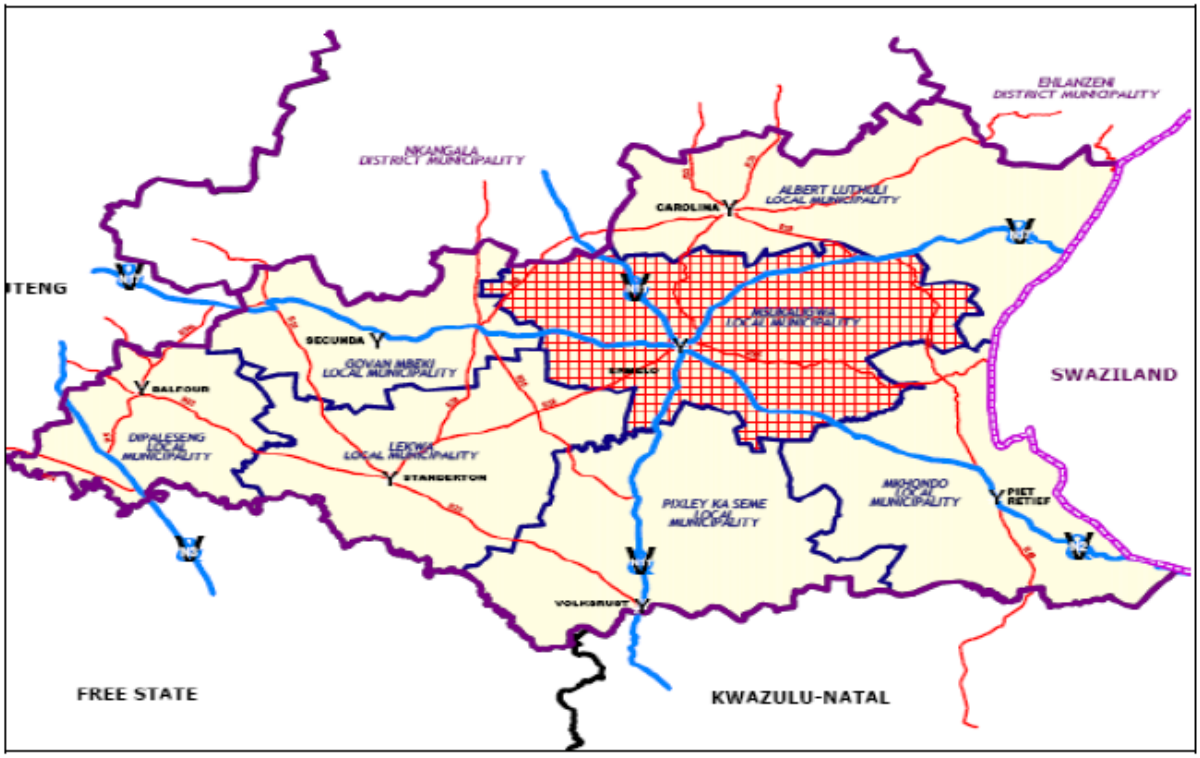


***Figure 22**: Locality map of Msukaligwa Local Municipality. Source: ELM IDP 2019/2020.*

Population demographics

According to Statistics South Africa (Community Survey 2016), Msukaligwa population estimated growth 19.7 % from 2001 to 2011 at estimated growth rate of 2% per annum and grew with 24564 persons. The youth population contributes 39% of the total population , which clear indicate that most of the youth population are joining the job market implying that the municipality together with sector departments must engage in joint effort to address issues unemployment, skills development and housing. According to census data female contribute 50.4% and males 49.6 % of the total population of Msukaligwa (IDP 2013/2014).

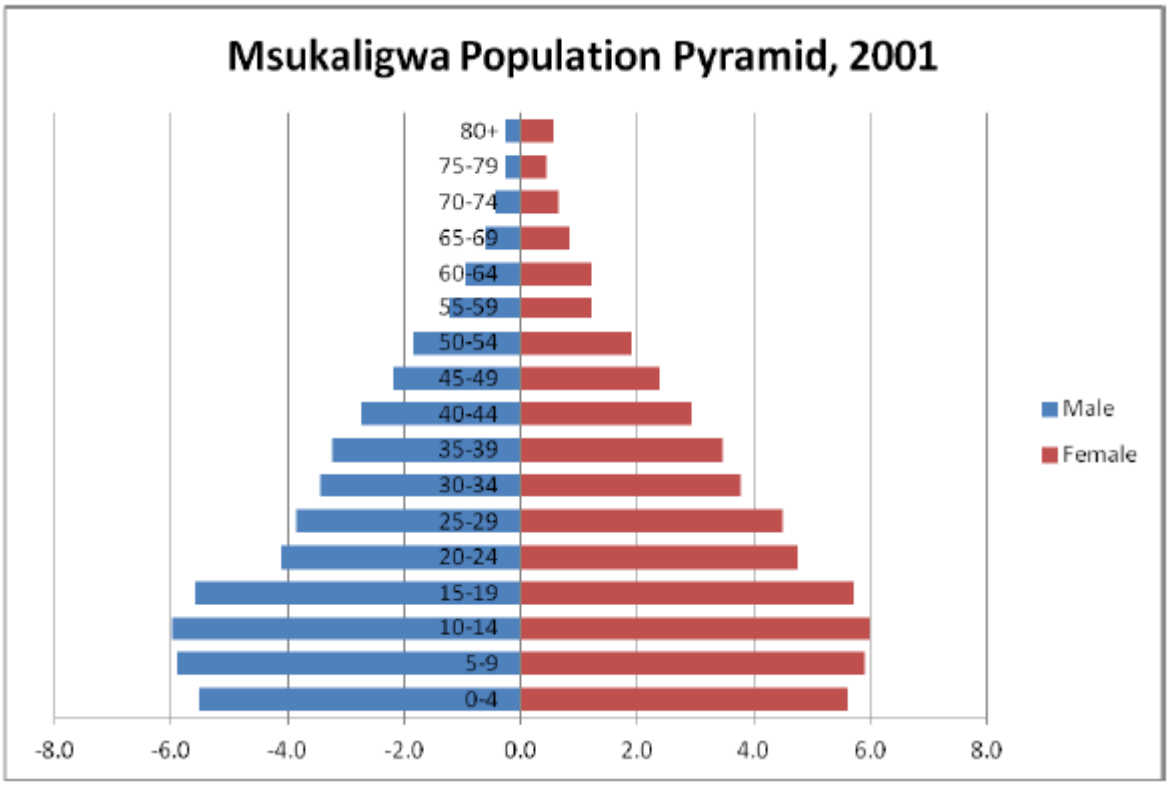


***Figure 23**: Distribution of population by age and sex Msukaligwa local municipality 2011(Source: Statistics South Africa, Census 2011)*

Msukaligwa without grade 12 there is a decrease of 32% of people without schooling between the year 2001 and 2011. There is an improvement for 15 and above for those who have matric and post matric qualifications with an improvement of 20.5% to 23.6 % from 2001 and 2011, overall improvement at all levels of education over the past 10 years.

Education Indicators	2001	2007	2010	2011
Number of people 15+ with no schooling	18 125	16 472	13 356	12 213
% Population 15+ with no schooling	21.7%	16.7%	12.8%	8.2%
% Population 15+ with matric and post matric qualification (%)	20.5%	23.7%	26.3%	23.6%
% Functional Literacy rate (%)	58.1%	63.4%	64.9%	51.4%

***Figure 24**:(Source)Mpumalanga Province Profile 2010 and South Africa 2011*

(b) Description of the current land uses

Based on the site visits conducted it can now be confirmed that the land portion included in the prospecting right application is currently utilized for cattle, Goats, Sheep and wood harvesting. The site has bare land, and there is little evidence of surrounding land use practices. Consequently, the site vegetation has recovered well, and the tree component. This was confirmed during a site visit and stakeholder investigation process conducted on the 09 June 2020.

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

Several water courses have been identified to occur within the boundaries of the proposed prospecting site. These should be avoided and where avoidance is not possible, impacts must be appropriately managed and remedied.

Based on the outcomes of the initial prospecting phases (non-site disturbing activities), the location of any on-site drilling will be determined (site disturbing activities) and the impacts on the identified water courses will subsequently be determined.

The Basic Assessment and Environmental Management Plan must be amended to include direct and indirect impacts on any water courses if any prospecting activities are undertaken within such areas or within 500 m of any water course.

(d) Environmental and current land use map

(Show all environmental, and current land use features)

Please refer to topography and water resources and vegetation types), indicating the environmental and land use features associated with the proposed prospecting area.

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

(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 following table illustrates the potential impacts associated with each activity.

***Table 9**: Potential impacts per activity and listed activities*

Phase		Activities	Potential Impacts	Reversible	Irreplaceable Damage	Can impact be avoided
Phase 1: Data Acquisition and Desktop Study						
Phase 1: Data Acquisition	N/A	Data collection and assessment (desktop only)	1. None identified.	N/A	N/A	N/A
Phase 1: Desktop Study	N/A	Data Assessment	2. None identified.	N/A	N/A	N/A

Phase		Activities	Potential Impacts	Reversible	Irreplaceable Damage	Can impact be avoided
Phase 2: Drilling						
	Construction	Site Access	3. Destruction and / or disturbance of on-site fauna and flora.	Partial	No	Yes
			4. Soil compaction resulting from repeated use of access roads to drill sites.	Yes	No	No
			5. Vehicle traffic noise impact affecting cattle and / or wildlife.	Yes	No	No

			6. Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Yes	No	Yes
			7. Potential destruction of heritage resources.	No	Yes	Yes
		Site establishment activities including:	8. Destruction and / or disturbance of on-site fauna and flora.	Partial	No	Yes

Phase		**Activities**	**Potential Impacts**	**Reversible**	**Irreplaceable Damage**	**Can impact be avoided**
		(a) *Vegetation clearing of drill pad area* (b) *Topsoil stripping and stockpiling* (c) *Drill pad compaction* (d) *Excavation and lining of drill water sump* (e) *Erection of temporary site office shaded area, potable*	9. Soil disturbance and compaction and topsoil stockpiling resulting in soil erosion.	Yes	Partial	No
			10. Dust emission resulting from site clearing, soil stripping and construction activities (including vehicle entrained dust).	Yes	No	Yes
			11. Visual impact affecting visual character and "sense of place".	Yes	No	Partial

		ablution faculties and water storage tanks and core bay (f) *Erection of fuel storage tank* (g) *Erection of safety barrier* (h) *Waste generation and management*	12. Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.	Yes	No	Partial
			13. Potential destruction of heritage resources.	No	Yes	Yes
	Operation	Exploration drilling and core sample collection and storage including: *(a) Scout and delineation drilling* *(b) Drill maintenance and*	14. Water and soil pollution resulting from disposal of drill fluids.	Yes	Partial	Yes
			15. Continued soil erosion from topsoil stockpile and compaction from drill pad platform.	Yes	No	Yes

Phase	**Activities**	**Potential Impacts**	**Reversible**	**Irreplaceable Damage**	**Can impact be avoided**
	re-fuelling *(c) Core sample collection and storage* *(d) Drill fluid collection, storage and evaporation*	16. Potential water and soil pollution resulting from hydrocarbon spills and drill maintenance activities.	Yes	Partial	Yes
		17. Dust emissions from drilling and general site activities (including vehicle entrained dust).	Yes	No	Yes

		(e) Waste generation and management	18. Visual Impact affecting visual character and "sense of place".	Yes	No	Partial
			19. Vehicle traffic and drill noise impact affecting wildlife game farm animals.	Yes	No	Partial
			20. Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	No	No	Yes
			21. Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.	Yes	No	Partial
			22. Impact on the pans and associated ecosystems in the area.	No	Yes	Yes

Phase	**Activities**	**Potential Impacts**	**Reversible**	**Irreplaceable Damage**	**Can impact be avoided**

	Decommissioning	Removal of temporary infrastructure including: *(a) Removal of temporary site office shaded area, potable ablution faculties, water storage tanks and core bay* *(b) Borehole capping* Drill pad rehabilitation including: *(a) Ripping of drill pad and access road* *(b) Re-spreading of stockpiled topsoil* *(c) Re-vegetation*	23. Dust emissions from decommissioning activities (including vehicle entrained dust).	Yes	No	Yes
			24. Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	No	No	Yes
			25. Potential water and soil pollution resulting from hydrocarbon spills.	Yes	Partial	Yes
			27. Soil erosion resulting from the re-spreading of topsoil before vegetation is re-established.	Yes	No	Yes

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

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

Criteria of assigning significance to potential impacts

The evaluation of impacts is conducted in terms of the criteria detailed in Table 15 to Table 20. The various environmental impacts and benefits of this project are discussed in terms of impact status, extent, duration, probability, and intensity. Impact significance is regarded as the sum of the impact extent, duration, probability and intensity and a numerical rating system has been applied to evaluate impact significance; therefore, an impact magnitude and significance rating is applied to rate each identified impact in terms of its overall magnitude and significance.

To adequately assess and evaluate the impacts and benefits associated with the project it was necessary to develop a methodology that would scientifically achieve this and to reduce the subjectivity involved in making such evaluations. To enable informed decision-making, it is necessary to assess all legal requirements and clearly defined criteria in order to accurately determine the significance of the predicted impact or benefit on the surrounding natural and social environment.

Impact Status

The nature or status of the impact is determined by the conditions of the environment prior to construction and operation. A discussion on the nature of the impact will include a description of what causes the effect, what will be affected and how it will be affected. The nature of the impact can be described as negative, positive or neutral.

***Table 10**: Status of Impact*

RATING	DESCRIPTION	QUANTITATIVE RATING
Positive	A benefit to the receiving environment.	**P**
Neutral	No cost or benefit to the receiving environment.	**-**
Negative	A cost to the receiving environment.	**N**

Impact Extent

The extent of an impact is considered as to whether impacts are either limited in extent of if it affects a wide area or group of people. Impact extent can be site specific (within the boundaries of the development area), local, regional or national and/or international.

Table 11 *: Extent of Impact*

RATING	DESCRIPTION	QUANTITATIVE RATING
Low	Site Specific; Occurs within the site boundary.	1
Medium	Local; Extends beyond the site boundary; Affects the immediate surrounding environment (i.e. up to 5 km from the Project Site boundary).	2
High	Regional; Extends far beyond the site boundary; Widespread effect (i.e. 5 km and more from the Project Site boundary).	3
Very High	National and/or international; Extends far beyond the site boundary; Widespread effect.	4

Impact Duration

The duration of the impact refers to the time scale of the impact or benefit.

Table 12 *: Duration of Impact*

RATING	DESCRIPTION	QUANTITATIVE RATING
Low	Short term; Quickly reversible; Less than the project lifespan; 0 – 5 years.	1
Medium	Medium term; Reversible over time; Approximate lifespan of the project; 5 – 17 years.	2
High	Long term; Permanent; Extends beyond the decommissioning phase; >17 years.	3

Impact Probability

The probability of the impact describes the likelihood of the impact actually occurring.

***Table 13**: Probability of Impact*

RATING	DESCRIPTION	QUANTITATIVE RATING
Improbable	Possibility of the impact materialising is negligible; Chance of occurrence <10%.	1
Probable	Possibility that the impact will materialise is likely; Chance of occurrence 10 – 49.9%.	2
Highly Probable	It is expected that the impact will occur; Chance of occurrence 50 – 90%.	3
Definite	Impact will occur regardless of any prevention measures; Chance of occurrence >90%.	4
Definite and Cumulative	Impact will occur regardless of any prevention measures; Chance of occurrence >90% and is likely to result in in cumulative impacts	5

Impact Intensity

The intensity of the impact is determined to quantify the magnitude of the impacts and benefits associated with the proposed project.

***Table 14**: Intensity of Impact*

RATING	DESCRIPTION	QUANTITATIVE RATING
Maximum Benefit	Where natural, cultural and / or social functions or processes are positively affected resulting in the maximum possible and permanent benefit.	+ 5
Significant Benefit	Where natural, cultural and / or social functions or processes are altered to the extent that it will result in temporary but significant benefit.	+ 4

Beneficial	Where the affected environment is altered but natural, cultural and / or social functions or processes continue, albeit in a modified, beneficial way.	+ 3
Minor Benefit	Where the impact affects the environment in such a way that natural, cultural and / or social functions or processes are only marginally benefited.	+ 2
Negligible Benefit	Where the impact affects the environment in such a way that natural, cultural and / or social functions or processes are negligibly benefited.	+ 1
RATING	**DESCRIPTION**	**QUANTITATIVE RATING**
Neutral	Where the impact affects the environment in such a way that natural, cultural and / or social functions or processes are not affected.	0
Negligible	Where the impact affects the environment in such a way that natural, cultural and / or social functions or processes are negligibly affected	- 1
Minor	Where the impact affects the environment in such a way that natural, cultural and / or social functions or processes are only marginally affected.	- 2
Average	Where the affected environment is altered but natural, cultural and / or social functions or processes continue, albeit in a modified way.	- 3
Severe	Where natural, cultural and / or social functions or processes are altered to the extent that it will temporarily cease.	- 4
Very Severe	Where natural, cultural and / or social functions or processes are altered to the extent that it will permanently cease.	- 5

Impact Significance

The impact magnitude and significance rating is utilised to rate each identified impact in terms of its overall magnitude and significance.

***Table 15**: Impact Magnitude and Significance Rating*

IMPACT	RATING	DESCRIPTION	QUANTITATIVE RATING
Positive	High	Of the highest positive order possible within the bounds of impacts that could occur.	**+ 12 – 16**
	Medium	Impact is real, but not substantial in relation to other impacts that might take effect within the bounds of those that could occur. Other means of achieving this benefit are approximately equal in time, cost and effort.	**+ 6 – 11**
IMPACT	**RATING**	**DESCRIPTION**	**QUANTITATIVE RATING**
	Low	Impacts is of a low order and therefore likely to have a limited effect. Alternative means of achieving this benefit are likely to be easier, cheaper, more effective and less time consuming.	**+ 1 – 5**
No Impact	No Impact	Zero impact.	**0**
Negative	Low	Impact is of a low order and therefore likely to have little real effect. In the case of adverse impacts, mitigation is either easily achieved or little will be required, or both. Social, cultural, and economic activities of communities can continue unchanged.	**- 1 – 5**
	Medium	Impact is real, but not substantial in relation to other impacts that might take effect within the bounds of those that could occur. In the case of adverse impacts, mitigation is both feasible and fairly possible. Social cultural and economic activities of communities are changed but can be continued (albeit in a different form). Modification of the project design or alternative action may be required.	**- 6 – 11**

	High	Of the highest order possible within the bounds of impacts that could occur. In the case of adverse impacts, there is no possible mitigation that could offset the impact, or mitigation is difficult, expensive, time-consuming or a combination of these. Social, cultural and economic activities of communities are disrupted to such an extent that these come to a halt.	**- 12 - 16**

5.4 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)

- Increased ambient noise levels resulting from drilling and increased traffic movement during all prospecting phases as well as drilling activities.
- Potential water and soil pollution impacts resulting from chemical (oil, diesel, hydraulic and drilling fluid) spills and soil erosion which may impact on environmental resources utilized by landowners.
- Potential water and soil pollution impacts resulting from chemical (oil, diesel, hydraulic and drilling fluid) spills and soil erosion which may impact on ecosystem functioning.
- Increased vehicle activity within the area resulting in the possible destruction and disturbance of fauna and flora.
- Poor access control to farms which may impact on cattle movement, breeding and grazing practices.
- Influx of persons (job seekers) to site as a result of increased activity and the possible resultant increase in opportunistic crime.
- Potential visual impacts caused by drilling activities.
- Prospecting will be undertaken by specialist sub-contractors and it is not anticipated that employment opportunities for local and / or regional communities will result from the prospecting activities.

Now there is no alternative layout. Should we receive comments that warrant changing site layout, Jaments (Pty) Ltd will implement changes to ensure that no one is negatively affected.

The invasive activities that entail the drilling of at least five exploration holes will have a minimal environmental and social impact as the drill site will be confined to an area of approximately 0,9 Ha (9000m2) of the 1 756.56 hectares (Ha) sized property. This needs to be viewed in the context of the entire prospecting license area under application which covers, and it needs to be kept in mind that of the identified impacts will occur for a limited time and the extent of the impacts will be localized. All the identified impacts can be suitably mitigated with the residual impact ratings being of low significance. After drilling activities have been completed and the drill pads rehabilitated to predrilling status, the impacts will cease to exist.

Potential impact on heritage resources

No graves have been identified through desktop investigations. However, one local said they are there. Though a Heritage Impact Assessment was not undertaken as part of the development of the Environmental Management Plan, these will be of heritage and/or archaeological value.

There is no potential for the presence of stone kraals are also likely based on the past studies in the surrounding areas. It is anticipated that these features might not have heritage and / or archaeological value.

Potential heritage impact will only occur once drill sites have been identified and on-site activities commences, and it is therefore recommended that the Heritage Impact Assessment only be undertaken prior to these planned activities.

The Heritage Impact Assessment will be conducted over identified localised drill sites to identify any cultural, heritage and or archaeological features which may be impacted on.

The fact that the prospecting activities will be undertaken in a phased approach will provide the opportunity to the prospecting team to demarcate areas of cultural and/or heritage significance (such as graves and stone kraals). With the early identification of these the impact on these will be avoided.

Potential impacts on communities, individuals or competing land uses in close proximity

The following impacts are regarded as community impacts:

- Potential water and soil pollution resulting from chemical spills and soil erosion.
- Noise due to the undertaking drilling machines.
- Poor access control resulting in impacts on cattle movement, breeding and grazing practices.
- Influx of persons (job seekers) to site because of increased activity and the possible resultant increase in opportunistic crime; and
- Visual Impact

Prospecting will be undertaken by specialist sub-contractors and it is not anticipated that employment opportunities for local and / or regional communities will result from the prospecting activities.

Water quality and availability

There is Perennial river and non-perennial rivers on site. Possible pollution sources include stockpiled soil and all areas cleared of vegetation. The eroded soil particles may be carried by stormwater to these rivers which will result in an increase in the Total Suspended Solids (TSS) and Total Dissolved Solids (TDS) of the water courses. The storage of dangerous goods, temporary ablution facilities and discharge of drill fluids may also lead to surface water pollution if not managed appropriately.

Limited quantities of dangerous goods (fuel, oil and lubricants) will be stored on site. The transportation, handling and storage of such materials may result in spills and further water quality impacts in the events of spills when carried by stormwater to the water courses.

This impact is also regarded as a cumulative impact due to the potential contribution to water quality deterioration of the river systems if not managed appropriately.

Influx of persons resulting in increased crime rates

The potential impacts of an increase in crime rates associated with an influx of unemployed persons travelling to mine sites seeking employment may occur.

Visual impact

The general characteristics of the site and that of the surrounding area are regarded to be that of "wilderness" and prospecting activities may result in localised visual impacts.

Positive Impacts (Advantage)

While no significant short-term positive impacts are associated with the prospecting activities, in the event that a viable coal reserve is confirmed and pending the outcome of a detailed social & environmental impact assessment process, positive socio-economic benefits must be investigated and optimized.

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

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

The section below provides a summary of the key management measures associated with the impacts identified in the previous section. The detailed rating and management plan is presented in Section J.

Measures to manage the potential impact on heritage resources

The fact that the prospecting activities will be undertaken in a phased approach will provide the opportunity to the prospecting team to demarcate areas of cultural and/or heritage significance (such as graves and stone kraals). With the early identification of these the impact on these will be avoided.

A Heritage Impact Assessment will be undertaken on each identified area where drilling activities are planned.

Prior to the establishment of new access roads, a heritage impact assessment must be undertaken and mitigation and / or management measures for the protection of such resources must be implemented.

Should any unknown heritage sites be identified during the drilling activities, all activities will cease immediately and the SAHRA will be contacted and an appropriate Heritage Impact Assessment will be undertaken on the site identified.

Measures to manage the potential impacts on communities, individuals or competing land uses in close proximity

- Pollution Prevention

- Mitigation and management measures must be implemented to prevent environmental pollution which may impact on environmental resources utilized by communities,

landowners and other stakeholders. These mitigation and management measures are discussed in the following section.

- Noise due to drilling and prospecting activities.

  - Directly affected, adjacent landowners and game farms in proximity to the site will be informed of the planned drilling and a grievance mechanism will be made available.
  - Site activities will be conducted during daytime hours 07h00 – 17h00 to avoid night-time noise disturbances and night time collisions with fauna.

- Poor access control resulting in impacts on cattle movement, breeding and grazing practices.

  - Access control procedures must be agreed on with farm owners and all staff trained on these procedures.

- Influx of persons (job seekers) to site because of increased activity and the possible resultant increase in opportunistic crime.

  - Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment.
  - The landowner (all private and state land owners) will be notified of unauthorised persons encountered on site.
  - If deemed necessary, the South African Police Service will be informed of unauthorised persons encountered on site.

- Visual Impact

  - Based on visual observation, wet dust suppression will be undertaken to manage dust emissions from vehicle movement and other construction activities as and when needed. Depending on the need and quantity of water used for wet suppression, a suitable, low environmental impact chemical suppression alternative must be considered to conserve water resources.
  - The portable ablution facilities, vertical water tanks and any other infrastructure should be acquired with a consideration for colour. Natural earth, green and mat black options which will blend in with the surrounding area must be favoured.
  - A waste management system will be implemented, and sufficient waste bins will be provided for on-site. A fine system will be implemented to further prohibit littering and poor housekeeping practices.

Prospecting will be undertaken by specialist sub-contractors and it is not anticipated that employment opportunities for local and / or regional communities will result from the prospecting activities.

Measures to manage the potential impact on Water quality and availability

- Potential water and soil pollution impacts resulting from hydrocarbon spills and soil erosion will be mitigated and managed as follows.

- Existing tracks and roads must be used as far as is practicable to minimize the potential for soil erosion. In instances where access to drill sites are to be established, and if required, raised blade clearing will be undertaken with a view to maintain vegetation cover to limit soil erosion potential.
- Soil disturbances are to be limited as far as is practicable to minimize the potential for soil erosion.
- When establishing the drill pad, topsoil including the remaining vegetation, will be stripped and stockpiled up-slope of the pad. The stockpile will be shaped to divert stormwater around the drill pad to minimise soil erosion of the pad. Stockpiled topsoil will be used during rehabilitation efforts.
- Where practicable topsoil will be stripped to a depth of 10 cm.
- Topsoil will be stockpiles to a maximum height of 1.5 m with a side slope of not more than 1:3.
- Mechanical erosion control methods will be implemented if required. This may include the use of geotextiles to stabilise slopes.
- To reduce the potential for water pollution during the drilling activities, a sump will be constructed with a sufficient capacity to receive drill fluids and allow for evaporation.
- The sump will be constructed to divert storm water away and / or around the sump to avoid clean storm water inflow.
- Oils and lubricant will be stored within secondary containment structures.
- Where practicable, vehicle maintenance will be undertaken off -site.
- If vehicle maintenance is undertaken on-site (i.e. such as breakdown maintenance), drip trays and / or UPVC sheets will be used to prevent spills and leaks onto the soil.
- A waste management system will be implemented, and sufficient waste bins will be provided for onsite. A fine system will be implemented to further prohibit littering and poor housekeeping practices.

- Waste separation will be undertaken at source and separate receptacles will be provided (i.e. general waste, recyclables and hazardous waste).
- Receptacles will be closed (i.e. fitted with a lockable lid) to eliminate the possibility of access by animals overnight.
- Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility.
- Drill holes must be temporarily plugged immediately after drilling is completed and remain plugged until they are permanently plugged below ground to eliminate the risk posed to fauna by open drill holes.
- Drill holes must be permanently capped as soon as is practicable.

5.5 Motivation where no alternative sites were considered

The proposed prospecting area is targeted as, historically, several coal occurrences are known in the area, and number of these have been exploited for coal in the past. The site is therefore regarded as the preferred site and alternative sites are not considered.

5.6 Statement motivating the alternative development location within the overall site

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

As is clear from the information provided, each of the phases is dependent on the results of the preceding phase. The location and extent of possible drilling will be determined based on information derived from the desktop study. Drill sites will be selected to avoid known heritage features and water courses where practicable.

5.7 Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity

(Including (i) a description of all environmental issues and risks that where 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.)

To identify the potential impacts associated with the proposed prospecting activities the following steps were undertaken:

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

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

- South African National Biodiversity Institute (SANBI) Biodiversity Geographic Database LUDS system;
- Geographic Information System base maps.
- Department of Water Affairs information documents such as the (ISP and Groundwater Vulnerability Reports);
- Municipal Integrated Development Plan.
- Municipal Strategic Development Framework; etc.

A site visit was undertaken in June 2020. This site visit was utilized to ensure that the information gathered as part of the desktop investigation reflects the status of the land.

The rating of the identified impacts was undertaken in a quantitative manner as provided from p80 (Impact Ratings). The ratings are undertaken in a manner to calculate the significance of each of the impacts. The EAP also assesses the outcomes of the calculation to determine whether the outcome reflects the perceived and actual views.

The identification of management measures is done based on the significance of the impacts and measures that have been considered appropriate and successful, specifically as Best Practical and Economical Options.

iv 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).

***Table 16**: Impact Assessment and Management Type*

NAME OF ACTIVITY **(E.g. For prospecting -** drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route **etc.**	**POTENTIAL IMPACT** (Including the potential impacts for cumulative impacts) (e.g. dust, noise, drainage, surface disturbance, fly rock, surface water contamination,	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, postclosure)	**SIGNIFICANCE** if not mitigated	**MITIGATION TYPE** (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)	**SIGNIFICANCE** if mitigated
Phase1: Data Acquisition and Desktop Study						
Data collection and assessment (desktop only)	1. None identified.	N/A	Planning	N/A	1. No mitigation proposed	N/A
Data Assessment	2. None identified.	N/A	Planning	N/A	2. No mitigation proposed	N/A

Phase 3: Drilling						
Site Access	3. Destruction and / or disturbance of onsite fauna and flora.	Loss of Fauna and Flora	Construction Phase	10	3. Map indicating the location of each of the drilling sites must be submitted to the relevant landowners, as well as to the DMR and DWS. Upon agreement of the location of the activities can the applicant proceed. 4. Use existing track and roads in all instances as far as is practicable. 5. Where track clearing is necessary, raised blade clearing will be conducted to minimise disturbance and aid rehabilitation efforts and significant vegetation such as trees and large shrubs will be avoided.	6

					6. Site activities will be conducted during daytime hours 07h00 – 17h00 to avoid night time noise disturbances and night time collisions with fauna. 7. Vehicle speed will be reduced, particularly in highly vegetated areas is one way to avoid deaths by vehicle impacts.	
	4. Soil compaction resulting from repeated use of access roads to drill sites.	Loss of soil resources	Construction Phase	8	8. Where track clearing is necessary, raised blade clearing be conducted to minimise disturbance and aid rehabilitation efforts. 9. As part of rehabilitation, all compacted roads and drill pads will be ripped and re-vegetated.	5
	5. Vehicle traffic noise impact affecting cattle and / or wildlife.	Loss of fauna	Construction Phase	6	10. Site activities will be conducted during daytime hours 07h00 – 17h30 to avoid night time noise disturbances.	4

	6. Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of fauna	Construction Phase	10	11. Access control procedures must be agreed on with farm owners and staff trained.	8
	7. Potential destruction of heritage resources.	Loss of Cultural and/or Heritage Significance	Construction Phase	12. Prior to the establishment of new access roads, a heritage impact assessment must be undertaken and mitigation and / or management measure for the protection of such resources must be implemented		
Site establishment activities including: (a) *Vegetation clearing of drill pad area* (b) *Topsoil stripping and stockpiling* (c) *Drill pad compaction* (d) *Excavation and lining of drill water sump*	8. Destruction and / or disturbance of onsite fauna and flora.	Loss of Fauna and Flora	Construction Phase	10	13. The removal of vegetation within the drill pad area will be minimized. 14. If practicable, raised blade clearing be conducted for the entire drill pad to minimise disturbance and aid rehabilitation efforts. 15. The design of the drill fluid sump must incorporate effective fauna egress to avoid entrapment. 16. A fire emergency procedure will be developed to contain and minimise the destruction of flora and faunal habitat which may result from fire.	7

(e) *Erection of temporary site office shaded area, potable ablution faculties and water storage tanks and core bay* (f) *Erection of fuel storage tank* (g) *Erection of safety barrier*	9. Soil disturbance and topsoil stockpiling	Loss of soil resources	Construction Phase	11	17. In the event that the drill pad is cleared of all vegetation, lower	7

(h) *Waste generation and management*	resulting in soil compaction and erosion.				blade clearing will be undertaken prior to the stripping of topsoil. 18. Topsoil including the remaining vegetation, will be stripped and stockpiled up-slope of the pad. The stockpile will be shaped to divert stormwater around the drill pad to minimise soil erosion of the pad. 19. Where practicable topsoil will be stripped to a depth of 10cm. 20. Vegetation removed through lower blade clearing will be mixed with topsoil to increase organic content and to preserve the seed bank in order to aid rehabilitation efforts. 21. Topsoil will be stockpiles to a maximum height of 1.5m with a side slope of not more than 1:3. 22. Mechanical erosion control methods will be implemented if	

					required. This may include the use of geotextiles to stabilise slopes.	
	10. Dust emission resulting from site clearing, soil stripping and construction activities (including	Dust emissions	Construction Phase	10	23. Based on visual observation, wet dust suppression will be undertaken to manage dust emissions from vehicle movement and other construction activities as	6

	vehicle entrained dust).				and when needed. 24. Depending on the need and quantity of water used for wet suppression, a suitable, low environmental impact chemical suppression alternative must be considered in order to conserve water resources.	
	11. Visual Impact affecting visual character and "sense of place".	Loss in aesthetics	Construction Phase	6	25. The shaded office area, portable ablution facilities, vertical water tanks and any other infrastructure should be acquired with a consideration for colour. Natural earth, green and mat black options which will blend in with the surrounding area must be favoured.	5

	12. Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.	Increase in petty crimes	Construction Phase	8	26. Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment. 27. The landowner (all private and state land owners) will be notified of unauthorised persons encountered on site. 28. If deemed necessary, the South African Police Service will be informed of unauthorised persons encountered on site.	7
	13. Potential destruction of heritage resources.	Loss of Cultural and/or Heritage Significance	Construction Phase	29. Prior to the site establishment, a heritage impact assessment must be undertaken and mitigation and / or management measure for the protection of such resources must be implemented		

Exploration drilling and core sample collection and storage including: *(a) Scout and delineation drilling* *(b) Drill maintenance and re-fuelling* *(c) Core sample collection and storage* *(d) Drill fluid collection, storage and evaporation* *(e) Waste generation and management*	14. Water and soil pollution resulting from disposal of drill fluids.	Loss of water resources, loss of soil resources	Operational Phase	12	30. A sump will be constructed with a sufficient capacity to receive drill fluids and allow for evaporation. 31. The sump will be constructed to divert stormwater away and / or around the sump to avoid clean stormwater inflow.	5
	15. Continued soil erosion from topsoil stockpile and soil compaction from drill pad platform.	Loss of soil resources	Operational Phase	11	32. In the event that raise blade clearing is not undertaken, and the drill pad is cleared, topsoil will be stockpiles to a maximum height of 1.5m with a side slope of not more than 1:3. 33. The topsoil stockpile will be shaped to divert stormwater around the drill pad to minimise soil erosion of the pad. 34. Management efforts through the use of mechanical erosion control methods will be implemented if required. This may include the use of geotextiles.	7

	16. Potential water and soil pollution resulting from hydrocarbon spills and drill maintenance activities.	Loss of water resources, loss of soil resources	Operational Phase	12	35. Fuel storage tanks will have a secondary containment structure with a capacity of 110% of the total tank capacity. 36. Oils and lubricant will be stored within secondary containment structures. 37. Where practicable, vehicle maintenance will be undertaken off-site. 38. In the event that vehicle maintenance is undertaken on-site (i.e. such as breakdown maintenance), drip trays and / or UPVC sheets will be used to prevent spills and leaks onto the soil. 39. Unused machinery must be completely drained of oil and other hydrocarbons to ensure that leaks do not develop. 40. Regular inspections of all vehicles must be carried out to	5

					ensure that all leaks are identified early and rectified. 41. A sufficient number of waste receptacles will be provided. 42. Waste separation will be	

					undertaken at source and separate receptacles will be provided (i.e. general waste, recyclables and hazardous waste). 43. Receptacles will be closed (i.e. fitted with a lockable lid) to eliminate the possibility of access by animals overnight. 44. Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility.	
	17. Dust emissions from drilling and general site activities (including vehicle entrained dust)	Increase in dust emissions	Operational Phase	10	45. Based on visual observation wet dust suppression will be undertaken as and when required to manage dust emissions from vehicle movement. 46. Depending on the need and quantity of water used for wet suppression, chemical suppression	6

					alternatives must be considered in order to conserve water resources.	
	18. Visual Impact affecting visual character and "sense of place"	Loss in aesthetic value	Operational Phase	6	47. Visual impact of structures will be mitigated through measures as included in Item 35. 48. Visual dust dispersion will be mitigated through measures as included in Item 33.	5

	19. Vehicle traffic and drill noise impact affecting wildlife game farm animals.	Loss of fauna	Operational Phase	6	49. Site activities will be conducted during daytime hours 07h00 – 17h30 to avoid night time noise disturbances.	4
	20. Poor access control resulting in impacts on cattle movement,	Loss of cattle	Operational Phase	10	50. Access control procedures must be agreed on with farm owners.	8

	breeding and grazing practices.					
	21. Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.	Increase in petty crimes	Operational Phase	8	51. Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment. 52. The landowner (the Department of Rural Development and Land Reform) will be notified of unauthorised persons encountered on site. 53. If deemed necessary, the South African Police Service will be informed of unauthorised persons encountered on site.	7
	22. Impact on the pans and associated ecosystems in the area.	Loss of sensitive environments,	Operational Phase	12	54. The prospecting areas must be clearly demarcated. 55. No prospecting activities may be undertaken within the pan areas.	5

		loss of fauna, loss of flora			56. All site plans must indicate the presence of pans.	
Removal of temporary infrastructure including: *(a) Removal of temporary site office shaded area, potable ablution faculties, water storage tanks and core bay* *(b) Borehole capping* Drill pad rehabilitation including: *(a) Ripping of drill pad and access road* *(b) Re-spreading of stockpiled topsoil* *(c) Re-vegetation*	23. Destruction and / or disturbance of onsite fauna.	Loss of sensitive environments, loss of fauna, loss of flora	Decommissioning	10	57. Drill holes must be temporarily plugged immediately after drilling is completed and remain plugged until they are permanently plugged below ground to eliminate the risk posed to fauna by open drill holes. 58. Drill holes must be permanently capped as soon as is practicable	7
	24. Dust emissions from decommissioning activities (including vehicle entrained dust).	Increase in dust emissions	Decommissioning	9	59. Based on visual observation wet dust suppression will be undertaken to manage dust emissions from vehicle movement. 60. Depending on the need and quantity of water used for wet suppression, chemical suppression alternatives must be considered in order to conserve water resources.	6
	25. Poor access control resulting in impacts on cattle movement,	Loss of cattle	Decommissioning	10	61. Access control procedures must be agreed on with farm owners and all staff trained.	8

	breeding and grazing practices.					
	26. Potential water and soil pollution resulting from hydrocarbon spills	Loss of water resources, loss of soil resources	Decommissioning	12	62. All fuel storage tanks will be emptied prior to removal.	7

	.				63. Drill holes must be permanently capped as soon as is practicable to eliminate the risk of groundwater contamination. 64. Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility.	

	27. Soil erosion resulting from the respreading of topsoil before vegetation is re-established.	Loss of soil resources	Decommissioning	11	65. Mechanical erosion control methods will be implemented if required. This may include the use of geotextiles. 66. Re-vegetation will be conducted through hand seeding exposed areas using indigenous grass species as determined by a suitably qualified ecologist. 67. Re-vegetation efforts will be monitored every second month for a period of six months after initial seeding. 68. An effective vegetation cover of 45% must be achieved. Re-seeding will be undertaken if this cover has not been achieved after six months.	7

The supporting impact assessment conducted by the EAP must be attached as an appendix, marked Appendix 4. g

g) 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.
No specialist studies have been undertaken.	N/A	N/A	N/A

Attach copies of Specialist Reports as appendices (N/A).

h) Environmental impact statement

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

The area under investigation is flat to gentle undulating plains. The elevation at 1720 m above sea level. The site falls within a rainfall region with relative high rainfall which slightly reduced the potential impacts associated with soil erosion.

The predominant wind direction as measured at the Ermelo Weather Station, is from the north-north-west and wind speeds are higher during the spring and summer months. Any emissions which might emanate from the prospecting activities are therefore likely to disperse in this direction and the impact will be more significant during the spring and summer months.

The proposed prospecting site is classified as non-arable land with a moderate to low grazing capacity with cattle and farming is the predominant land use in the area.

It currently known there are any land claims have been lodged for any of the farm portion for which prospecting rights are applied for, and an enquiry was submitted to Mpumalanga: Department of Rural Development and Land Reform for additional information regarding the claimants.

The protection of water quality and availability has been identified as aspects of key importance within the municipality and the general region. A high dependency on ground water resources has been identified and this will be confirmed during stakeholder consultation. According to the Department of Water Affairs Aquifer Vulnerability of South Africa Report, the area in which the project is located is associated with aquifers with the most vulnerability ratings.

There is major perennial river, non-perennial rivers, unnamed tributaries of the located within the boundaries of the proposed prospecting area. The identified water courses (including rivers, streams and pans) may be regarded as unique habitats which support regional ecological functioning.

The conservation status of the area is least threatened and only about 1% of the vegetation type has already been transformed.

Graves were not identified within the prospecting area.

Final Site Map

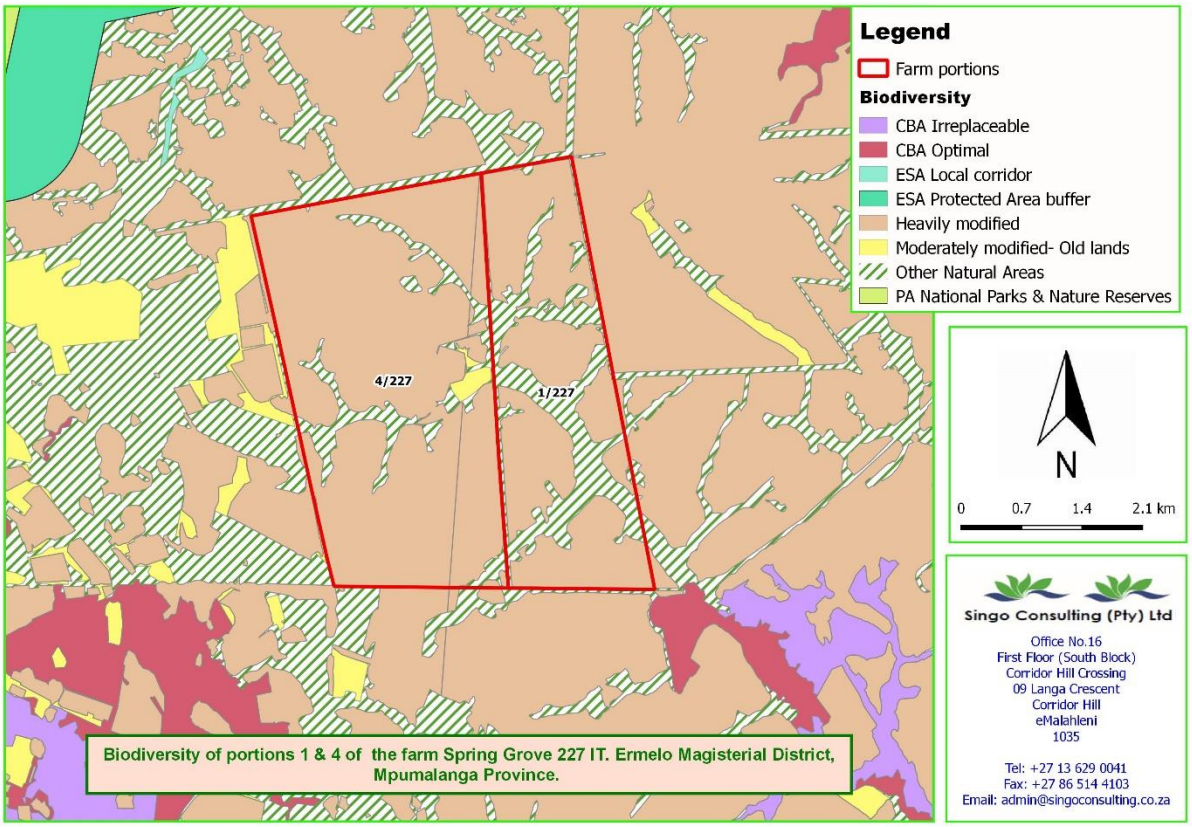


Figure 25: Biodiversity map

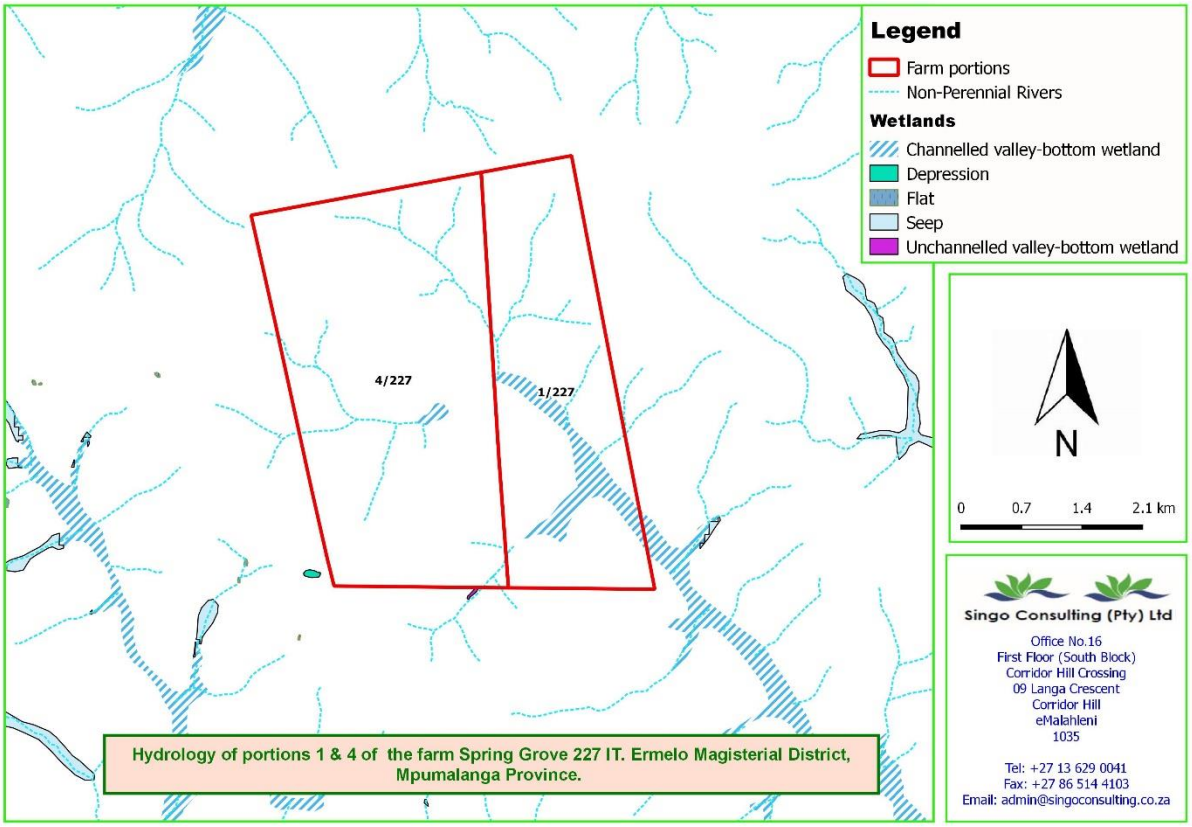


***Figure 26**:Wetlands*

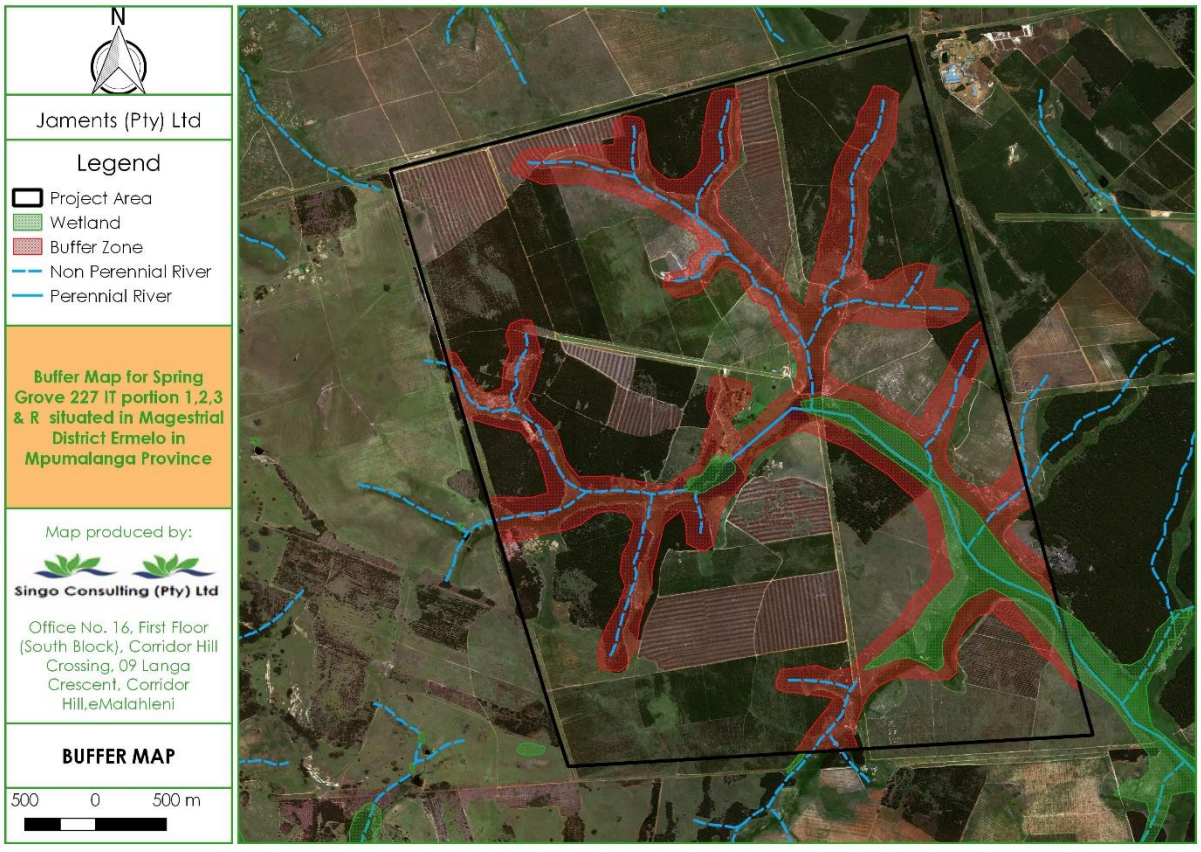
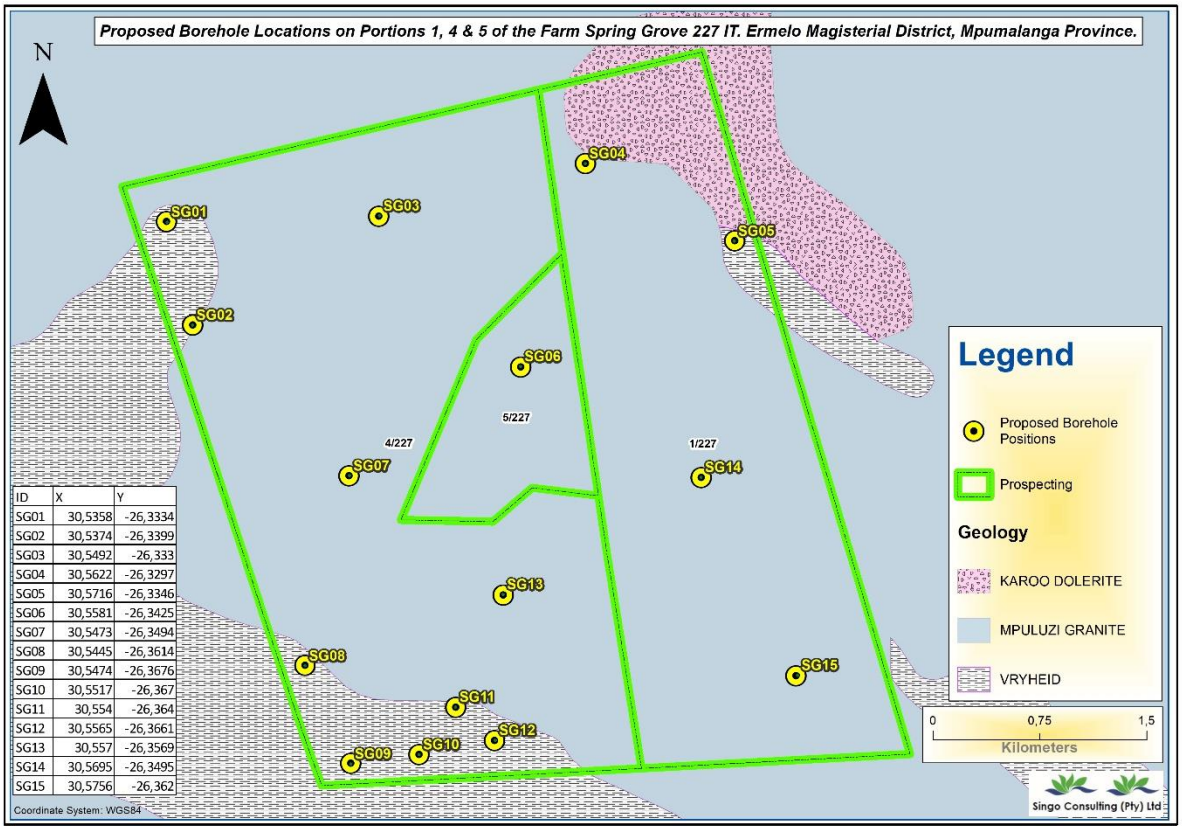


***Figure 27**:Buffer Map*



ID	X	Y
SG01	30,5358	-26,3334
SG02	30,5374	-26,3399
SG03	30,5492	-26,333
SG04	30,5622	-26,3297
SG05	30,5716	-26,3346
SG06	30,5581	-26,3425
SG07	30,5473	-26,3494
SG08	30,5445	-26,3614
SG09	30,5474	-26,3676
SG10	30,5517	-26,367
SG11	30,554	-26,364
SG12	30,5565	-26,3661
SG13	30,557	-26,3569
SG14	30,5695	-26,3495
SG15	30,5756	-26,362

***Figure 28**:Proposed Borehole positions upon the site*

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

- Increased ambient noise levels resulting from drilling and increased traffic movement during all prospecting phases as well as drilling activities.
- Potential water and soil pollution impacts resulting from chemical (oil, diesel, hydraulic and drilling fluid) spills and soil erosion which may impact on environmental resources utilized by landowners.
- Potential water and soil pollution impacts resulting from chemical (oil, diesel, hydraulic and drilling fluid) spills and soil erosion which may impact on ecosystem functioning.
- Increased vehicle activity within the area resulting in the possible destruction and disturbance of fauna and flora.
- Poor access control to farms which may impact on cattle movement, breeding and grazing practices.
- Influx of persons (job seekers) to site as a result of increased activity and the possible resultant increase in opportunistic crime.

- Potential visual impacts caused by drilling activities.
- Prospecting will be undertaken by specialist sub-contractors and it is not anticipated that employment opportunities for local and / or regional communities will result from the prospecting activities.

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

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

The objectives of the EMPr will be to:

- Provide sufficient information to strategically plan the prospecting activities as to avoid unnecessary social and environmental impacts.
- Provide sufficient information and guidance to plan prospecting activities in a manner that would reduce impacts (both social and environmental) as far as practically possible.
- Ensure an approach that will provide the necessary confidence in terms of environmental compliance.
- Provide a management plan that is effective and practical for implementation.
- Through the implementation of the proposed mitigation measures, it is anticipated that the identified social & environmental Impacts can be managed and mitigated effectively. Through the implementation of the mitigation and management measures it is expected that:
- Noise impacts can be managed through consultation and trough the restriction of operating hours.
- The pollution of soil and water resources can be effectively managed through containment;
- Ecological impact can be managed through the implementation of pollution prevention measures, minimizing land clearing, restricting working hours (faunal disturbance) and rehabilitation.
- Concerns regarding access control to farms can be managed through the development and ensuring compliance to an appropriate access control procedure.
- Risks associated with crime can be mitigated through avoiding recruitment activities on site, as well as monitoring and reporting.

- Visual impact can be minimized through giving consideration to drill site infrastructure placement and materials used.

Ecological impact can be managed through the implementation of pollution prevention measures, minimizing land clearing, restricting working hours (faunal disturbance) and rehabilitation.
Concerns regarding access control to farms can be managed through the development and ensuring compliance to an appropriate access control procedure.
Risks associated with crime can be mitigated through avoiding recruitment activities on site, as well as monitoring and reporting.
Visual impact can be minimized through giving consideration to drill site infrastructure placement and materials used.

l) Aspects for inclusion as conditions of Authorisation.

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

The following conditions should be included into the Authorisation:

A map detailing the drilling locations should be submitted to the relevant landowners and the DWS and DMR prior to the commencement of these activities.

No activities may be undertaken in the pans.

Heritage Impact Assessment must be undertaken where roads will be cleared and where drilling sites will be established, prior to the commencement of these activities; and

No activities, with the exception of the driving to fetch, may take place within 100 m from any river.

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

(Which relate to the assessment and mitigation measures proposed)

The following assumptions, uncertainties and gaps are applicable to this project:

Due to considerable time constraints allowed for the assessment of the impacts, and at the time of compiling the draft Basic Assessment Report and EMP:

- The Stakeholder Consultation is not yet complete.
- Not all landowners were consulted with in person.
- Details from the DWS regarding Water Use Licensing requirements is not yet available.
- Feedback from the SAHRA is not yet available.

- Details regarding the presence and status of land claims are not available.
- No Heritage Impact Assessment was undertaken.
- No detailed site layout is available due to the nature of the prospecting activities. The study is therefore undertaken as a holistic assessment of the overall site.
- The detailed site visit by the EAP was to be undertaken, this was scheduled for 09 June 2020

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

i) Reasons why the activity should be authorized or not

It is the opinion of the EAP that the activity may be authorized.

The proposed prospecting area is targeted as, historically, coal occurrences are known in the area, and number of these have been exploited for coal in the past.

The site is therefore regarded as the preferred site and alternative sites are not considered.

The option of not approving the activities will result in a significant loss to valuable information regarding the mineral status (in terms of coal seams) present on these properties. In addition to this, should economical reserves be present, and the applicant does not have the opportunity to prospect, the opportunity to utilize these reserves for future phases will be lost.

q) Conditions that must be included in the authorisation

The following conditions should be included into the authorisation:

A map detailing the drilling locations should be submitted to the relevant landowners and the DWS and DMR prior to the commencement of these activities.

No activities may be undertaken in the pans.

Heritage Impact Assessment must be undertaken where roads will be cleared and where drilling sites will be established, prior to the commencement of these activities; and

No activities, except for the driving to fetch water, may take place within 100 m from any river.

r) Period for which the Environmental Authorisation is required.

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

s) Undertaking

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

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

6. Financial Provision

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

The financial provision for the environmental rehabilitation and closure of any mine/prospecting and its associated operations forms an integral part of the MPRDA. Sections 41(1), 41(2), 41(3) and 45 of the MPRDA deal with the financial provision for rehabilitation and closure. During 2012 the DMR made updated rates available for the calculation of the closure costs, where contractor's costs are not available these are used in assessments.

The "Guideline Document for the Evaluation of Financial Provision made by the Mining Industry" was developed by the DMR in January 2005, in order to empower the personnel at Regional DMR offices to review the quantum determination for the rehabilitation and closure of mining sites.

With the determination of the quantum for closure it must be assumed that the infrastructure has no salvage value (clean closure). The closure cost estimate (clean closure) was determined in accordance with the DMR guidelines and is based, where possible, on actual costs provided by a third-party contractor. The closure costs are as follows:

Sub-Total 1:	R 408 4311(excluding VAT)
Sub-Total 2:	R 498 286(excluding VAT)
Sub-Total 3 (clean closure cost):	R 513 29 (including VAT)

The following sections presents the methodology for the determination of the financial provision.

6.1 Explain how the aforesaid amount was derived.

(The following section details the methodologies adopted to calculate the quantities, associated rehabilitation (clean closure) rates and eventually the final (clean) closure cost estimate)

Most important to note is that the prescribed method for estimating a closure costs, as provided for by the DMR in the form of the Guideline Document for the Evaluation of Financial Provisions, only acts as a guideline, and therefore indicates the minimum requirements for assessing and reporting on a closure cost estimate.

Method of Assessment

As mentioned before, Singo Consulting (Pty) Ltd made use of the Guideline Document for the Evaluation of Financial Provisions made by the Mining Industry. The following table presents the step-by-step details on how the financial provision has been derived. For the purposes of determining the quantum for closures, it is assumed that the infrastructure will have no salvage value.

***Table 17**: DMR Financial Provision Methodology*

Step	Description	DMR Applicable Table	Outcomes
1	Determine primary mineral and saleable mineral by-products	Table B.12	Mineral: Coal
2	Determine Risk Class	Table B.12	**Primary Risk Class: C** (Small operation, no waste, no processing). Risk Class C is considered a low risk with a low probability of occurrence of the impact with a negligible consequence.
3	Determine the Area Sensitivity	Table B.4	**Medium to High Sensitivity**. The area is largely is disturbed through cattle farming, however the natural state is still present in good condition. The river systems in this area, although non-perennial is a tributary of the Harts River, which in turn feeds the Vaal River. The landowners are in close proximity to the proposed prospecting activities, although the area is not densely inhabited, and no well-established communities are present. The land in question is used for cattle farming and therefore the local communities (in this case the farmers) drive the bulk of their income directly from the area. The area can therefore be considered sensitive to further development past the

			prospecting application, should the prospecting activities prove that the area is economically viable for the purposes of a mining right application, which will compromise the existing economic activity.
4.1	Determine the level of information	N/A	Limited information is available which is based on desktop investigations and consultation with stakeholders.

Step	Description	DMR Applicable Table	Outcomes
4.2	Determine the closure components	Table B.5	See Table 23 of this report.
4.3	Determine the unit rates for closure components	Table B.6	See Table 23 of this report. The multiplication factor for all components is 1.00.
4.4	Determine and apply the weighting factors	Table B.7 Table B.8	Weighting factor 1 (Nature of the terrain): 1 (generally flat terrain) Weighting factor 2 (Peri-urban, less than 150km from a developed urban area)): 1 .05(Rural/Urban).
4.5	Identify areas of disturbance	N/A	No areas of disturbance are considered in this assessment. The area in which the prospecting activities are planned is considered to be undisturbed.

4.6	Identify closure costs from specialist studies	Table B.9	Due to the fact that the operation in question is only a prospecting operation, no residual impacts should take place. During the Life of Prospecting and ongoing rehabilitation, the self-succession results should be assessed and monitored. If self-succession does not take place satisfactorily the client may be subjected to additional specialist investigations (ecological and pedology) to determine seeding and re-vegetation requirements.
4.7	Calculate Closure Costs	Table B.10	See the following section.

Quantity Estimation

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

Determination of Rates

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

The following table summarises the unit rates for closure components as specified in the DMR Guideline Document and indicates which rates were used by Singo Consulting in this assessment.

Preliminary Cost Estimation

The following table presents the closure cost rehabilitation undertaken in terms of the DMR Guideline Document.

CALCULATION OF THE QUANTUM

Applicant:
Evaluator: **Takalani Rakuambo**

Ref No.: **MP 30/5/1/1/2/15751 PR**
Date: **Jun-20**

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	**Dismantling of processing plant and related structures (including overland conveyors and powerlines)**	**m3**	**0**	**16**	**1**	**0,5**	**0**
2 (A)	**Demolition of steel buildings and structures**	**m2**	**0**	**228**	**0,08**	**1**	**0**
2(B)	**Demolition of reinforced concrete buildings and struct**	**m2**	**0**	**336**	**1**	**0,5**	**0**
3	**Rehabilitation of access roads**	**m2**	**0**	**41**	**1**	**1**	**0**
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	395	0,5	0,08	**0**
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	216	1	1	**0**
5	**Demolition of housing and/or administration facilities**	**m2**	**0**	**455**	**1**	**1**	**0**
6	**Opencast rehabilitation including final voids and ramps**	**ha**	**0**	**238697**	**1**	**1**	**0**
7	**Sealing of shafts adits and inclines**	**m3**	**0**	**122**	**1**	**1**	**0**
8 (A)	**Rehabilitation of overburden and spoils**	**ha**	**0**	**159131**	**1**	**0,5**	**0**
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	198195	0,08	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	575653	1	1	**0**
9	Rehabilitation of subsided areas	ha	0	133249	1	0,5	**0**
10	**General surface rehabilitation**	**ha**	**0,9**	**126059**	**0,6**	**0,6**	**40843,116**
11	River diversions	ha	0	126059	1	1	**0**
12	**Fencing**	**m**	**0**	**144**	**1**	**1**	**0**
13	**Water management**	**ha**	**0**	**47931**	**1**	**1**	**0**
14	**2 to 3 years of maintenance and aftercare**	**ha**	**0**	**16776**	**1**	**1**	**0**
15 (A)	**Specialist study**	**Sum**	**0**	**0**	**1**	**1**	**0**
15 (B)	Specialist study	Sum	0	0	1	1	**0**
					Sub Total 1		**40843,116**
1	Preliminary and General		4901,17392		**weighting factor 2** 1		**4901,17392**
2	Contingencies		4084,3116				**4084,3116**
					Subtotal 2		**49828,60**
					VAT (15%)		**1500,15**
					Grand Total		**51329**

SIGN Takalani Rakuambo
DATE 2020/06/29

Financial Provision

The financial provision required by the holder of the mining right must be provided for by one or more of the following methods in order to achieve the total quantum of rehabilitation and remediation of environmental impacts and damage as well as final closure:

- Approved dedicated trust fund.
- Financial guarantee from a South African registered bank or any other approved financial institution.
- Cash deposit to be deposited at the office of the Regional Manager; or
- Any other manner determined by the Minister.

The client is required to annually assess the total quantum of environmental liability for the operation and ensure that financial provision is sufficient to cover the current liability (in the event of premature closure), as well as the end of life liability.

As per Government Legislature, the client is required to ensure full financial cover for the current liability at any point in the life of the operation. Pecuniary provision must be made for the shortfall between the existing trust fund balance and the premature closure or current environmental rehabilitation liability if applicable.

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

(Confirm that the amount, is anticipated to be an operating cost and is provided for as such in the Mining work programme, Financial and Technical Competence Report or Prospecting Work Programme as the case may be).

The amount the finance the prospecting activities will amount R513 29 Financing will be sourced from the capital expenditure as planned by the company; this capital will come from the treasury of the company. The company's annual financial statement for 2017/2018 was also submitted to the DMR for confirmation that the company has available funding to implement this proposed project.

It should be noted that the current expenditure provided for in the Prospecting Works Programme does not included the calculated Financial Provision as included into this Basic Assessment, as these values were not available at the time of the submission of the Prospecting Works Programme.

The provision for closure, should be updated into the Prospecting Works Programme prior the decision by the DMR should this decision be positive.

6.2 Specific Information required by the competent Authority

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:-

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

(Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner,

lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as an **Appendix**)

No specific report was generated for the purposes of the socio-economic conditions. All findings are presented hereafter:

Potential impacts on communities, individuals or competing land uses in close proximity

The following impacts are regarded as community impacts:

- Potential water and soil pollution resulting from spills and soil erosion;
- Noise due to the undertaking of the drilling.
- Poor access control resulting in impacts on cattle movement, breeding and grazing practices;
- Influx of persons (job seekers) to site because of increased activity and the possible resultant increase in opportunistic crime; and
- Visual Impact
- Prospecting will be undertaken by specialist sub-contractors and it is not anticipated that employment opportunities for local and / or regional communities will result from the prospecting activities.

Measures to manage the potential impacts on communities, individuals or competing land uses in close proximity

- Pollution Prevention

- Mitigation and management measures must be implemented to prevent environmental pollution which may impact on environmental resources utilized by communities, landowners and other stakeholders. These mitigation and management measures are discussed in the following section.

- Noise due to the undertaking of the prospecting activities.

- Directly affected, adjacent landowners and farms in proximity to the site will be informed of the planned dates of drilling. Mitigation alternatives are limited to timing of the drilling which may affect aspects such as fauna next to the site.

- Farms owners must be consulted and informed of activities which may affect cattle being held in restricted holding pens, with a view to prevent possible injury or damage because of animals being startled by the noise.

- Site activities will be conducted during daytime hours 07h00 – 17h00 to avoid night-time noise disturbances and night-time collisions with fauna.

o Poor access control resulting in impacts on cattle movement, breeding and grazing practices.

- Access control procedures must be agreed on with farm owners and all staff trained on these procedures.

o Influx of persons (job seekers) to site because of increased activity and the possible resultant increase in opportunistic crime.

- Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment.
- The landowner (all private and state landowners) will be notified of unauthorised persons encountered on site.
- If deemed necessary, the South African Police Service will be informed of unauthorised persons encountered on site.

o Visual Impact

- Based on visual observation, wet dust suppression will be undertaken to manage dust emissions from vehicle movement and other construction activities as and when needed. Depending on the need and quantity of water used for wet suppression, a suitable, low environmental impact chemical suppression alternative must be considered to conserve water resources.
- The portable ablution facilities, vertical water tanks and any other infrastructure should be acquired with a consideration for colour. Natural earth, green and mat black options which will blend in with the surrounding area must be favoured.
- A waste management system will be implemented, and sufficient waste bins will be provided for on-site. A fine system will be implemented to further prohibit littering and poor housekeeping practices.

o Prospecting will be undertaken by specialist sub-contractors and it is not anticipated that employment opportunities for local and / or regional communities will result from the prospecting activities.

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

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

As outlined in Section d)ii), page 15 of this report, prospecting will be undertaken in phases; the first phase being a desktop assessment, followed drilling.

Based on the outcome of these activities, desktop study and potential drill sites will be determined. Potential heritage impact will only occur once desktop study have been used to identify sites for drilling, and it is therefore recommended that the Heritage Impact Assessment be undertaken prior to drilling activities, and that the Heritage Impact Assessment be conducted over identified localised drill sites and access routes, as opposed to the entire exploration area.

This recommendation will be submitted to the South African Heritage Resource Agency (SAHRA) for approval.

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

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

Please refer to Appendix G for the motivation of not investigating for reasonable or feasible alternatives.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

8. Environmental management programme

a) Details of the EAP

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

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

b) Description of the Aspects of the Activity

(Confirm that the requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section (1)(h) herein as required).

The requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section (1)(h).

c)Composite Map

(Provide a map (Attached as an Appendix 1) at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers)

Please refer to Appendix 1 for the Composite Map.

d) Description of Impact management objectives including management statements

e) Determination of closure objectives.

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

As previously mentioned, each phase of the prospecting activities is dependent on the success of the previous. Depending on the outcome of the Phase 1 assessment, drilling programme will be initiated. The location and extent of drill sites can therefore not be determined at this stage.

The rehabilitation plan is developed on the basis that the rehabilitated areas are safe, stable, non-polluting and can support a self-sustaining ecosystem similar to surrounding natural environment. To ensure that the rehabilitation plan is aligned with the closure objective, a high-level risk assessment of the prospecting components has been undertaken to establish the potential risks associated therewith.

The closure objectives are to:

Eliminate any safety risk associated with drill holes and sumps though adequate drill hole capping and backfilling.

Remove and / or rehabilitate all pollution and pollution sources such as waste materials and spills;

To establish rehabilitated area which is not subject to soil erosion which may result in the loss of soil, degradation of the environment and cause pollution of surface water resources; and

Restore disturbed area and re-vegetate these areas with grass species naturally occurring in the area to restore the ecological function of such areas as far as is practicable.

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

No water needed for this prospecting operation due to selected air flush method as opposed to water flush. However, in terms of Government Notices Regulation 399, the applicant can be allowed to abstract 75m^3 of groundwater per hectare per annum from groundwater within the Quaternary Catchment. It is currently not anticipated that this quantity will be exceeded.

It is important to note that air flush method does not require the use of water

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

There are boreholes located on the site. However due to lack of sufficient rainfall (drought) water will not be given for drilling purpose. Hence, air flush is preferred by the client. In case, where the water will be given, it is anticipated that water will be brought onto the site, will be sourced from the private water dealer. No WUL is needed.

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Phase 1: Desktop Study					
Data collection and assessment (desktop only)	Planning	Entire property	1. No mitigation proposed	Identification of the potential coal seams and prospecting activities to occur within sensitive environments such as the pans and river systems, in this event the necessary consultation must be initiated with the DWS.	N/A
Phase 3: Drilling					

Site Access	Construction	Less than 16 000m^2	2. Map indicating the location of each of the drilling sites must be submitted to the relevant landowners, as well as to the DMR and DWS. Upon agreement of the location of the activities can the applicant proceed. 3. Use existing track and roads in all instances as far as is practicable. 4. Where track clearing is necessary, raised blade clearing will be conducted to minimise disturbance and aid rehabilitation efforts and significant vegetation such as trees and large shrubs will be avoided.	The prospecting activities must be undertaken in line with the approved Prospecting Works Programme. The financial provision required for rehabilitation must be guaranteed before the commencement of prospecting activities. Activities should stay clear of pans and outside of the 32m river buffer in order to avoid the need to apply for a Section 21 (c) and (i) Water Use License.	Concurrently with the completion of prospecting activities in an area.

			5. Site activities will be conducted during daytime hours 07h00 – 17h00 to avoid night time noise disturbances and night time collisions with fauna. 6. Vehicle speed will be reduced, particularly in highly vegetated areas is one way to avoid deaths by vehicle impacts. 7. Where track clearing is necessary, raised blade clearing be conducted to minimise disturbance and aid rehabilitation efforts. 8. As part of rehabilitation, all compacted roads and drill pads will be ripped and re-vegetated. 9. Site activities will be conducted during daytime hours 07h00 – 17h00 to avoid night time noise disturbances. 10. Access control procedures must be agreed on with farm owners and staff trained.		

			11. Prior to the establishment of new access roads, a heritage		

			impact assessment must be undertaken and mitigation and / or management measure for the protection of		

			such resources must be implemented		
Site establishment activities including: (i) *Vegetation clearing of drill pad area* (j) *Topsoil stripping and stockpiling* (k) *Drill pad compaction* (l) *Excavation and lining of drill water sump* (m) *Erection of temporary site office shaded area, potable ablution faculties and*	Construction	Approximately 4000m^2	12. The removal of vegetation within the drill pad area will be minimized. 13. If practicable, raised blade clearing be conducted for the entire drill pad to minimise disturbance and aid rehabilitation efforts. 14. The design of the drill fluid sump must incorporate effective fauna egress to avoid entrapment. 15. A fire emergency procedure will be developed to contain and minimise the destruction of flora and faunal habitat which may result from fire. 16. In the event that the drill pad is cleared of all vegetation, lower blade clearing will be undertaken prior to the stripping of topsoil.	The prospecting activities must be undertaken in line with the approved Prospecting Works Programme. The applicant must adhere to the NEMA Section 2 Principle and ensure that a cradle to grave approach is followed in terms of waste management and that all activities are undertaken with a precautionary approach. Where impacts may result a proactive manner should be implemented to ensure that potential negative results are avoided. The applicant must comply with the conditions of the Environmental Authorisation at all times.	Concurrently with the completion of prospecting activities in an area.

water storage tanks and core bay (n) *Erection of fuel storage tank* (o) *Erection of safety barrier* (p) *Waste generation and*					

management			17. Topsoil including the remaining vegetation, will be stripped and stockpiled up-slope of the pad. The stockpile will be shaped to divert stormwater around the drill pad to minimise soil erosion of the pad. 18. Where practicable topsoil will be stripped to a depth of 10cm. 19. Vegetation removed through lower blade clearing will be mixed with topsoil to increase organic content and to preserve the seed bank in order to aid rehabilitation efforts. 20. Topsoil will be stockpiles to a maximum height of 1.5m with a side slope of not more than 1:3. 21. Mechanical erosion control methods will be implemented if required. This may include the use of geotextiles to stabilise slopes. 22. Based on visual observation, wet dust suppression will be undertaken to manage dust emissions from vehicle		

			movement and other construction activities as and when needed.		

			23. Depending on the need and quantity of water used for wet suppression, a suitable, low environmental impact chemical suppression alternative must be considered in order to conserve water resources. 24. The shaded office area, portable ablution facilities, vertical water tanks and any other infrastructure should be acquired with a consideration for colour. Natural earth, green and mat black options which will blend in with the surrounding area must be favoured. 25. Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment. 26. The landowner (all private and state land owners) will be notified of unauthorised persons encountered on site. 27. If deemed necessary, the		

			South African Police Service will be informed of unauthorised persons encountered on site. 28. Prior to the site establishment, a heritage impact assessment must be undertaken and mitigation and / or management measure for the protection of such resources must be implemented		
Exploration drilling and core sample collection and storage including: *(a) Scout and delineation drilling* *(b) Drill maintenance and re-fuelling* *(c) Core sample collection and storage*	Operational	Included into the Site establishment size of 18 450m^2	29. A sump will be constructed with a sufficient capacity to receive drill fluids and allow for evaporation. 30. The sump will be constructed to divert stormwater away and / or around the sump to avoid clean stormwater inflow. 31. In the event that raise blade clearing is not undertaken, and the drill pad is cleared, topsoil will be stockpiles to a maximum height of 1.5m with a side slope of not more than 1:3.	The applicant must adhere to the NEMA Section 2 Principle and ensure that a cradle to grave approach is followed in terms of waste management and that all activities are undertaken with a precautionary approach. Where impacts may result a proactive manner should be implemented to ensure that potential negative results are avoided. The applicant must comply with the conditions of the Environmental Authorisation at all times.	Concurrently with the completion of prospecting activities in an area.

(d) Drill fluid collection, storage and evaporation *(e) Waste generation and management*			32. The topsoil stockpile will be shaped to divert stormwater around the drill pad to minimise soil erosion of the pad.		

			33. Management efforts through the use of mechanical erosion control methods will be implemented if required. This may include the use of geotextiles. 34. Fuel storage tanks will have a secondary containment structure with a capacity of 110% of the total tank capacity. 35. Oils and lubricant will be stored within secondary containment structures. 36. Where practicable, vehicle maintenance will be undertaken off-site. 37. In the event that vehicle maintenance is undertaken onsite (i.e. such as breakdown maintenance), drip trays and / or UPVC sheets will be used to prevent spills and leaks onto the soil. 38. Unused machinery must be completely drained of oil and other hydrocarbons to ensure that leaks do not develop.		

			39. Regular inspections of all vehicles must be carried out to ensure that all leaks are identified early and rectified. 40. A sufficient number of waste receptacles will be provided. 41. Waste separation will be undertaken at source and separate receptacles will be provided (i.e. general waste, recyclables and hazardous waste). 42. Receptacles will be closed (i.e. fitted with a lockable lid) to eliminate the possibility of access by animals overnight. 43. Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility. 44. Based on visual observation wet dust suppression will be undertaken as and		

			when required to manage dust emissions from vehicle movement.		

			45. Depending on the need and quantity of water used for wet suppression, chemical suppression alternatives must be considered in order to conserve water resources. 46. Visual impact of structures will be mitigated through measures as included in Item 35. 47. Visual dust dispersion will be mitigated through measures as included in Item 33. 48. Site activities will be conducted during daytime hours 07h00 – 17h00 to avoid night time noise disturbances. 49. Access control procedures must be agreed on with farm owners. 50. Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment.		

			51. The landowner (the Department of Rural Development and Land Reform) will be notified of unauthorised persons encountered on site. 52. If deemed necessary, the South African Police Service will be informed of unauthorised persons encountered on site. 53. The prospecting areas must be clearly demarcated. 54. No prospecting activities may be undertaken within the pan areas. 55. All site plans must indicate the presence of pans.		
Removal of temporary infrastructure including: *(a) Removal of temporary site office shaded*	Decommissioning	Included into the Site establishment size of 18 450m^2	56. Drill holes must be temporarily plugged immediately after drilling is completed and remain plugged until they are permanently plugged below ground to eliminate the risk posed to fauna by open drill holes. 57. Drill holes must be permanently capped as soon as is practicable.	The applicant must adhere to the NEMA Section 2 Principle and ensure that a cradle to grave approach is followed in terms of waste management and that all activities are undertaken with a precautionary approach. Where impacts may result a proactive manner should be implemented to	Concurrently with the completion of prospecting activities in an area.

area, potable ablution faculties, water storage tanks and core bay				ensure that potential negative results are avoided.	

(b) Borehole capping Drill pad rehabilitation including: *(a) Ripping of drill pad and access road* (b) *Re-spreading of stockpiled topsoil* (c) *Re-vegetation*			58. Based on visual observation wet dust suppression will be undertaken to manage dust emissions from vehicle movement. 59. Depending on the need and quantity of water used for wet suppression, chemical suppression alternatives must be considered in order to conserve water resources. 60. Access control procedures must be agreed on with farm owners and all staff trained. 61. All fuel storage tanks will be emptied prior to removal. 62. Drill holes must be permanently capped as soon as is practicable to eliminate the risk of groundwater contamination. 63. Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and	The applicant must comply with the conditions of the Environmental Authorisation at all times.	

			recyclables will be taken to a licensed recycling facility.		

			64. Mechanical erosion control methods will be implemented if required. This may include the use of geotextiles. 65. Re-vegetation will be conducted through hand seeding exposed areas using indigenous grass species as determined by a suitably qualified ecologist. 66. Re-vegetation efforts will be monitored every second month for a period of six months after initial seeding. 67. An effective vegetation cover of 45% must be achieved. Reseeding will be undertaken if this cover has not been achieved after six months.		

ii) Impacts to be mitigated in their respective phases

Measures to rehabilitate the environment affected by the undertaking of any listed activity is presented in the following table.

iii) Impact Management Outcomes

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

ACTIVITY (whether listed or not listed).	**POTENTIAL IMPACT**	**ASPECTS AFFECTED**	**PHASE (**In which	**MITIGATION TYPE**	**STANDARD TO BE ACHIEVED**

			impact is anticipated)		
Phase1: Data Acquisition and Desktop Study					
Data collection and assessment (desktop only)	1. None identified.	N/A	Planning	Control potential deviations from the approved Prospecting Works Programme through the effective implementation of the data acquisition and desktop study.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

ACTIVITY (whether listed or not listed).	**POTENTIAL IMPACT**	**ASPECTS AFFECTED**	**PHASE (**In which impact is anticipated)	**MITIGATION TYPE**	**STANDARD TO BE ACHIEVED**
Phase 2: Drilling					
Site Access	2. Destruction and / or disturbance of on-site fauna and flora.	Loss of Fauna and Flora	Construction Phase	Control through the clear delineation of the prospecting area.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

	3. Soil compaction resulting from repeated use of access roads to drill sites.	Loss of soil resources	Construction Phase	Control through the clear delineation of the prospecting area. Control through the implementation of a soil management programme in terms of the correct topsoil removal, stockpiling and rehabilitation practices as discussed in the EMP.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.
	4. Vehicle traffic noise impact affecting cattle and / or wildlife.	Loss of fauna	Construction Phase	Control through the clear delineation of the prospecting area. Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

ACTIVITY (whether listed or not listed).	**POTENTIAL IMPACT**	**ASPECTS AFFECTED**	**PHASE (**In which impact is anticipated)	**MITIGATION TYPE**	**STANDARD TO BE ACHIEVED**

	5. Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of fauna	Construction Phase	Control through the clear delineation of the prospecting area. Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	6. Potential destruction of heritage resources.	Loss of Cultural and/or Heritage Significance	Construction Phase	Control through the clear delineation of the prospecting area.	Comply with the requirements by SAHRA. No damage may result on heritage and cultural significant sites.
Site establishment activities including: (a) *Vegetation clearing of drill pad area* (b) *Topsoil stripping and stockpiling* (c) *Drill pad compaction* (d) *Excavation and lining of drill water sump*	7. Destruction and / or disturbance of on-site fauna and flora.	Loss of Fauna and Flora	Construction Phase	Control through the clear delineation of the prospecting area.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	8. Soil disturbance and topsoil stockpiling resulting in soil compaction and	Loss of soil resources	Construction Phase	Control through the clear delineation of the prospecting area. Control through the implementation of a soil management programme in	Remain within the ambits of the Prospecting Works Programme and Environmental

(e) *Erection of temporary site office shaded area,*					

ACTIVITY (whether listed or not listed).	**POTENTIAL IMPACT**	**ASPECTS AFFECTED**	**PHASE (**In which impact is anticipated)	**MITIGATION TYPE**	**STANDARD TO BE ACHIEVED**
potable ablution faculties and water storage tanks and core bay	erosion.			terms of the correct topsoil removal, stockpiling and rehabilitation practices as discussed in the EMP.	Authorisation. Retain topsoil integrity for the reuse in rehabilitation.
(f) *Erection of fuel storage tank* (g) *Erection of safety barrier* (h) *Waste generation and management*	9. Dust emission resulting from site clearing, soil stripping and construction activities (including vehicle entrained dust).	Dust emissions	Construction Phase	Control to the implementation of dust suppression methods, when this is required. Dust suppression methods could include wet suppression.	Remain within the designated area demarcated for prospecting activities. Remain within the National Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural communities.

	10. Visual Impact affecting visual character and "sense of place".	Loss in aesthetics	Construction Phase	Control through the clear delineation of the prospecting area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. No removal of vegetation outside of demarcated areas.
	10 Influx of persons (job seekers) to site as a result of increased activity	Increase in petty crimes	Construction Phase	Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of	Maintain a 100% crime free area within the control of the prospecting

ACTIVITY (whether listed or not listed).	**POTENTIAL IMPACT**	**ASPECTS AFFECTED**	**PHASE (**In which impact is anticipated)	**MITIGATION TYPE**	**STANDARD TO BE ACHIEVED**
	resulting in increased incidents of theft and opportunistic crime.			communication.	activities and applicant.

	11. Potential destruction of heritage resources.	Loss of Cultural and/or Heritage Significance	Construction Phase	Control through the clear delineation of the prospecting area. Control through the implementation of environmental induction and toolbox talks.	Comply with the requirements by SAHRA. No damage may result on heritage and cultural significant sites.
Exploration drilling and core sample collection and storage including: *(a) Scout and delineation drilling* *(b) Drill maintenance and re-fuelling* *(c) Core sample collection and storage* *(d) Drill fluid collection, storage and evaporation* *(e) Waste generation and management*	12. Water and soil pollution resulting from disposal of drill fluids.	Loss of water resources, loss of soil resources	Operational Phase	Control through the clear delineation of the prospecting area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. Control through the implementation of a soil management programme in terms of the correct topsoil removal, stockpiling and rehabilitation practices as discussed in the EMP. Control through the implementation of the NWA GN704 water management principles.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.

ACTIVITY (whether listed or not listed).	**POTENTIAL IMPACT**	**ASPECTS AFFECTED**	**PHASE (**In which impact is anticipated)	**MITIGATION TYPE**	**STANDARD TO BE ACHIEVED**
	13. Continued soil erosion from topsoil stockpile and soil compaction from drill pad platform.	Loss of soil resources	Operational Phase	Control through the clear delineation of the prospecting area. Control through the implementation of a soil management programme in terms of the correct topsoil removal, stockpiling and rehabilitation practices as discussed in the EMP	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.
	14. Potential water and soil pollution resulting from hydrocarbon spills and drill maintenance activities.	Loss of water resources, loss of soil resources	Operational Phase	Control through the clear delineation of the prospecting area. Control through the implementation of the NWA GN704 water management principles.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.

	15. Dust emissions from drilling and general site activities (including vehicle entrained dust)	Increase in dust emissions	Operational Phase	Control to the implementation of dust suppression methods, when this is required. Dust suppression methods could include wet suppression.	Remain within the designated area demarcated for prospecting activities. Remain within the National Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural

ACTIVITY (whether listed or not listed).	**POTENTIAL IMPACT**	**ASPECTS AFFECTED**	**PHASE (**In which impact is anticipated)	**MITIGATION TYPE**	**STANDARD TO BE ACHIEVED**
					communities.
	16. Visual Impact affecting visual character and "sense of place"	Loss in aesthetic value	Operational Phase	Control through the clear delineation of the prospecting area. Control through the implementation of the conditions in the EMP.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. No removal of vegetation outside of demarcated areas.

	17. Vehicle traffic and drill noise impact affecting wildlife game farm animals.	Loss of fauna	Operational Phase	Control through the clear delineation of the prospecting area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	18. Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of cattle	Operational Phase	Control through the clear delineation of the prospecting area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. Control through the limiting of the activities to the day time and the	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

ACTIVITY (whether listed or not listed).	**POTENTIAL IMPACT**	**ASPECTS AFFECTED**	**PHASE (**In which impact is anticipated)	**MITIGATION TYPE**	**STANDARD TO BE ACHIEVED**
				implementation of an open and transparent channel of communication.	

	19. Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.	Increase in petty crimes	Operational Phase	Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.	Maintain a 100% crime free area within the control of the prospecting activities and applicant.
	20. Impact on the pans and associated ecosystems in the area.	Loss of sensitive environments, loss of fauna, loss of flora	Operational Phase	Control through the clear delineation of the prospecting area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
Removal of temporary infrastructure including:	21. Destruction and / or disturbance of on-site fauna.	Loss of sensitive	Decommissioning	Control through the clear delineation of the prospecting area.	Remain within the ambits of the Prospecting Works

ACTIVITY (whether listed or not listed).	**POTENTIAL IMPACT**	**ASPECTS AFFECTED**	**PHASE (**In which impact is anticipated)	**MITIGATION TYPE**	**STANDARD TO BE ACHIEVED**

(a) *Removal of temporary site office shaded area, potable ablution faculties, water storage tanks and core bay* (b) *Borehole capping* Drill pad rehabilitation including: (a) *Ripping of drill pad and access road* (b) *Re-spreading of stockpiled topsoil* (c) *Re-vegetation*		environments, loss of fauna, loss of flora		Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.	Programme and Environmental Authorisation.
	22. Dust emissions from decommissioning activities (including vehicle entrained dust).	Increase in dust emissions	Decommissioning	Control to the implementation of dust suppression methods, when this is required. Dust suppression methods could include wet suppression.	Remain within the designated area demarcated for prospecting activities. Remain within the National Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural communities.
	23. Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of cattle	Decommissioning	Control through the clear delineation of the prospecting area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
ACTIVITY (whether listed or not listed).	**POTENTIAL IMPACT**	**ASPECTS AFFECTED**	**PHASE (**In which impact is anticipated)	**MITIGATION TYPE**	**STANDARD TO BE ACHIEVED**

				Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.	
	24. Potential water and soil pollution resulting from hydrocarbon spills.	Loss of water resources, loss of soil resources	Decommissioning	Control through the clear delineation of the prospecting area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. Control through the implementation of the NWA GN704 water management principles.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	25. Soil erosion resulting from the re-spreading of topsoil before vegetation is reestablished.	Loss of soil resources	Decommissioning	Control through the clear delineation of the prospecting area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. Control through the implementation of a soil management programme in terms of the correct topsoil removal, stockpiling and rehabilitation practices as discussed in the EMP.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

iv) Impact Management Actions

(A description of impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (c) and (d) will be achieved).

ACTIVITY (whether listed or not listed)	**POTENTIAL IMPACT**	**MITIGATION TYPE**	**TIME PERIOD FOR IMPLEMENTATION**	**COMPLIANCE WITH STANDARDS**
Phase1: Data Acquisition and Desktop Study				
Data collection and assessment (desktop only)	1. None identified.	1. No mitigation proposed	N/A	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

Phase 2: Drilling

ACTIVITY (whether listed or not listed)	**POTENTIAL IMPACT**	**MITIGATION TYPE**	**TIME PERIOD FOR IMPLEMENTATION**	**COMPLIANCE WITH STANDARDS**

	Site establishment	1. Site activities will be conducted during daytime hours 07h00 – 17h30 to avoid night time noise disturbances and night time collisions with fauna. 2. Vehicle speed will be reduced, particularly in highly vegetated areas is one way to avoid deaths by vehicle impacts.		
	3. Soil compaction	3. Where track clearing is necessary, raised blade clearing be conducted to minimise disturbance and aid rehabilitation efforts. 4. As part of rehabilitation, all compacted roads and drill pads will be ripped and re-vegetated.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.
	4. Vehicle traffic noise impact affecting cattle and / or wildlife.	5. Site activities will be conducted during daytime hours 07h00 – 17h30 to avoid night time noise disturbances.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

ACTIVITY (whether listed or not listed)	**POTENTIAL IMPACT**	**MITIGATION TYPE**	**TIME PERIOD FOR**	**COMPLIANCE WITH STANDARDS**

			IMPLEMENTATION	
	5. Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	6. Access control procedures must be agreed on with farm owners and staff trained.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	6. Potential destruction of heritage resources.	7. Prior to the establishment of new access roads, a heritage impact assessment must be undertaken and mitigation and / or management measure for the protection of such resources must be implemented	Concurrently with the completion of prospecting activities	Comply with the requirements by SAHRA. No damage may result on heritage and cultural significant sites.
Site establishment activities including: (a) *Vegetation clearing of drill pad area* (b) *Topsoil stripping and stockpiling*	7. Destruction and / or disturbance of on-site fauna and flora.	8. The removal of vegetation within the drill pad area will be minimized. 9. If practicable, raised blade clearing be conducted for the entire drill pad to minimise disturbance and aid rehabilitation efforts.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

ACTIVITY (whether listed or not listed)	**POTENTIAL IMPACT**	**MITIGATION TYPE**	**TIME PERIOD FOR IMPLEMENTATION**	**COMPLIANCE WITH STANDARDS**
(c) *Drill pad compaction* (d) *Excavation and lining of drill water sump* (e) *Erection of temporary site office shaded area, potable ablution faculties and water storage tanks and core bay* (f) *Erection of fuel storage tank* (g) *Erection of safety barrier* (h) *Waste generation and management*		10. The design of the drill fluid sump must incorporate effective fauna egress to avoid entrapment. 11. A fire emergency procedure will be developed to contain and minimise the destruction of flora and faunal habitat which may result from fire.		

	8. Soil disturbance and topsoil stockpiling resulting in soil compaction and erosion.	12. In the event that the drill pad is cleared of all vegetation, lower blade clearing will be undertaken prior to the stripping of topsoil. 13. Topsoil including the remaining vegetation, will be stripped and stockpiled up-slope of the pad. The stockpile will be shaped to divert stormwater around the drill pad to minimise soil erosion of the pad.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.
ACTIVITY (whether listed or not listed)	**POTENTIAL IMPACT**	**MITIGATION TYPE**	**TIME PERIOD FOR IMPLEMENTATION**	**COMPLIANCE WITH STANDARDS**
		14. Where practicable topsoil will be stripped to a depth of 10cm. 15. Vegetation removed through lower blade clearing will be mixed with topsoil to increase organic content and to preserve the seed bank in order to aid rehabilitation efforts. 16. Topsoil will be stockpiles to a maximum height of 1.5m with a side slope of not more than 1:3.		

		17. Mechanical erosion control methods will be implemented if required. This may include the use of geotextiles to stabilise slopes.		
	9. Dust emission resulting from site clearing, soil stripping and construction activities (including vehicle entrained dust).	18. Based on visual observation, wet dust suppression will be undertaken to manage dust emissions from vehicle movement and other construction activities as and when needed.	Concurrently with the completion of prospecting activities	Remain within the designated area demarcated for prospecting activities. Remain within the National

ACTIVITY (whether listed or not listed)	**POTENTIAL IMPACT**	**MITIGATION TYPE**	**TIME PERIOD FOR IMPLEMENTATION**	**COMPLIANCE WITH STANDARDS**

		19. Depending on the need and quantity of water used for wet suppression, a suitable, low environmental impact chemical suppression alternative must be considered in order to conserve water resources.		Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural communities.
	10. Visual Impact affecting visual character and "sense of place".	20. The shaded office area, portable ablution facilities, vertical water tanks and any other infrastructure should be acquired with a consideration for colour. Natural earth, green and mat black options which will blend in with the surrounding area must be favoured.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. No removal of vegetation outside of demarcated areas.
	11. Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.	21. Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment.		Maintain a 100% crime free area within the control of the prospecting activities and applicant.

ACTIVITY (whether listed or not listed)	**POTENTIAL IMPACT**	**MITIGATION TYPE**	**TIME PERIOD FOR IMPLEMENTATION**	**COMPLIANCE WITH STANDARDS**
		22. The landowner (all private and state land owners) will be notified of unauthorised persons encountered on site. 23. If deemed necessary, the South African Police Service will be informed of unauthorised persons encountered on site.		
	12. Potential destruction of heritage resources.	24. Prior to the site establishment, a heritage impact assessment must be undertaken and mitigation and / or management measure for the protection of such	Concurrently with the completion of prospecting activities	Comply with the requirements by SAHRA. No damage may result on heritage and cultural significant sites.

		resources must be implemented		
Exploration drilling and core sample collection and storage including: *(a) Scout and*	13. Water and soil pollution resulting from disposal of drill fluids.	25. A sump will be constructed with a sufficient capacity to receive drill fluids and allow for evaporation.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.

ACTIVITY (whether listed or not listed)	**POTENTIAL IMPACT**	**MITIGATION TYPE**	**TIME PERIOD FOR IMPLEMENTATION**	**COMPLIANCE WITH STANDARDS**

delineation drilling *(b) Drill maintenance and re-fuelling* *(c) Core sample collection and storage* *(d) Drill fluid collection, storage and evaporation* *Waste generation and management*		26. The sump will be constructed to divert stormwater away and / or around the sump to avoid clean stormwater inflow.		
	14. Continued soil erosion from topsoil stockpile and soil compaction from drill pad platform.	27. In the event that raise blade clearing is not undertaken, and the drill pad is cleared, topsoil will be stockpiles to a maximum height of 1.5m with a side slope of not more than 1:3. 28. The topsoil stockpile will be shaped to divert stormwater around the drill pad to minimise soil erosion of the pad. 29. Management efforts through the use of mechanical erosion control	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.

		methods will be implemented if required. This may include the use of geotextiles.		

ACTIVITY (whether listed or not listed)	**POTENTIAL IMPACT**	**MITIGATION TYPE**	**TIME PERIOD FOR IMPLEMENTATION**	**COMPLIANCE WITH STANDARDS**

	15. Potential water and soil pollution resulting from hydrocarbon spills and drill maintenance activities.	30. Fuel storage tanks will have a secondary containment structure with a capacity of 110% of the total tank capacity. 31. Oils and lubricant will be stored within secondary containment structures. 32. Where practicable, vehicle maintenance will be undertaken off-site. 33. In the event that vehicle maintenance is undertaken on-site (i.e. such as breakdown maintenance), drip trays and / or UPVC sheets will be used to prevent spills and leaks onto the soil. 34. Unused machinery must be completely drained of oil and other hydrocarbons to ensure that leaks do not develop.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.

ACTIVITY (whether listed or not listed)	**POTENTIAL IMPACT**	**MITIGATION TYPE**	**TIME PERIOD FOR IMPLEMENTATION**	**COMPLIANCE WITH STANDARDS**
		35. Regular inspections of all vehicles must be carried out to ensure that all leaks are identified early and rectified. 36. A sufficient number of waste receptacles will be provided. 37. Waste separation will be undertaken at source and separate receptacles will be provided (i.e. general waste, recyclables and hazardous waste). 38. Receptacles will be closed (i.e. fitted with a lockable lid) to eliminate the possibility of access by animals overnight. 39. Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and		

		recyclables will be taken to a licensed recycling facility.		

ACTIVITY (whether listed or not listed)	**POTENTIAL IMPACT**	**MITIGATION TYPE**	**TIME PERIOD FOR IMPLEMENTATION**	**COMPLIANCE WITH STANDARDS**

	16. Dust emissions from drilling and general site activities (including vehicle entrained dust)	40. Based on visual observation wet dust suppression will be undertaken as and when required to manage dust emissions from vehicle movement. 41. Depending on the need and quantity of water used for wet suppression, chemical suppression alternatives must be considered in order to conserve water resources.	Concurrently with the completion of prospecting activities	Remain within the designated area demarcated for prospecting activities. Remain within the National Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural communities.
	17. Visual Impact affecting visual character and "sense of place"	42. Visual impact of structures will be mitigated through measures as included in Item 35. 43. Visual dust dispersion will be mitigated through measures as included in Item 33.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. No removal of vegetation outside of demarcated areas.
	18. Vehicle traffic and drill noise impact affecting wildlife game farm animals.	44. Site activities will be conducted during daytime hours 07h00 – 17h00 to avoid night time noise disturbances.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

ACTIVITY (whether listed or not listed)	**POTENTIAL IMPACT**	**MITIGATION TYPE**	**TIME PERIOD FOR IMPLEMENTATION**	**COMPLIANCE WITH STANDARDS**
	19. Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	45. Access control procedures must be agreed on with farm owners.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	20. Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.	46. Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment. 47. The landowner (the Department of Rural Development and Land Reform) will be notified of unauthorised persons encountered on site. 48. If deemed necessary, the	Concurrently with the completion of prospecting activities	Maintain a 100% crime free area within the control of the prospecting activities and applicant.

		South African Police Service will be informed of unauthorised persons encountered on site.		

ACTIVITY (whether listed or not listed)	**POTENTIAL IMPACT**	**MITIGATION TYPE**	**TIME PERIOD FOR IMPLEMENTATION**	**COMPLIANCE WITH STANDARDS**

	21. Impact on the pans and associated ecosystems in the area.	49. The prospecting areas must be clearly demarcated. 50. No prospecting activities may be undertaken within the pan areas. 51. All site plans must indicate the presence of pans.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
Removal of temporary infrastructure including: *(a) Removal of temporary site office shaded area, potable ablution faculties, water storage tanks and core bay* *(b) Borehole capping* Drill pad rehabilitation including:	22. Destruction and / or disturbance of on-site fauna.	52. Drill holes must be temporarily plugged immediately after drilling is completed and remain plugged until they are permanently plugged below ground to eliminate the risk posed to fauna by open drill holes. 53. Drill holes must be permanently capped as soon as is practicable	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

(a) Ripping of drill pad				

ACTIVITY (whether listed or not listed)	**POTENTIAL IMPACT**	**MITIGATION TYPE**	**TIME PERIOD FOR IMPLEMENTATION**	**COMPLIANCE WITH STANDARDS**
and access road (b) *Re-spreading of stockpiled topsoil* (c) *Re-vegetation*				

	23. Dust emissions from decommissioning activities (including vehicle entrained dust).	54. Based on visual observation wet dust suppression will be undertaken to manage dust emissions from vehicle movement. 55. Depending on the need and quantity of water used for wet suppression, chemical suppression alternatives must be considered in order to conserve water resources.	Concurrently with the completion of prospecting activities	Remain within the designated area demarcated for prospecting activities. Remain within the National Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural communities.
	24. Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	56. Access control procedures must be agreed on with farm owners and all staff trained.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	25. Potential water and soil pollution resulting from hydrocarbon spills.	57. All fuel storage tanks will be emptied prior to removal.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

ACTIVITY (whether listed or not listed)	**POTENTIAL IMPACT**	**MITIGATION TYPE**	**TIME PERIOD FOR IMPLEMENTATION**	**COMPLIANCE WITH STANDARDS**

		58. Drill holes must be permanently capped as soon as is practicable to eliminate the risk of groundwater contamination. 59. Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility.		
	26. Soil erosion resulting from the re-spreading of topsoil before vegetation is re-established.	60. Mechanical erosion control methods will be implemented if required. This may include the use of geotextiles. 61. Re-vegetation will be conducted through hand seeding exposed areas using indigenous grass species as determined by a suitably qualified ecologist.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

ACTIVITY (whether listed or not listed)	**POTENTIAL IMPACT**	**MITIGATION TYPE**	**TIME PERIOD FOR IMPLEMENTATION**	**COMPLIANCE WITH STANDARDS**
		62. Re-vegetation efforts will be monitored every second month for a period of six months after initial seeding. 63. An effective vegetation cover of 45% must be achieved. Re-seeding will be undertaken if this cover has not been achieved after six months.		

9. Financial Provision

9.1 Determination of the amount of Financial Provision.

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

As previously mentioned, each phase of the prospecting activities is dependent on the success of the previous. Depending on the outcome of the Phase 1 assessment, drilling programme will be initiated. The location and extent drill sites can therefore not be determined at this stage.

The rehabilitation plan is developed on the basis that the rehabilitated areas are safe, stable, non-polluting and are able to support a self-sustaining ecosystem similar to surrounding natural environment. To ensure that the rehabilitation plan is aligned with the closure objective, a high-level risk assessment of the prospecting components has been undertaken to establish the potential risks associated therewith.

The closure objectives are to:

Eliminate any safety risk associated with drill holes and sumps though adequate drill hole capping and backfilling.

Remove and / or rehabilitate all pollution and pollution sources such as waste materials and spills;

To establish rehabilitated area which is not subject to soil erosion which may result in the loss of soil, degradation of the environment and cause pollution of surface water resources; and

Restore disturbed area and re-vegetate these areas with grass species naturally occurring in the area to restore the ecological function of such areas as far as is practicable.

ii) Confirm specifically that the environmental objectives in relation to closure have been consulted with landowners and interested and affected parties

This Basic Assessment Report and Environmental Management Plan will be made available to each registered stakeholder for review and comment. All comments will be captured in the issues and response section and will be included into the final report.

iii) 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.

As previously mentioned, each phase of the prospecting activities is dependent on the success of the previous. Depending on the outcome of the Phase 1 assessment, an airborne / ground geophysics survey and/or loam sampling programme will be initiated. Targets that

have been prioritized through detailed anomaly-specific loam sampling will be tested by initial drilling.

The location and extent of soil sampling and drill sites can therefore not be determined at this stage.

Mapping of the prospecting activities could thus not be undertaken.

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

The only rehabilitation that will specifically be required is borehole capping and revegetation:

Borehole capping

Drill holes must be permanently capped as soon as is practicable. Figure 19 below provides the prepared procedure for the secure plugging of exploration drill holes.

Re-vegetation

It is recommended that a standard commercial fertilizer high in the standard elements is added to the soil before re-vegetation, at a rate of 10-20kg/ha (application rate to be confirmed based on input from a suitably qualified specialist). The fertilizer should be added to the soil in a slow release granular form.

A suitably qualified ecologist will be appointed to determine the appropriate veld grass mix for hand seeding.

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

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

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

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

The financial provision for the environmental rehabilitation and closure of any mine/prospecting and its associated operations forms an integral part of the MPRDA. Sections 41(1), 41(2), 41(3) and 45 of the MPRDA deal with the financial provision for rehabilitation and

closure. During 2017the DMR made updated rates available for the calculation of the closure costs, where contractor's costs are not available these are used in assessments.

The "Guideline Document for the Evaluation of Financial Provision made by the Mining Industry" was developed by the DMR in January 2005, in order to empower the personnel at Regional DMR offices to review the quantum determination for the rehabilitation and closure of mining sites.

With the determination of the quantum for closure it must be assumed that the infrastructure has no salvage value (clean closure). The closure cost estimate (clean closure) was determined in accordance with the DMR guidelines and is based, where possible. The closure costs are as follows:

Sub-Total 1:	R 907 624 (excluding VAT)
Sub-Total 2:	R 110 73 (excluding VAT)
Sub-Total 3 (clean closure cost):	R247 850 (including VAT)

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

The amount the finance the prospecting activities will amount to (R37 000.00). Financing will be sourced from the capital expenditure as planned by the company; this capital will come from the treasury of the company. As part of the Prospecting Works Programme, the applicant has provided the annual financial statement for 2015. The Mine's annual financial statement for 2015 was also submitted to the DMR for confirmation that the company has available funding to implement this proposed project.

It should be noted that the current expenditure provided for in the Prospecting Works Programme does not included the calculated Financial Provision as included into this Basic Assessment, as these values were not available at the time of the submission of the Prospecting Works Programme.

The provision for closure, should be updated into the Prospecting Works Programme prior the decision by the DMR should this decision be positive.

10. Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including

g) Monitoring of Impact Management Actions

h) Monitoring and reporting frequency

i) Responsible persons

j) Time period for implementing impact management actions

k) Mechanism for monitoring compliance

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Phase1: Data Acquisition and Desktop Study	None identified.	None	N/A	N/A
Phase 2: Target Generation and Ground Truthing	Noise impacts resulting from site fly-overs affecting cattle and game farm animals	Adjacent landowners will be informed of the planned dates of the Airborne geophysics survey and a grievance mechanism will be made available.	Prospecting Manager	Once-off upfront consultation with affected parties. As required as grievances are received. 1. Consultation to be signed off by Environmental Management.

				2. All grievances to be signed-off by Environmental Management.

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
				3. All corrective action and close out of grievances to be signed-off by Environmental Management. 4. Proof of consultation to be submitted to the Department of Mineral Resources prior to

				airborne survey is conducted. 5. Record of grievances, corrective action taken and close out to be submitted to the Department of Mineral resources at the end of the project phase.
Phase 3: Ground Geophysics and Soil Sampling	All site activities to be undertaken must be communicated with directly affected landowners.	As soon as the extent of site activities are known. These must be communicated with directly affected landowners. The following procedures must developed in conjunction with these landowners: 1. Emergency Preparedness and	Prospecting Manager	1. Confirmation of the extent of site activities to be submitted to the Department of Mineral Resources prior to such activities been undertaken. 2. Proof of consultation with directly affected landowners and the

SOURCE ACTIVITY	**IMPACTS REQUIRING MONITORING PROGRAMMES**	**FUNCTIONAL REQUIREMENTS FOR MONITORING**	**ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING**	**MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS**

			PROGRAMMES)	
		Response Plan; and 2. Access control procedures and requirements.		outcome of such consultation to be submitted to the Department of Mineral Resources. 3. Continuous monitoring of compliance with the access control procedure will be undertaken.
Phase III: Exploratory Drilling	Visual inspection of soil erosion and / or compaction	All exposed areas, access roads, the drill pad and soil stockpiles must be monitored for erosion on a regular basis and specifically after rain events.	Prospecting Manager Contractor	Weekly and after rain events 1. Monthly monitoring reports to be signed-off by the Environmental Manager. 2. Corrective action to be confirmed and signed-off by the Environmental Manager. 3. Consolidated monthly monitoring reports (including the corrective action taken) to be submitted to the

				Department of Mineral Resources.
	Dust generated will be assessed through visual observation	If dust outfall is excessive and regarded to affect any sensitive receptors a monitoring programme must be initiated based on the input of a suitably qualified air quality specialist.	Prospecting Manager Contractor	On-going

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**

				1. Monthly monitoring reports to be signed-off by the Environmental Manager. 2. Corrective action to be confirmed and signed-off by the Environmental Manager. 3. Consolidated monthly monitoring reports (including the corrective action taken) to be submitted to the Department of Mineral Resources.
	Visual inspection of biodiversity impacts and the occurrence of invader species	Visual inspection of clearing activities and other possible secondary impact on biodiversity will be undertaken. The introduction of alien invasive vegetation species will be determined.	Prospecting Manager Contractor	Once-off during clearing activities Weekly inspection of secondary impacts 1. Monthly monitoring reports to be signed-off by the Environmental Manager. 2. Corrective action to be confirmed and signed-off by the Environmental Manager.

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
				3. Consolidated monthly monitoring reports (including the corrective action taken) to be submitted to the Department of Mineral Resources.

	Visual inspection of pollution incidents, the integrity of secondary containment structures and waste management	All secondary containment structure will be inspected on a regular basis to confirm the integrity thereof and to identify potential leaks. All spill incidents will be identified and corrective action taken in accordance with an established spill response procedure. Waste management practices will be monitored to prevent contamination and littering.	Prospecting Manager Contractor	Daily 1. Monthly monitoring reports to be signed-off by the Environmental Manager. 2. Corrective action to be confirmed and signed-off by the Environmental Manager. 3. Consolidated monthly monitoring reports (including the corrective action taken) to be submitted to the Department of Mineral Resources. 4. Incident reporting will be undertaken as required in terms of the relevant legislation including, but

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**

				not limited to, the: a) Mineral and Petroleum Resources Development Act 28 of 2002; and b) National Water Act 36 of 1998.
Post Closure Monitoring	Follow up inspections and monitoring of rehabilitation	Inspection of all rehabilitated areas to assess whether any soil erosion is occurring and implement corrective action where required. Confirm that the set target of 45% cover for all re-vegetated areas have been achieved after a period of 6 months and re-seed where required Identify any areas of subsidence around drill holes and undertake additional backfilling if required.	Prospecting Manager	Monthly for a period of 6 months after rehabilitation activities are concluded. 1. Monthly monitoring reports to be signed-off by the Environmental Manager. 2. Corrective action to be confirmed and signed-off by the Environmental Manager. 3. Consolidated monthly monitoring reports (including the corrective action taken) to be submitted to the

				Department of Mineral Resources. 4. Final impact and risk
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**
				assessment report for site closure to be submitted to the Department of Mineral Resources for approval.

10.1 Indicate the frequency of the submission of the performance assessment/ environmental audit report

Annual performance assessments must be undertaken on the EMP. These reports must also include the assessment of the financial provision. The reports should be submitted to the DMR.

10.2 Environmental Awareness Plan

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

An Environmental Awareness and Risk Assessment Schedule have been developed and is outline in Table 24. The purpose of this schedule is to ensure that employees are not only trained but that the principles are continuously reinforced.

Table 23: Environmental Training and Awareness Schedule

Frequency	Time allocation	Objective
Induction (all staff and workers)	1-hour training on environmental awareness training as part of site induction	1. Develop an understanding of what is meant by the natural environmental and social environment and establish a common language as it relates to environmental, health, safety and community aspects. 2. Establish a basic knowledge of the environmental legal framework and consequences of non-compliance. 3. Clarify the content and required actions for the implementation of the Environmental Management Plan. 4. Confirm the spatial extent of areas regarded as sensitive and clarify restrictions. 5. Provide a detailed understanding of the definition, the method for identification and required response to emergency incidents.
Monthly Awareness Talks (all staff and workers)	30-minute awareness talks	Based on actual identified risks and incidents (if occurred) reinforce legal requirements, appropriate responses and measures for the adaptation of mitigation and/or management practices.

Risk Assessments (supervisor and workers involved in task)	Daily task-based risk assessment	Establish an understanding of the risks associated with a specific task and the required mitigation and management measures on a daily basis as part of daily toolbox talks.

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

As prescribed in Table 24, Task / Issue Based Risk Assessments must be undertaken with all worker involved in the specific task in order to establish an understanding of the risks associated with a specific task and the required mitigation and management measures.

Environmental Awareness Training Content – Induction Training

The following environmental awareness training will be provided to all staff and workers who will be involved in prospecting activities.

- Description of the approved prospecting activities and content of the prospecting right;
- An overview of the applicable legislation and regulations as it relates to environmental, health, safety and community including (but not limited to):

- General Environmental Legal Principles and Requirements
- Air Quality Management
- Water and Wastewater Management
- Hazardous Substances
- Non-Mining-Related Waste Management
- The Appropriate Remediation Strategies & Deteriorated Water Resources
- Biodiversity
- Weeds and Invader Plants
- Rehabilitation
- Contractors and Tenants
- Energy & Conservation
- Heritage Resources
- General Health and Safety Matters
- Basic Conditions of Employment

- Compensation for Occupational Injuries and Diseases
- General Mine Health and Safety Matters
- Smoking in the Workplace
- Noise & Hearing Conservation
- Handling, Storage and use of Hazardous Substances
- Weapons and Firearms

o Content and implementation of the approved Environmental Management Plan

- Allocated responsibilities and functions
- Management and Mitigation Measures
- Identification of risks and requirements adaptation

o Sensitive environments and features

- Description of environmentally sensitive areas and features
- Prohibitions as it relates to activities in or in proximity to such areas

o Emergency Situations and Remediation

- Methodology for the identify areas where accidents and emergency situations may occur, communities and individuals that may be impacted
- An overview of the response procedures,
- Equipment and resources
- Designate of responsibilities
- Communication, including communication with potentially Affected Communities
- Training schedule to ensure effective response.

Development of procedures and checklists

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

Emergency Preparedness and Response

The procedure will be developed to specifically include risk identification, preparedness, response measures and reporting. The procedure will specifically include spill and fire risk, preparedness and response measures. The appropriate emergency control centers (fire department, hospitals) will be identified and the contact numbers obtained and made

available on site. The procedure must be developed in consultation with all potentially affected landowners.

In the event that risks are identified which may affected adjacent landowners (or other persons), the procedure will include the appropriate communication strategy to inform such persons and provide response measures to minimize the impact.

Incident Reporting Procedure

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

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

Environmental and Social Audit Checklist

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

10.4 Specific information required by the Competent Authority

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

11. No specific information was required by the Competent Authority.

1) UNDERTAKING

The EAP herewith confirms

a) the correctness of the information provided in the reports

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

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

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

---

Signature of the Environmental Assessment Practitioner:

Singo Consulting (Pty) Ltd

Name of company:

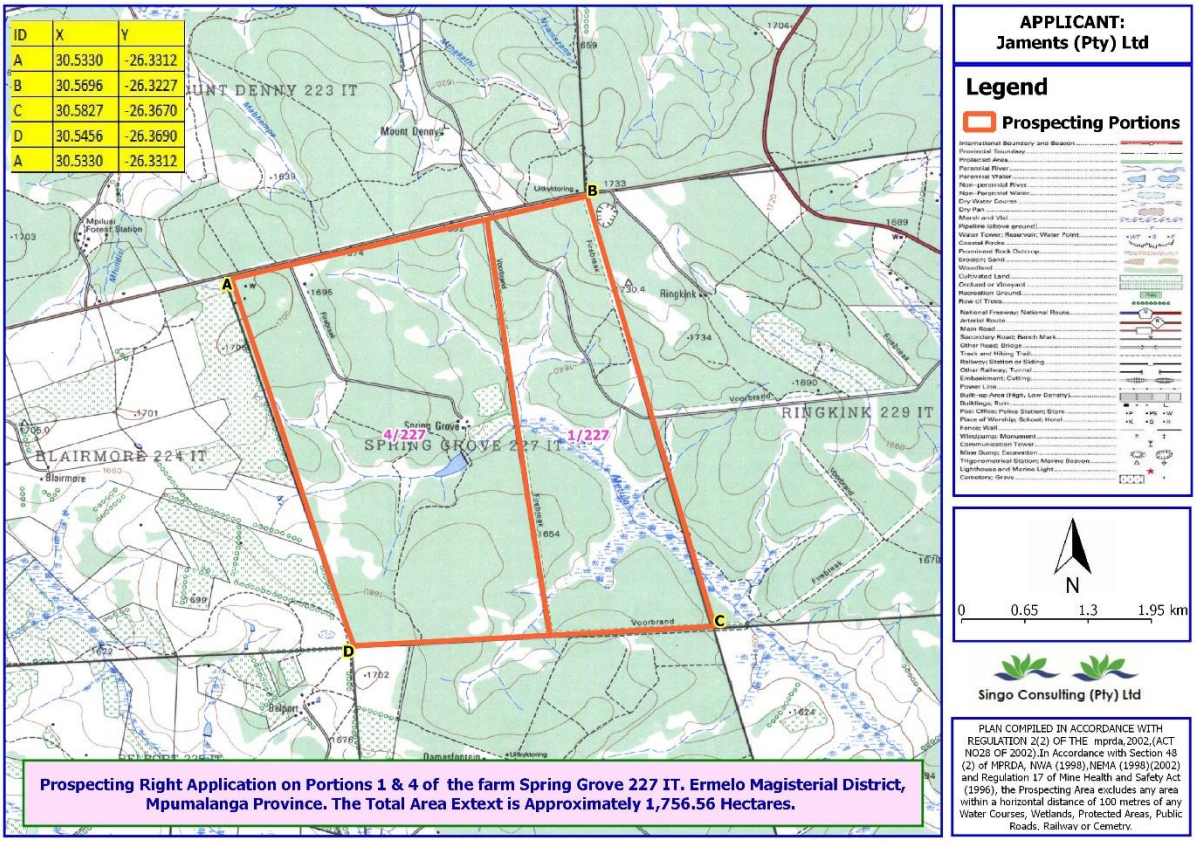
Date: July 2020

Undertaking by the client:

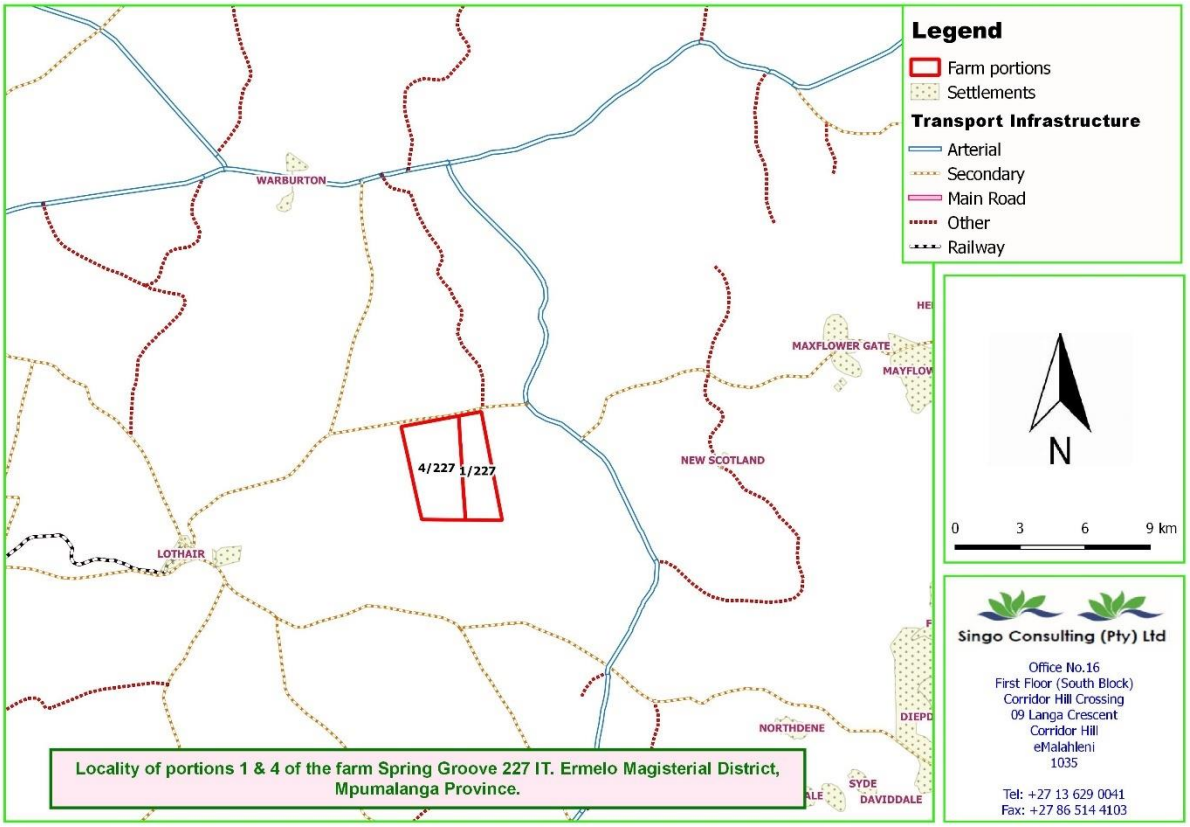
Herewith I, the person whose name and identity number is stated below, confirm that I am the person authorised to act as representative of the applicant in terms of the resolution submitted with the application, and confirm that the above report comprises EIA and EMP compiled in accordance with the guideline on the Departments official website and the directive in terms of sections 29 and 39 (5) in that regard, and the applicant undertakes to execute the Environmental management plan as proposed.	
Full Names and Surname	Bongane Given Simelane
Identity Number	8211175629083

Designation	Director
Signature (Cut and Pasted from appointment letter by EAP)	
Date	July 2020

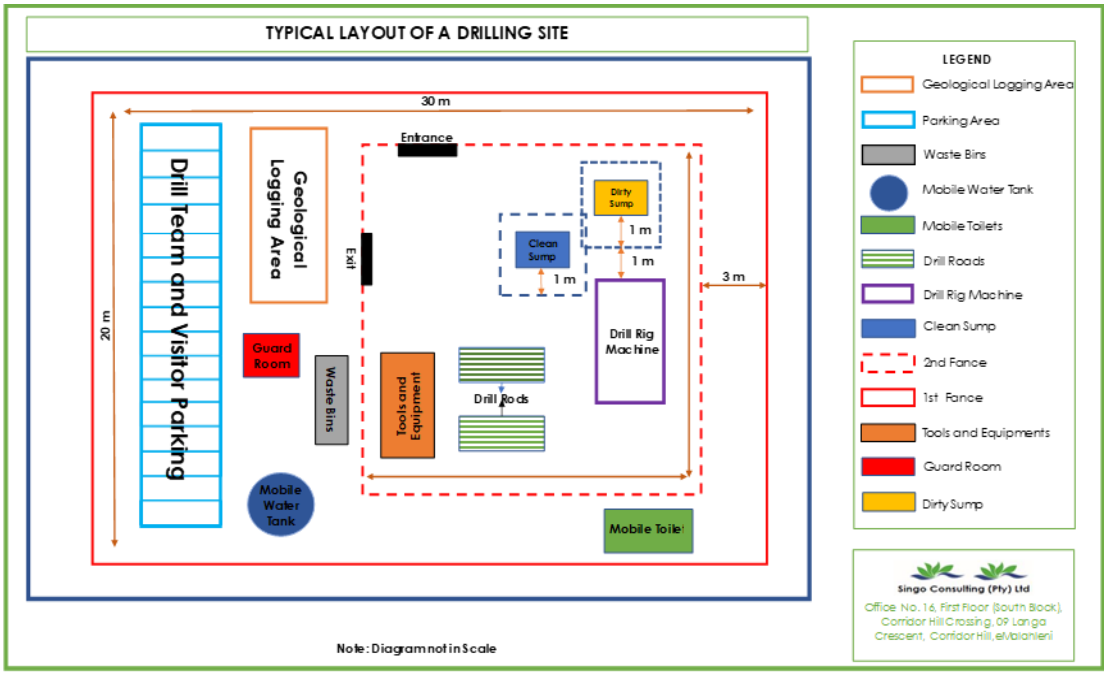
-END-



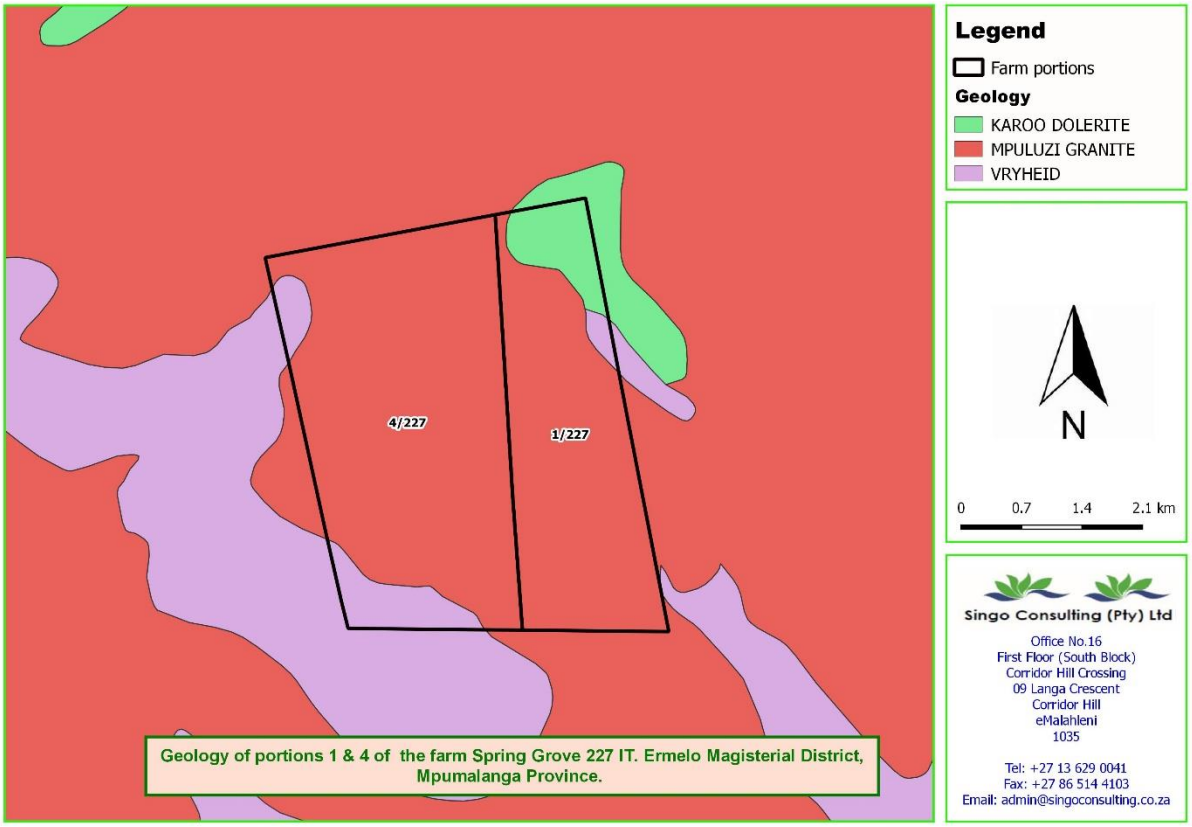
REGULATION MAP



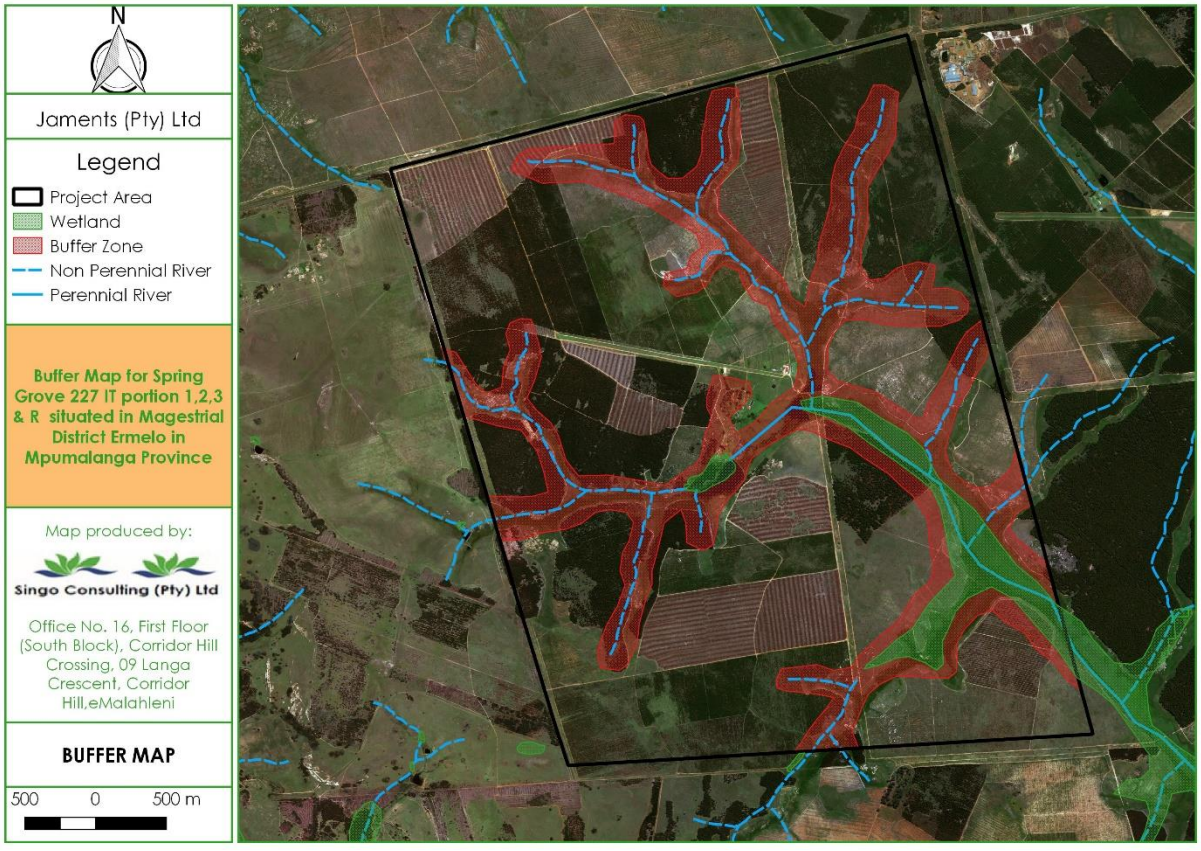
LOCALITY MAP



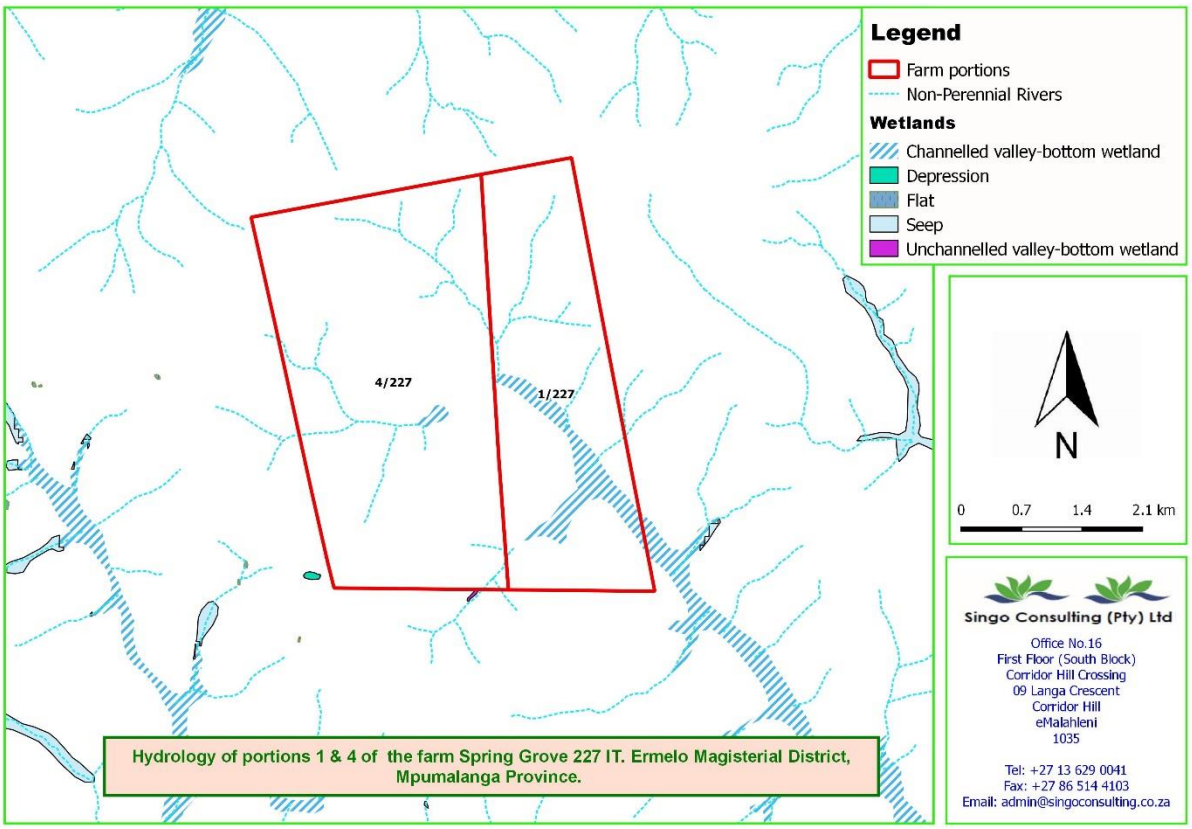
LAYOUT PLAN


Legend
Farm portions
Geology
KAROO DOLERITE
MPULUZI GRANITE
VRYHEID
4/227
1/227
N
0 0.7 1.4 2.1 km
Singo Consulting (Pty) Ltd
Office No.16
First Floor (South Block)
Corridor Hill Crossing
09 Langa Crescent
Corridor Hill
eMalahleni
1035
Tel: +27 13 629 0041
Fax: +27 86 514 4103
Email: admin@singoconsulting.co.za
Geology of portions 1 & 4 of the farm Spring Grove 227 IT. Ermelo Magisterial District, Mpumalanga Province.

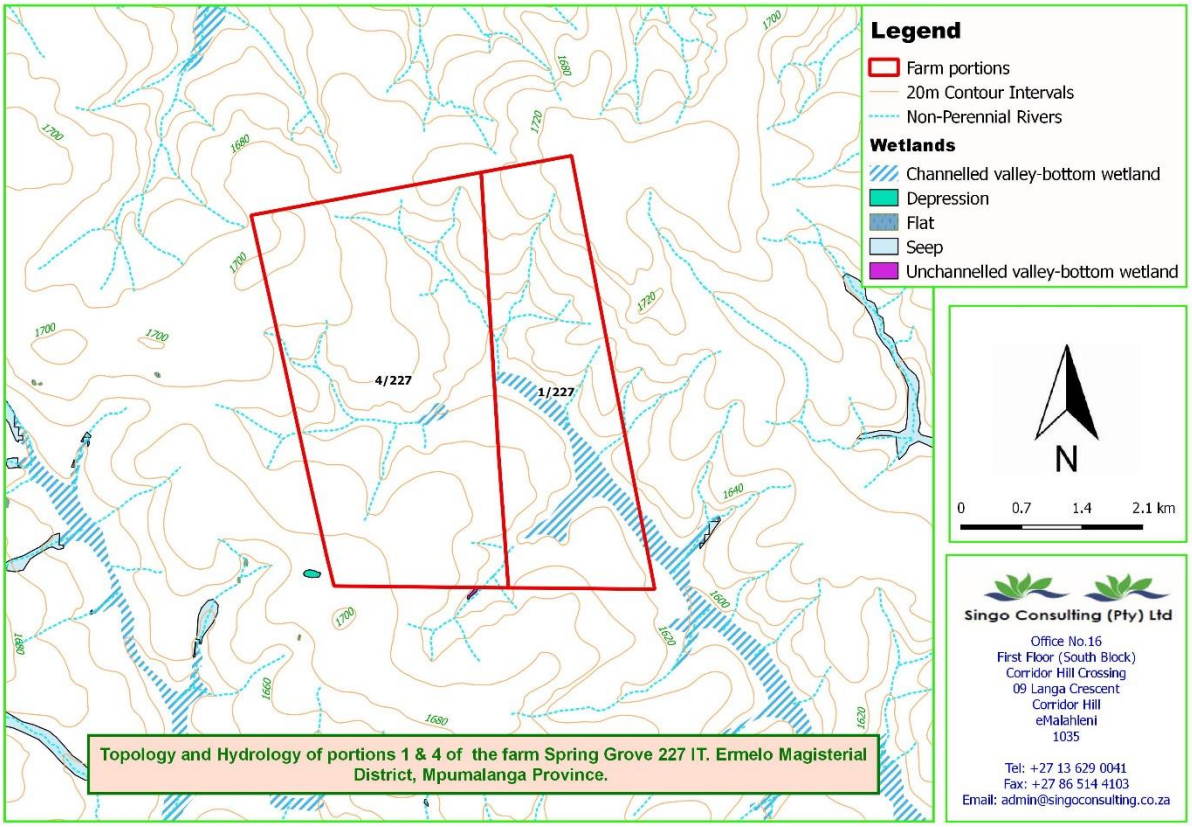
GEOLOGY MAP


N
Jaments (Pty) Ltd
Legend
Project Area
Wetland
Buffer Zone
Non Perennial River
Perennial River
Buffer Map for Spring Grove 227 IT portion 1,2,3 & R situated in Magestrial District Ermelo in Mpumalanga Province
Map produced by:
Singo Consulting (Pty) Ltd
Office No. 16, First Floor (South Block), Corridor Hill Crossing, 09 Langa Crescent, Corridor Hill,eMalahleni
BUFFER MAP
500 0 500 m

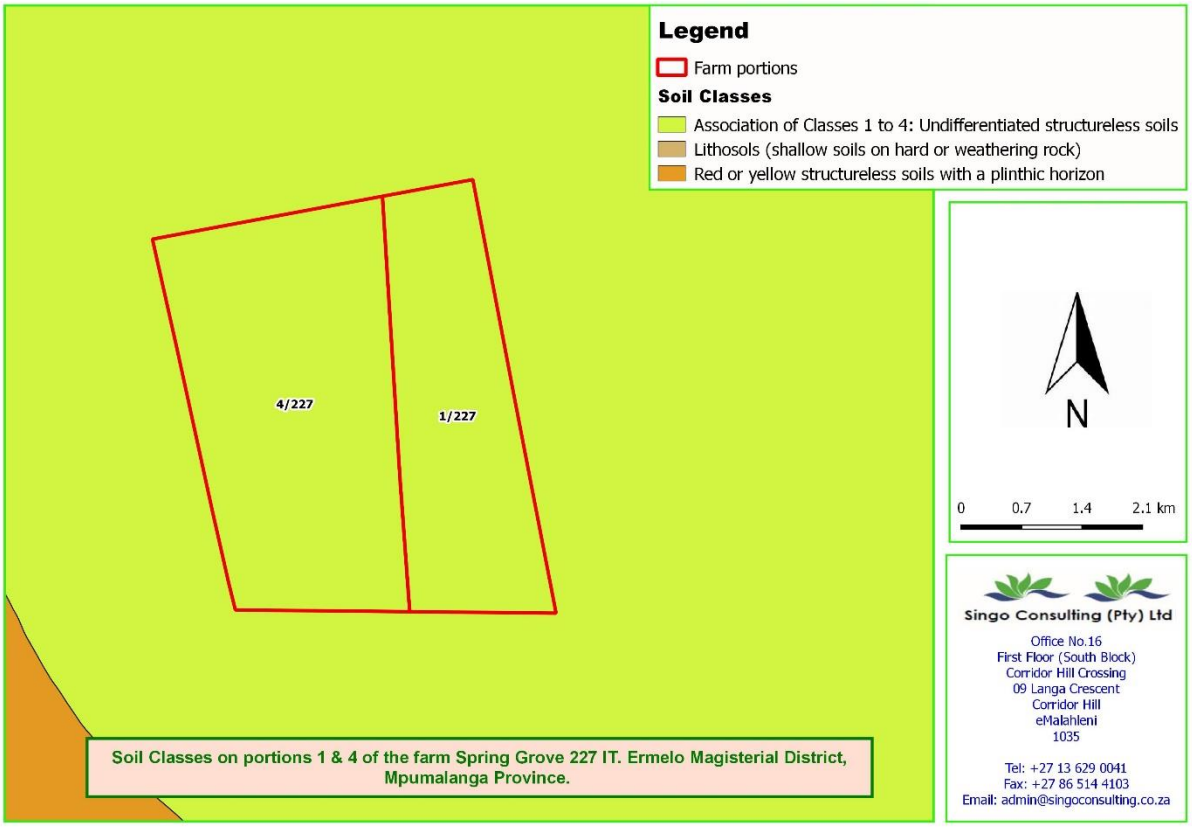
BUFFER MAP



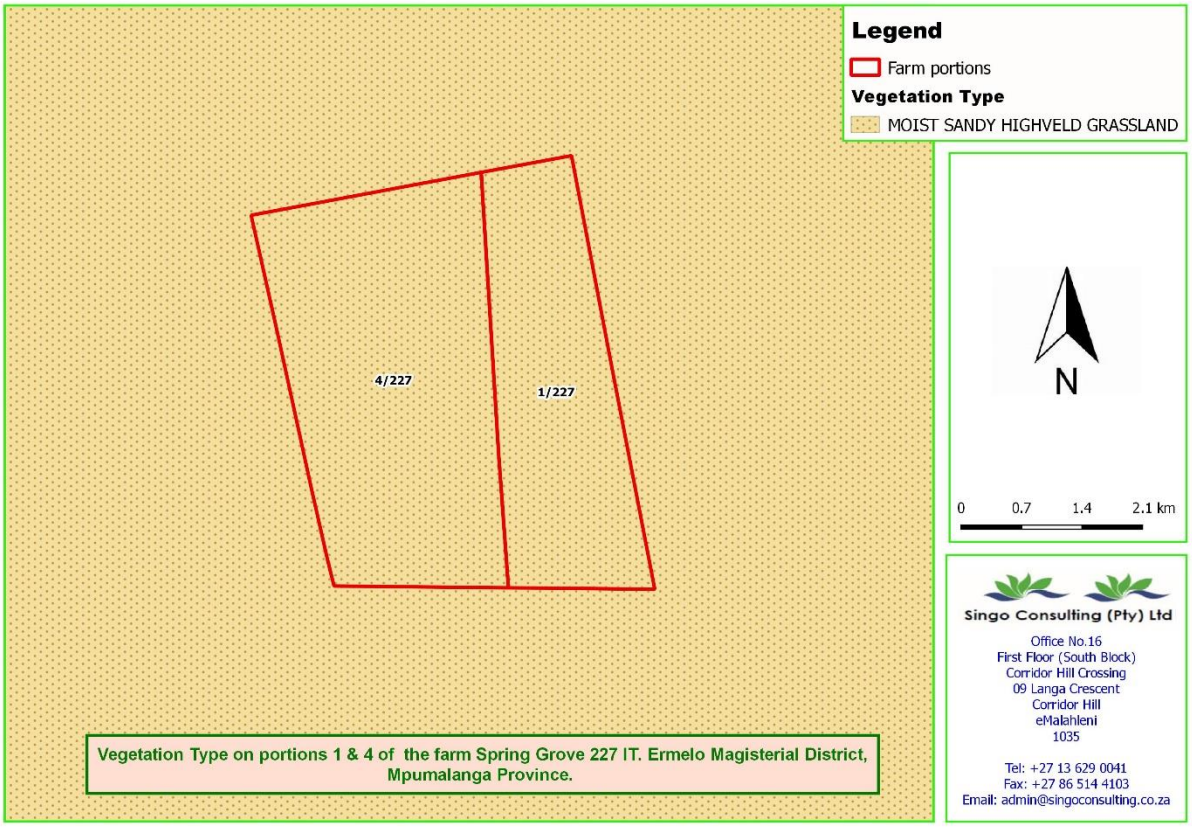
HYDROLOGY MAP



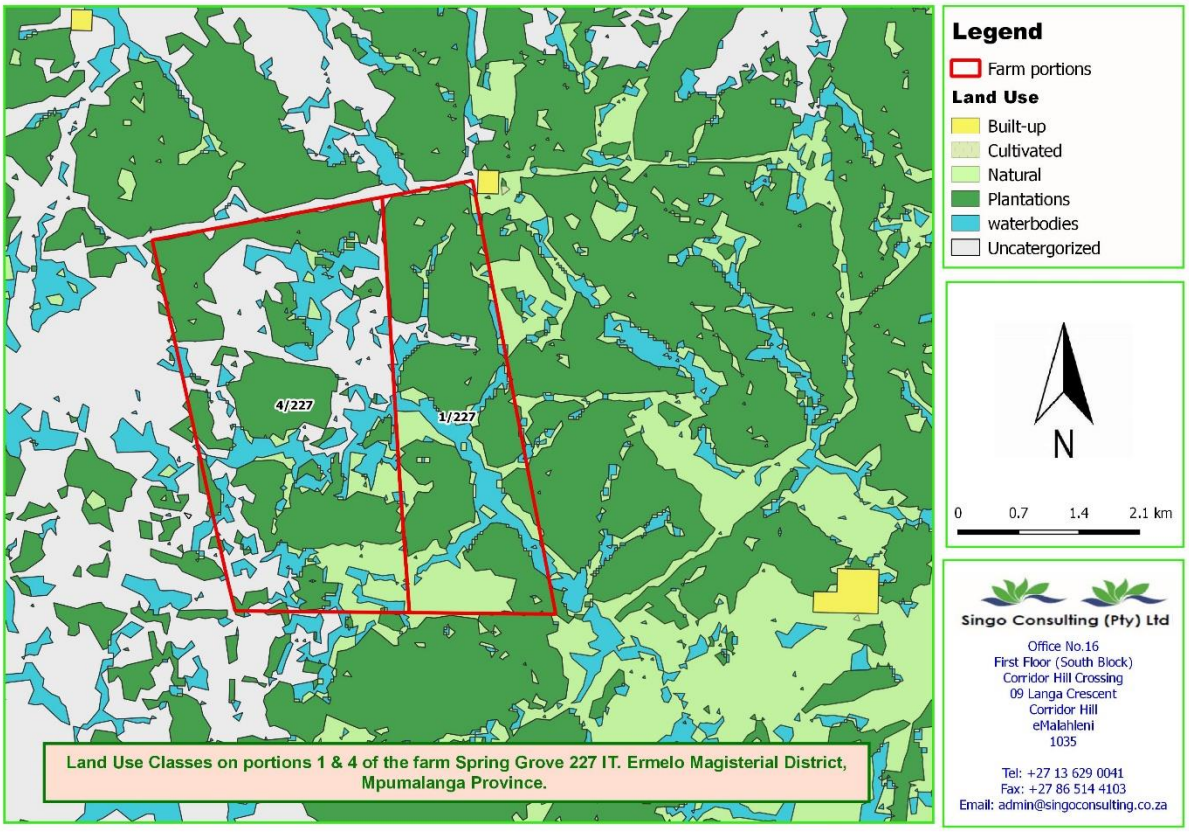
TOPOLOGY MAP



SOIL CLASSES MAP



VEGETATION MAP


Legend
Farm portions
Land Use
Built-up
Cultivated
Natural
Plantations
waterbodies
Uncatergorized
4/227
1/227
N
0
0.7
1.4
2.1 km
Land Use Classes on portions 1 & 4 of the farm Spring Grove 227 IT. Ermelo Magisterial District, Mpumalanga Province.
Singo Consulting (Pty) Ltd
Office No.16
First Floor (South Block)
Corridor Hill Crossing
09 Langa Crescent
Corridor Hill
eMalahleni
1035
Tel: +27 13 629 0041
Fax: +27 86 514 4103
Email: admin@singoconsulting.co.za

LAND USE MAP

mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

Private Bag X 7279, Witbank, 1035, Saveways Centre, First Floor, Mandela Drive, Witbank,1035 Tel (013) 6530500, Fax (013) 6903288
Reference: MP 30/5/1/1/2/ 15761 PR Enquiries: Ms. Prisca.Maluleka Email address: prisca.maluleka@dmr.gov.za.

REGISTERED MAIL
THE DIRECTOR/S
JAMENTS (PTY) LTD
P/BAG X 7297
HIGHVELD MALL
EMALAHLENI
1035

Att: Kenneth Singo **Fax No. 086 086 5144103**

Dear Sir/Madam

APPLICATION FOR PROSPECTING RIGHT IN TERMS OF SECTION 16 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 AS AMENDED BY SECTION 12 OF ACT 49 OF 2008, AS AMENDED: JAMENTS (PTY) LTD TO PROSPECT FOR COAL ON PORTIONS 1, 2 AND 3 (NOW KNOWN AS PORTIONS 1, 2 AND 4) OF THE FARM SPRING GROVE 227 IT, SITUATED IN THE MAGISTERIAL OF ERMELO.

1. This is to inform you that your application for a prospecting right is accepted in terms of section 16 (2) of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002) ("Act") as amended by Section 12 (b) of the Act only on **Portions 1, 2 and 3 (Now known as Portions 1, 2 and 4) of the farm Spring Grove 227 IT, Situated in the Magisterial of Ermelo.**

2. **Further be informed that Portions 1, 2 and 3 of the farm Belport 225 IT, Situated in the Magisterial of Ermelo are excluded on the ground that there is a prospecting right which renewal application is still pending a decision to either grant or refuse.**

3. Please note that in terms of S 16 (4) of the Act as amended by Section 12 (d) (a) and 12 (d) (b) of the Amendment Act, you are required to:

3.1 Submit to this office the required environmental reports and documents as stipulated in your acknowledgement of receipt of an environmental authorisation in this regard.

3.2 In light of the minimum requirements as stipulated on Regulation 16 (1) and 16(2) of the EIA Regulations, your application for an Environmental Authorisation was incomplete as it was not accompanied by this acceptance letter as per Sub Regulation 16(1)(ix) and considering that it is now completed by this acceptance letter, you are hereby required to submit the documents as stipulated on Regulation 19 (1) to 19(8) of the EIA Regulations (Only in cases where Basic Assessment Report is applicable) or Regulations 21 (Scoping Report) and Regulation 23 (EIR and EMPr) (In case of Scoping and Environmental Impact Report). All timeframes are effective from the date of this letter.

4. Notify and consult with the land owner(s) or lawful occupier(s) and all interested and affected parties (I & AP) and upload on the system the results of such consultation must be submitted 30 days from the date of this letter.

5. **You are advised to submit on or the following document(s):**
   - 5.1. **Detailed financial statements of your company and prospecting work programme excluding the area as indicated in paragraph 2 above ;**
   - 5.2. **A tittle deed in respect of the properties for which the prospecting right is applied or**
   - 5.3. **A confirmation letter from Rural Development and Land Reform, if the land is state-owned, stipulating that the land is state-owned; and,**
   - 5.4. **A revised regulation 2(2) sketch plan excluding the area indicated in paragraph 2 above.**

6. You are further advised to consult the Department of Land Affairs and Land Claims Commission, should the land be state owned or be subject of a land claim in terms of the Land Restitution Act and the results of their responses be dealt with as referred to in paragraph 2 (c).

7. You are in terms of Section 17 (1) of the Act as amended by Section 13 (c) of the Amendment Act required to give effect to the objects referred to in Section 2 (d) of the

Act. The entity is said to be 100% black owned, therefore you are advised to submit share certificate regarding his aspect.

8. ***Your attention is also drawn to the provisions of Section 17(1) (e) of the MPRDA which provides that the minister may grant an application for a prospecting right if the applicant is not in contravention of any relevant provision of this Act. Section 19(2) (f) places an obligation on the holder of a prospecting right to pay the prescribed prospecting fees, as per regulation 76 of the MPRDA. You are therefore reminded to ensure that payment of all prospecting fees for all the prospecting right that you hold, are up to date, failing which this may have a negative impact on the outcome of your current application.***

9. A prospecting right will only be granted once the Environmental Authorization has been issued.

Yours Faithfully:

Mad

ACTING REGIONAL MANAGER: MINERAL REGULATION
MPUMALANGA REGION
DATE: 17/03/2020

APPENDIX 3 :*CONSULTATION REPORT*

APPENDIX 4:*IMPACT MANAGEMENT OUTCOME*

ACTIVITY (Whether listed or not listed). (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.).	**POTENTIAL IMPACT** (Including the potential impacts for cumulative impacts) (E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc.)	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated (E.g. Construction, commissioning, operational, Decommissioning, closure, post-closure)	**MITIGATION TYPE** (modify, remedy, control, or stop) Through (E.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.) (E.g. Modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation)	**STANDARD TO BE ACHIEVED** (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
Planning and Project Management	**EMP**	Project Management	Planning	• A finalized EMP must address all authorization conditions stipulated by the DEA (and other commenting authorities). • The EMP should also encompass all environmental impact mitigation measures as identified in the final BAR.	MPRDA & NEMA

	Appointment of Environmental Officer	Project Management	Planning	Niche Mining Resources 247 (Pty) Ltd environmental geologist will serve as the Environmental Officer (EO) during construction, given the short duration of construction and the low significance impacts which are envisaged. Niche Mining Resources 247 (Pty) Ltd environmental geologist will be responsible for monitoring the compliance of the construction workers and employees on site with the EMP and ensure their co-operation.	MPRDA & NEMA
	Permits and Permissions		Planning	JB Marks Local Municipality must ensure that all licensing, permits or certificates required for the project are obtained and in place prior to the commencing of any construction activities on site.	MPRDA & NEMA

	Emergency	Safety and health	Planning	Plan all emergency responses including:	MPRDA & NEMA

ACTIVITY (Whether listed or not listed). (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.).	POTENTIAL IMPACT (Including the potential impacts for cumulative impacts) (E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc.)	ASPECTS AFFECTED	PHASE In which impact is anticipated (E.g. Construction, commissioning, operational, Decommissioning, closure, post-closure)	MITIGATION TYPE (modify, remedy, control, or stop) Through (E.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.) (E.g. Modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation)	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
	Response Planning	personnel on site		• Response procedures to fires, explosions, or any accidents that will require rapid medical responses; and • Responses to community and stakeholder concerns and communication procedures with potentially affected parties (I&AP).	
	Project Schedule	Undertaking the project in a timeous manner	Planning	Plan and develop a construction sequence to alleviate noise generation during the construction phase.	N/A

	Method Statement	Project Management	Planning	Ensure that a method statement has been compiled and submitted to the Site/Construction manager.	N/A
	Grievances	Project Management	Planning	Develop grievance mechanisms for the recording and management of complaints and grievances specifically including (but not limited to) grievances from those living in the area.	N/A
	Records and Administration	Project Management	Planning	**Ensure the following are up to date and available on site:** • A complaint register. • An approved method statements. • Copies of the EMP.	

ACTIVITY (Whether listed or not listed). (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.).	**POTENTIAL IMPACT** (Including the potential impacts for cumulative impacts) (E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc.)	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated (E.g. Construction, commissioning, operational, Decommissioning, closure, post-closure)	**MITIGATION TYPE** (modify, remedy, control, or stop) Through (E.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.) (E.g. Modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation)	**STANDARD TO BE ACHIEVED** (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
				• Environmental Permits and authorizations. • Copies of weekly checklists, compliance reports, incidence reports and corrective action reports. • Photographs of areas of concern (photos of non-compliance areas as well corrective action). • Attendance registers of environmental awareness training.	
	Recruitment of Labour	Project Management	Planning	• Where possible, the contractor must make use of local labour in support of the local economy. • Advertise employment opportunities adequately, so as not to limit application opportunities. • Implement a transparent process of recruiting construction staff, following pre-established and accepted criteria.	Basic Conditions of Employment Act, No. 75 of 1997 (as amended)
PRE-DRILLING/ EXPLOR ATION					

	Site establishment	Project Management	Planning	The Contractor must, in agreement with the Construction Manager, decide upon an area for the location of a construction camp. The construction camp should be properly demarcated and fenced, and be adequately sized, with sufficient space for site offices, construction vehicles, equipment, material and waste storage areas	

ACTIVITY (Whether listed or not listed). (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.).	**POTENTIAL IMPACT** (Including the potential impacts for cumulative impacts) (E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination groundwater contamination air pollution etc.)	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated (E.g. Construction, commissioning, operational, Decommissioning, closure, post-closure)	**MITIGATION TYPE** (modify, remedy, control, or stop) Through (E.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.) (E.g. Modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation)	**STANDARD TO BE ACHIEVED** (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
				• The construction camp must be located in an area with minimal damage or disturbance to the environment. • Establish 'NO-GO' areas- where no construction personnel, equipment/machinery or vehicles are permitted. Any identified Environmental Sensitive or important areas should be designated as 'NO-GO' areas.	

	Site Housekeeping	Project Management	Planning	The construction camp should be kept clean and orderly at all times.	
	Ablution Facilities	Project Management	Planning	• Enough toilet facilities should be provided near construction camp. The toilets should be properly covered and ventilated and should contain hand washing facilities. • Portable toilets should be properly secured to the grounds to avoid toppling in the case of a wind/storm event. • Ensure that all toilets function properly and are in a hygienic state. The toilets should be cleaned and emptied regularly. • Ensure that there are no spillages when toilets get cleaned and emptied. • Urination on site should be strictly prohibited.	
ACTIVITY (Whether listed or not listed). (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.).	**POTENTIAL IMPACT** (Including the potential impacts for cumulative impacts) (E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc.)	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated (E.g. Construction, commissioning, operational, Decommissioning, closure, post-closure)	**MITIGATION TYPE** (modify, remedy, control, or stop) Through (E.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.) (E.g. Modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation)	**STANDARD TO BE ACHIEVED** (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.

Site establishment activities (-ve) _ Vegetation clearance _ Topsoil stripping & stockpiling _ Drill pad compaction _ Erection of office, toilets, fuel storage (if not by road tanker), water tanker, core storage _ Vehicle movements _ Waste management	Cultural and Heritage	Destruction or loss of Cultural and Heritage Resources: No cultural/heritage artefacts have been identified on site	Construction / Set_up	• Environmental Permits and authorizations. • Copies of weekly checklists, compliance reports, incidence reports and corrective action reports.	Heritage Act
	Noise	Noise Generation	Construction / Set_up	Photographs of areas of concern (photos of non-compliance areas as well corrective action).	SANS 10103
	Visual	Visual intrusion	Construction / Set_up	Attendance registers of environmental awareness training.	N/A
	Traffic	Increase in traffic volumes in the vicinity of the drilling site	Construction / Set_up	• Traffic signs to be put around the site to notify motorist of the activities • Construction vehicles to make trips on/off site only when necessary	National Traffic Act Regulations

ACTIVITY (Whether listed or not listed). (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.).	**POTENTIAL IMPACT** (Including the potential impacts for cumulative impacts) (E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc.)	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated (E.g. Construction, commissioning, operational, Decommissioning, closure, post-closure)	**MITIGATION TYPE** (modify, remedy, control, or stop) Through (E.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.) (E.g. Modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation)	**STANDARD TO BE ACHIEVED** (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
				☐ Construction vehicles to adhere to local speed limits as far as possible when driving in around site	
	Signage	Traffic volumes, safety	Construction / Set-up	• The construction management needs to communicate the commencement and duration of construction activities to the community. • Clear signage needs to be put up to make and keep the community awareness of construction activities so as to prevent any hazardous occurrences. • Provide adequate safety warning signage on the roads.	National Traffic Act Regulations

	Dust fall	Dust fall & nuisance from activities	Construction / Set_up	• Wet suppression should be applied to ensure that no visible dust is raised by any of the prospecting operations; • Separation of distance of minimum 500m, but preferably 1000m • to be maintained between drill sites and dwellings; and Low vehicle speeds will be enforced on unpaved surfaces.	GN R. 827 (NEM:AQA)
	Soil and vegetation	The potential impact of the proposed prospecting on the	Construction / Set_up	• The soil disturbance and clearance of vegetation at drill pad areas will be limited to the absolute minimum required; No clear scraping (dozing) be • carried out unless absolutely necessary to establish a level drill pad.	NEMBA

ACTIVITY (Whether listed or not listed). (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.).	**POTENTIAL IMPACT** (Including the potential impacts for cumulative impacts) (E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc.)	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated (E.g. Construction, commissioning, operational, Decommissioning, closure, post-closure)	**MITIGATION TYPE** (modify, remedy, control, or stop) Through (E.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.) (E.g. Modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation)	**STANDARD TO BE ACHIEVED** (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
		vegetation would occur at proposed drilling sites and the access routes used to get to these sites.		• Rather that surface vegetation is cleared to make way for the drilling rig leaving the roots intact so that vegetation can coppice and regrow; and • Disturbed areas will be re-vegetated with locally indigenous species as soon as possible.	

	Animal life	Animal life will be affected in the immediate vicinity of the drilling rig. It is anticipated that the noise and general activity will keep the animal life away from the site while the prospecting is ongoing.	Construction/ Set_ up	• • Environmental awareness training sessions should be part of the workers' induction and site workshops; and If any animals are encountered, they must not be killed or injured, but should rather be removed or chased away from the site with the assistance of an animal specialist	NEMBA
	Social	Friction	Construction /	All operations will be carried out under the guidance of a strong,	NEMA
ACTIVITY (Whether listed or not listed). (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.).	**POTENTIAL IMPACT** (Including the potential impacts for cumulative impacts) (E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc.)	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated (E.g. Construction, commissioning, operational, Decommissioning, closure, post-closure)	**MITIGATION TYPE** (modify, remedy, control, or stop) Through (E.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.) (E.g. Modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation)	**STANDARD TO BE ACHIEVED** (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.

		between residents/landowner and construction personnel	Set_up	experienced manager with proven skills in public consultation and conflict resolution; • All prospecting personnel will be made aware of the local conditions and sensitivities in the prospecting area and the fact that some of the residents may not welcome the prospecting activities in the area; • There will be a strict requirement to treat residents with respect and courtesy at all times.	
	Job creation	Employment will be created for the clearing of the land and establishing the drilling site.	Construction/ set-up	No mitigation measures required.	NEMA
	Storage and Disposal of Waste	Safety and aesthetic/ visual aspects of the property, as well	Construction/ set-up & Operation	• Litter generated by construction workers must be collected in containers that are clearly labelled and disposed of weekly at registered waste disposal sites. • Sufficient weather- and vermin- proof bins should be placed on site for the disposal of solid waste. Littering on site should be	National Waste Act

ACTIVITY (Whether listed or not listed). (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.).	POTENTIAL IMPACT (Including the potential impacts for cumulative impacts) (E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc.)	ASPECTS AFFECTED	PHASE In which impact is anticipated (E.g. Construction, commissioning, operational, Decommissioning, closure, post-closure)	MITIGATION TYPE (modify, remedy, control, or stop) Through (E.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.) (E.g. Modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation)	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
		as waste disposal practices.		strictly prohibited. The burning of waste on site should also be prohibited. • All waste generated from construction activities (building rubble, solid and liquid waste etc.), should be disposed of as frequently at an appropriately licensed refuse facility. Minimize waste generation, e.g. by providing re-usable items and refillable containers (e.g. for drinking water) and adopt a 'cradle to grave' responsibility for wastes. • Comply with legal requirements for waste management and pollution control and employ "good housekeeping" and monitoring practices.	

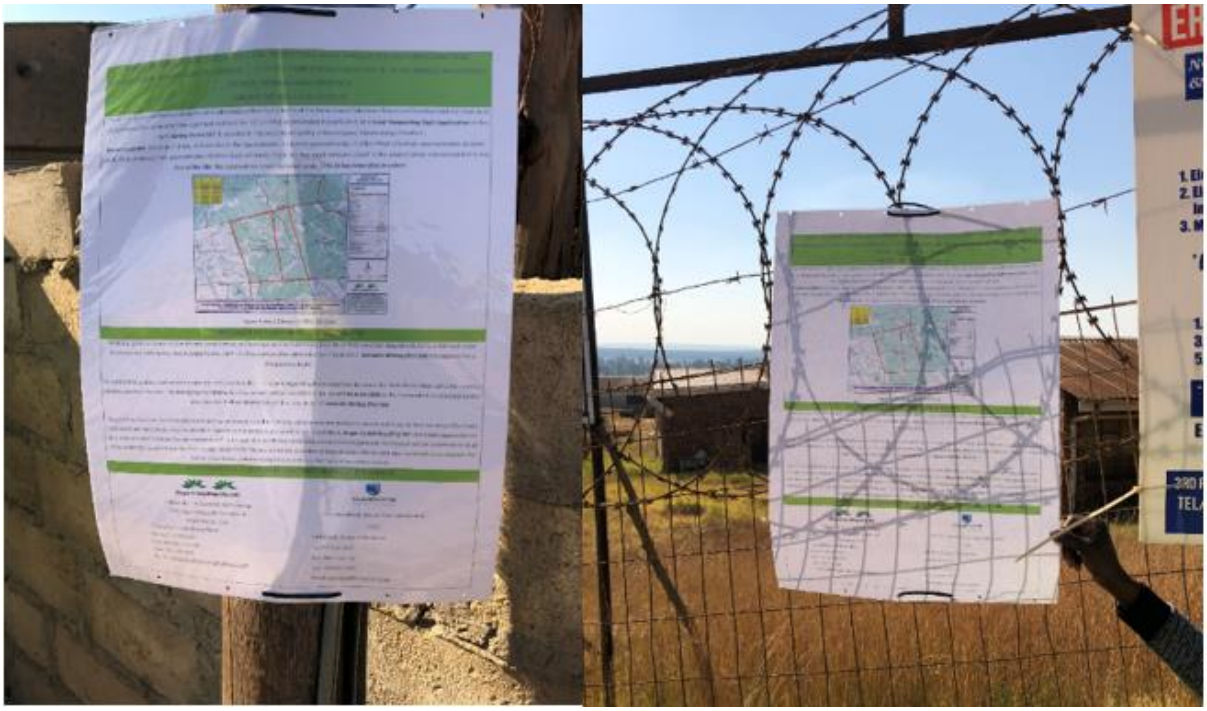
	Hazardous Waste	Safety and aesthetic/ visual aspects of the property, as well as waste disposal practices.	Construction/ set-up & Operation	• Any hazardous waste that may be generated should be separated from general waste and stored in clearly marked and properly sealed secondary containers. • Any hazardous waste generated should be disposed of accordance with the Hazardous Chemical Substances Regulations, 1995 (Regulation 15).	National Waste Act
	Spills and	Safety and	Construction/ set-up	Any equipment that is leaking should be temporarily	National
ACTIVITY (Whether listed or not listed). (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.).	**POTENTIAL IMPACT** (Including the potential impacts for cumulative impacts) (E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc.)	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated (E.g. Construction, commissioning, operational, Decommissioning, closure, post-closure)	**MITIGATION TYPE** (modify, remedy, control, or stop) Through (E.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.) (E.g. Modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation)	**STANDARD TO BE ACHIEVED** (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
	Leaks	aesthetic/ visual aspects of the property, as well as waste disposal practices.	& Operation	decommissioned and removed from the construction site, to a surface with an impermeable surface and wastewater collection system. Spill response kits must be readily available and accessible to all personnel on site.	Waste Act

	PPE			Ensure that all persons on site use Personal Protective Equipment (PPE) at all times, this including safety boots, safety vests, protective masks etc.	Employment Act
	Illegal Fires			Ensure that no fires are ignited on site unless required for construction purposes, in which case the EC should designate areas for the fires. The designated areas should be as far as possible from vegetation.	NEMA
	Erosion	The properties of the receiving environment, and ensuring that the ground is not susceptible to	Construction/ set-up & Operation	• Ensure that erosion management and sediment controls are strictly implemented from the beginning of site clearing activities. • All topsoil stockpiles (if any) must be protected against wind, erosion and seeds, i.e. by use of shade cloth or netting. • Topsoil stockpiles should not exceed 2 meters in height.	NEMA
ACTIVITY (Whether listed or not listed). (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.).	**POTENTIAL IMPACT** (Including the potential impacts for cumulative impacts) (E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc…)	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated (E.g. Construction, commissioning, operational, Decommissioning, closure, post-closure)	**MITIGATION TYPE** (modify, remedy, control, or stop) Through (E.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.) (E.g. Modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation)	**STANDARD TO BE ACHIEVED** (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.

		erosion beyond that which can be rehabilitated.			
EXPLORATION					

APPENDIX 5:*SITE PICTURES*

APPENDIX 6:*PROOF OF THE PLACEMENT OF SITE NOTICES*



***APPENDIX 7**:CURRICULUM VITAE OF AN EAP MANAGER*

NDINANNYI KENNETH SINGO

Singo Consulting (Pty) Ltd

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Tel No.: 072-081-6682/078-2727-839
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E-mail address: kenneth@singoconsulting.co.za

TERTIARY EDUCATION

Qualification	:	**Ph.D.** (Geology, Applied Environmental Mineralogy & Geochemistry)
Institution	:	University of Johannesburg
Year Obtained	:	Results issued, graduation date to be confirmed.
PhD Project Title	:	In Search of the Possible Economic Potential, through Conceptual Study, on Reclamation of Defunct Mine Residue areas for Development Purposes: Case study of Musina Copper Mine, Giyani Louis Moore Gold Mine and Zwigodini Nyala Magnesite Mine, South Africa
Qualification	:	**M.Sc.** (Environmental Management)
Institution	:	University of South Africa
Year Obtained	:	2013
Masters Project Title	:	An Assessment of Heavy Metal Pollution in the Vicinity of the Defunct Copper Mine Dumps in Musina, South Africa
Qualification	:	**B.Sc.** (Hons) Mining & Environmental Geology
Institution	:	University of Venda
Year Obtained	:	2008
Honours Project Title	:	Structural Control on Kimberlite Pipes: A Case Study of Venetia Kimberlite Pipe-K19, Venetia Open Cast Diamond Mine, South Africa

WORK EXPERIENCE

Company	:	Singo Consulting
Position	:	Director/Principal Consultant
Duration	:	9 August 2012—TODATE
Key Focus Area	:	Environmental Projects

Technical work:

- Environmental Impact Assessment
- Environmental Management Plans
- Social and Community Development Plans
- Geological (Exploration, Resource Estimation and Competency Report)
- Hydrological and Hydrology (Surface and Groundwater Studies)
- Soil Science (Soil profiling, Modelling and Soil Chemistry)
- Environmental Control Office
- Geotechnical (Soil and Rock)
- Mining Feasibility Studies

TRAINING COURSES

- 17- 19 April 2012: GSSA Drilling Methods & Techniques in Resource Exploration

- 13-14 September 2012: GSSA Exploration Drill Site Safety
- 3 May 2013: SHE Representative Training
- 6-10 May 2013: Witwatersrand University, A3 SHE Risk Assessment Management
- 22 July 2013: AATCGS Geophysics 101: Basics of Geophysics and Its Application in Coal
- 31 July 2013: Mentorship Training
- 14 April 2014: A2 Safety for Managers
- 13 May - 26 June: Lump Ore Beneficiation (Basic Coal Preparation): Metallurgy G101-105, Colliery Training College, Witbank
- 14-17 July 2014: Safety Leadership Programme
- 6-8 Oct 2014: Understanding Coal Quality, ALS Witbank Training
- 3-7 Nov 2014: Foundation for Leadership Programme
- 3 Feb 2015: 4X4 Defensive Driving Training
- 1 May 2015: Assertiveness Awareness and Training
- 21-22 July 2016: Time Management Training

SYMPOSIUMS

- 29 July 2013: **Presenter:** 4th Prof Humphrey Memorial Post-Graduate Symposium, University of South Africa
- 11 November 2015: **Presenter:** Wits GSSA REI Colloquium: Economic Potential and Viability of reclaiming mine dumps in the Limpopo Provice.

CONFERENCES

LIST OF CONFERENCE PROCEEDINGS AND SYMPOSIUMS:

- 26-28 November 2012: Aminergy Acid Mine Drainage South Africa Conference
- 10-12 March 2014: **Presenter**: SAICE 5th International Mining and Industrial Waste Management Conference
- 29 Sept-3 Oct 2014: 9th International Mine Closure Conference, Sandton
- 16-17 March 2015: Workshop: South Africa Mining-Related Landscape* Rehabilitation Status Quo: Identifying Work Required to Close Current Knowledge gaps, WRC, Pretoria.
- 8-11 Sept 2015: Land Rehabilitation Society of Southern Africa (**LaRSSA**): Mine rehab and biodiversity.
- N.K. Singo*, 2015. Wits GSSA REI Colloquium: Economic Potential and Viability of reclaiming mine dumps in the Limpopo Province. 11th November 2015, Witwatersrand University, Johannesburg, South Africa.
- N.K. Singo* and J.D. Kramers, 2016. Uranium as a potential health hazard as well as (even) an economic asset in the Louis Moore tailings dump, near Giyani, Limpopo Province. In symposium Proceedings; 6th Mintek Analytical Symposium "The Environment", Mintek G4, Randburg, Johannesburg, South Africa, Friday 21st October 2016.
- N.K. Singo* and J.D. Kramers, 2017. Chrysotile (white asbestos) occurrence in the Nyala Magnesite Mine dumps and the soils around them, and its health implications to the community of Zwigodini Village, Limpopo Province. 5th Annual Conference. 1-4 August 2017, Resilient Landscapes in a Changing Climate.
- N.K. Singo* and J.D. Kramers, 2017. Unlocking the potential economic benefit of a tailings dump through resource modelling and estimation: SHE (safety, health, and environmental) issues and solutions. MineSafe 2017 Conference, Striving for zero harm (driving excellence through compliance), Emperors Palace, Hotel Casino Convention Resort, Johannesburg, 30–31 August 2017, The Southern African Institute of Mining and Metallurgy (SAIMM).

List of publications:

- N.K. Singo, and J.D., Kramers, 2017. Geochemical and Mineralogical Characterization of two low grade stockpiles (mine residue deposits): acid mine drainage vs neutral-alkaline mine drainage perspectives. A case study of the Musina (Copper) and Nyala (Magnesium) mines, South Africa.
- N.K. Singo, and J.D., Kramers, 2017. Preferred tailings retreatment approach to unlock value and create environmental sustainability of the Louis Moore tailings dump, near Giyani, South Africa.
- N.K. Singo, and J.D., Kramers, 2017. Copper tailings retreatment to deliver economic value with concurrent rehabilitation at the Musina mine, South Africa.

List of Projects:

List of Projects conducted and successfully completed by your company in mining Permits and Right.

Client Name	Contract Start date (dd/mm/yyyy)	Contract End date (dd/mm/yyyy)	*Contact Person	Contact Person's phone number(s) and Email Address
Mashavane Quarry	03-02-2015	12-06-2018	Mr P Ngwenya	Pat.nawenya@gmail.com 072 914 3508
CoalX-Carolina	02-04-2018	Ongoing	Rian Telma	H Mduza bramduza@icloud.com Riaan CoalX riaan@coalx.co.za
CoalX-Balmoral	28-02-2018	Ongoing	Rian Telma	H Mduza bramduza@icloud.com Riaan CoalX <riaan@coalx.co.za>
Malahleni Mining	6-6-2018	Ongoing	Roelf Depreez	roelf_dupreez@yahoo.com 081 273 7785
New Venture Mining	23-4-2017	Ongoing	Mr. GB Simelane	076 246 3677 simelanegb@gmail.com, simelane@jaments.co.za
Veralli Mineral	1-8-2017	Ongoing	Mr. Rambauli TJ	jrambauli@yahoo.com 073 501 2819
Benicon Mining	1-10-2018	Ongoing	Mr Gavin Kotzen	gk@karoup.co.za 083 626 4555 017 647 1047

IAIAsa Secretariat
Tel +27(0)11 655 7183
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Email: operations@iaiasa.co.za
Website: www.iaiasa.co.za

IAIAsa Confirmation of Membership: 2018/2020
Kenneth Singo Membership Number: 6091

27 November 2018

TO WHOM IT MAY CONCERN

Mr Kenneth Singo, Singo Consulting (Pty) Ltd (IAIAsa membership Number 6091) is a paid-up full member in good standing of the South African Affiliate of the International Association for Impact Assessment and has been a member of IAIAsa since 1 March 2018.

This membership is valid from 1 March 2018 to 28 February 2020.

IAIAsa is a voluntary organisation and is not a statutory body regulating the profession. Its members are however expected to abide by the organisation's code of ethics which is available on our website.

Any enquiries regarding this membership may be directed to the Secretariat at the above contact details.

Yours Sincerely

Robyn Luyt
IAIAsa President 2018/2019

This Certifies that

Kenneth Singo

attended the

SAICE Geotechnical Division:

6th International Mining and Industrial Waste Management Conference

on 29, 30 & 31 October 2018

Legend Golf and Safari Resort, Limpopo

ECSA - SAICEgeo18/02443/18 (3 credits)

SACNASP

South African Council for Natural Scientific Professions

herewith certifies that

Ndinannyi Kenneth Singo

Registration Number: 400069/16

is registered as a

Professional Natural Scientist

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

Earth Science

Effective **9 March 2016** Expires **31 March 2020**

Chairperson

Chief Executive Officer

Scan this code to view online version of this certificate

UNISA
UNIVERSITY OF SOUTH AFRICA

We certify that

NDINANNYI KENNETH SINGO

having complied with the requirements of the Higher Education Act and the Institutional Statute, was admitted to the degree of

MASTER OF SCIENCE

in Environmental Management

at a congregation of the University

on 14 October 2013

Vice-Chancellor

University Registrar

Executive Dean

G05491

University of Venda

This is to Certify that the Degree of

Bachelor of Earth Sciences in Mining and Environmental Geology

was Awarded to

SINGO NDINANNYI KENNETH

at a Ceremony held on the

07-MAY-2009

in Accordance with the Provisions of the Act and Statute

Vice Chancellor

University Registrar

Dean