BASIC ASSESSMENT REPORT & ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

PROSPECTING RIGHT APPLICATION AND ENVIRONMENTAL AUTHORIZATION FOR CHROME, MANGANISE & NICKEL OF THE FARM ZANDFONTEIN 124 JQ, SITUATED UNDER THE MAGISTERIAL DISTRICT OF BONJANALA,

NORTH WEST PROVINCE.

Prepared for:

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North West

DMR Ref: NW 30/5/1/1/2/12711 PR

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DRAFT REPORT

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).

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FILE REFERENCE NUMBER SAMRAD: DMR Ref: NW 30/5/1/1/2/12711 PR

IMPORTANT NOTICE

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

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

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

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

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

OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

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

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

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

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

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

f) the degree to which these impacts—

- can be reversed;
- may cause irreplaceable loss of resources; and
- can be managed, avoided or mitigated;

g) 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

- identify and motivate a preferred site, activity and technology alternative;
- identify suitable measures to manage, avoid or mitigate identified impacts; and identify residual risks that need to be managed and monitored.

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PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

Contact person and correspondence address

a) Details of the EAP

Name of the Practitioner	: Singo Consulting (Pty) Ltd Mr Livhuwani Sigwadi
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Fax	: +27 86 5144 103
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b) Expertise of the EAP

Please refer to Annexure B for the EAP's qualifications and Curriculum Vitae.

Location of the overall activity

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

TABLE 1: LOCATION OF THE PROSPECTING AREA

Application Area (ha)	700.54
Magisterial District	Bojanala
Distance and direction from nearest town	The project area is located approximately 39.4 km north-east of Rustenburg, approximately 7,5 km north-east of Tantanana and approximately 19.1 km south of Bojating.

TABLE 2: PROPERTY DETAILS

Farm Name & Number	Farm Portion	SG Code (s)
Farm ZANDFONTEIN 124 JQ	All Portions	T0JQ00000000012400000

Locality Map

(Show nearest town, scale not smaller than 1:250,000)

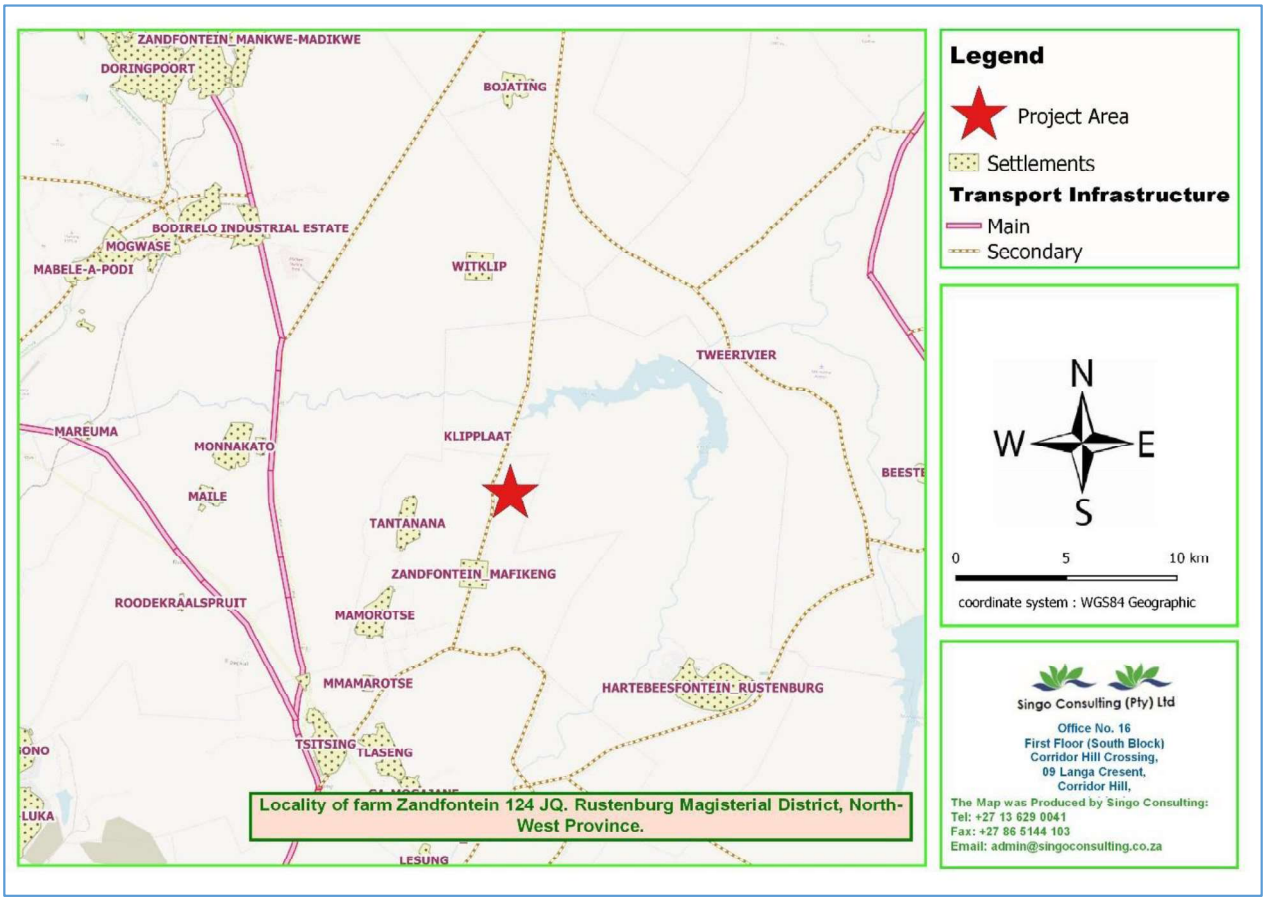

FIGURE 1: LOCALITY OF PROPOSED SITE PROJECT

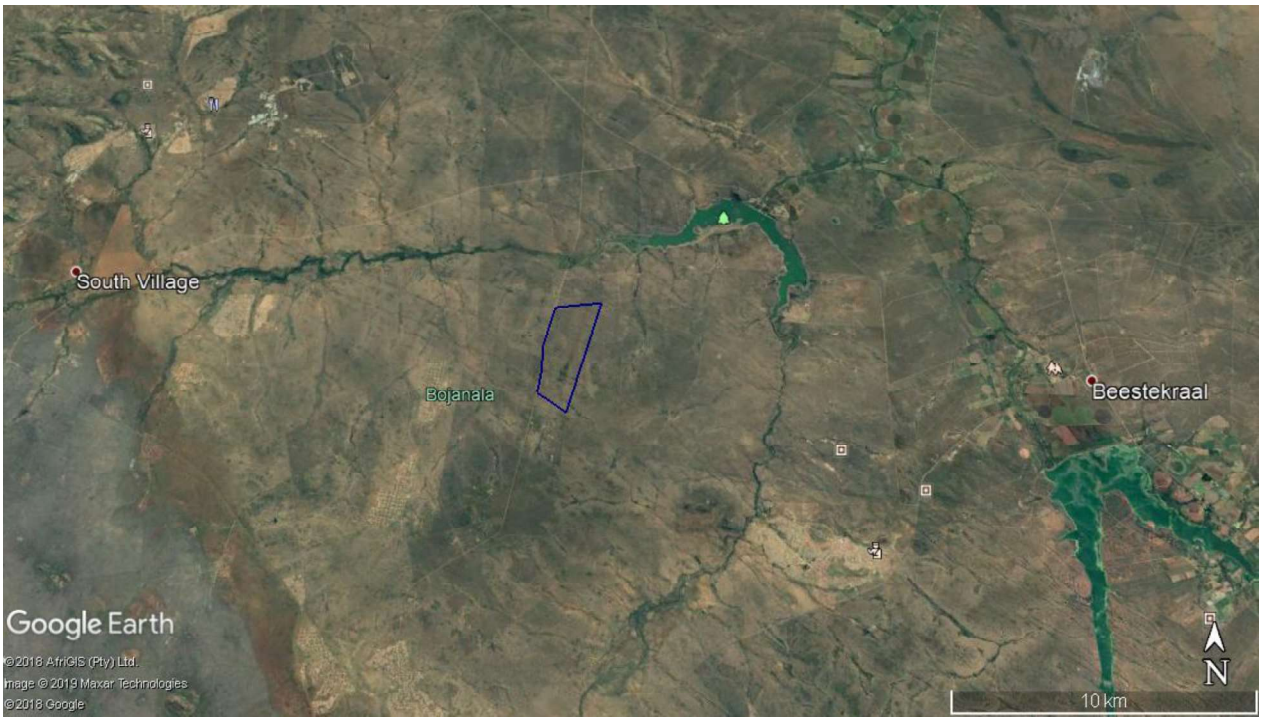

FIGURE 2: GOOGLE EARTH IMAGE OF PROPOSED AREA

Farm Zandfontein 124 JQ (applied area) is located on the North East of the Tantanana village and Vaalkop dam is located on the Eastern side of the project. The nearest village is located approximately 4km from the project. The project is situated approximately 30 km Eastern side of Sun City and approximately 37km from the Rustenburg town.

Description of the scope of the proposed overall activity

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

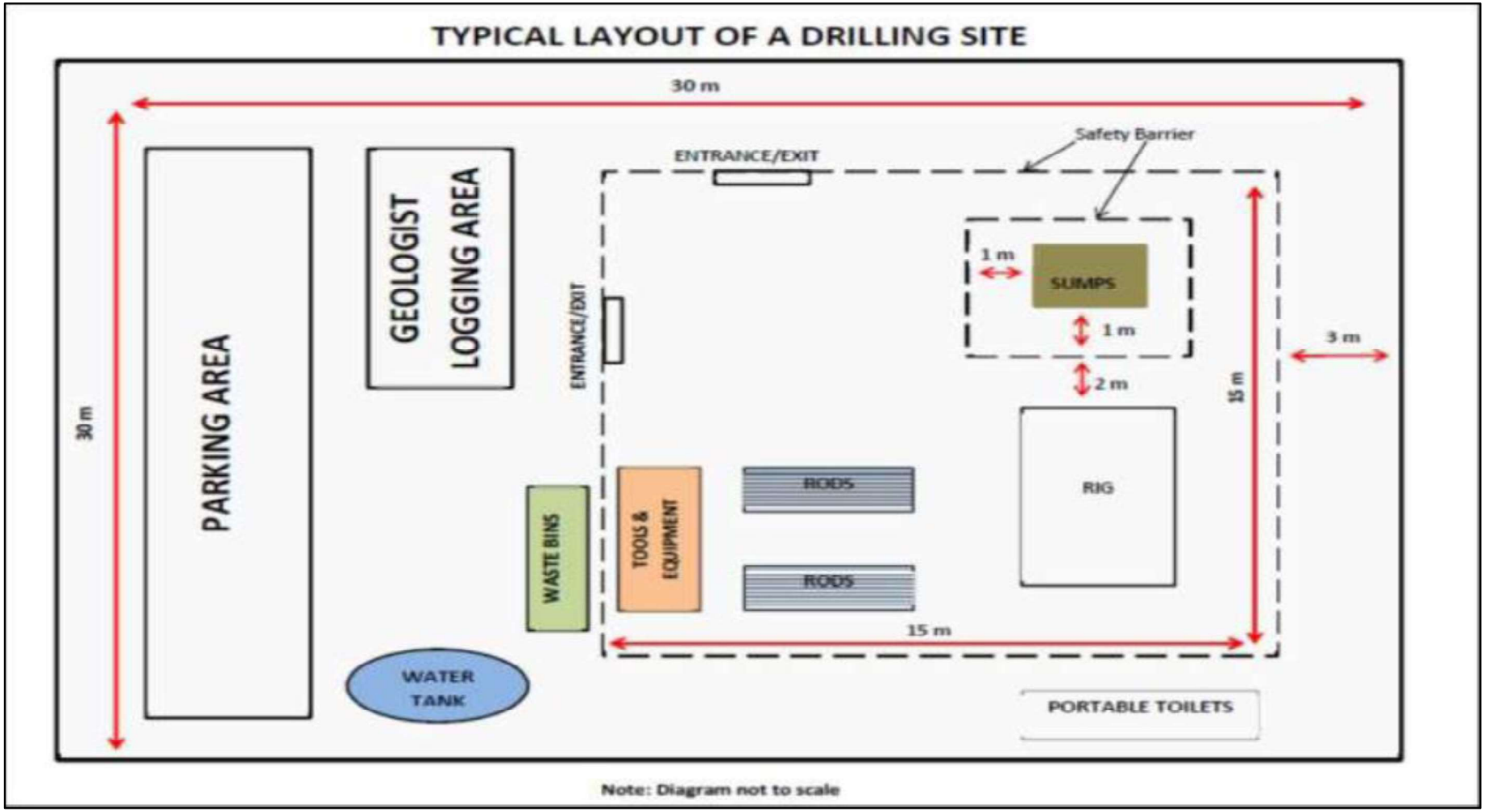

FIGURE 3: TYPICAL DRILLING ACTIVITY LAYOUT

The area's detailed geology and the potential of Manganese, Chrome & Nickel is well-known. As such, exploration work will commence from a very advanced level. The Prospecting Work Programme (PWP) was designed in phases, each phase conditional on the success of the previous phase. These phases include:

Phase 1: Data acquisition and a desktop study

A desktop study of all available data for the area was undertaken to accumulate as much regional and historical data around the area as possible. This include published geological reports, infrastructure mapping, satellite imagery and existing geophysical information. Many sources have been used to consolidate this report.

Phase 2: Drilling

Targets that have been prioritised through detailed desktop studies will be tested by initial diamond or percussion drilling. Should the initial evaluation of the deposit indicate a sufficient size and grade, bulk sampling may be required. In this event, the PWP has already covered this activity and current Environmental Authorisation Process does not include bulk sampling. Due to the steepness of the applied area the proposed boreholes will be more less as expected. Should bulk sampling required then an amendment of the EA Authorisation will be applied. The activities associated with the PWP will be scheduled over a period of five years, as detailed in the following table.

TABLE 3: PROSPECTING TIMEFRAMES AND ACTIVITIES

Phase	Activity	Skills	Timeframe	Outcome	Outcome timeframe
1	Acquire historical geological/ exploration data over area applied for and surrounds	Geologist	6 months	• Compile data • Refine exploration strategy	6 months
2	Drilling (10 boreholes)	Geologist	6 months	Drilling to test for applied minerals.	6 months
3	Drilling (10 boreholes based on phase 1 drilling results)	Geologist	30 months	• Assess what further work is warranted. • Amend PWP	24 months
4	Analytic stage EIA and Mining Right Application (MRA)	Geologist, Environmentalist	30 months	• Feasibility studies • Resource statements	24 months

As is clear from the information provided in Table 3, each of the phases is dependent on the results of the preceding phase. The location and extent of drill sites and possible diamond drilling cannot be determined at this stage and, as such, mapping of the prospecting activities could not be undertaken. In the subsequent sections (Part B) 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 finalised, to at least all landowners, as well as the DMR and the Department of Water and Sanitation (DWS).

Listed and specified activities

Section 16 of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act No.28 of 2002) requires, upon request by the Minister, that an Environmental Management Plan (EMP) be submitted and that the applicant must notify and consult with Interested and Affected Parties (I&APs). Section 24 of the National Environmental Management Act (NEMA) requires that activities, which may impact the environment, be authorised by 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 the NEMA. The proposed prospecting activity triggers the following:

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 hectares or more, but less than 20 hectares of indigenous vegetation…"

Please refer to Table 4 for the details in terms of the listed activities.

TABLE 4: PROSPECTING TIMEFRAMES AND ACTIVITIES

NAME OF ACTIVITY **(E.g. For prospecting -** drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route **etc. E.g. for mining**, excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.)	**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 Establishment of ten (10) drilling sites. The drilling method to be coring. The demarcated working area per site is 900 m2 (900 m2 per drilling site based on a 30m x 30m grid) The total area to be disturbed per site is 900m2 (900 m2 X 10 boreholes = 9000 m² or 0.9 Ha for all ten sites) Therefore 0.9 ha of 16727.3506ha will be affected in the process of drilling	0.9 ha / 700.54ha	**X**	GNR 327 Listing Notice 1, Activity 20.	Not required
Vegetation clearing	0.9 ha		Not Listed	
Site camp	600 m²		Not Listed	
Drilling	0.42 ha		Not Listed	
Equipment storage	50 m²		Not Listed	
Site offices	40 m²		Not Listed	
Ablution facilities	30 m²		Not Listed	
Sample storage	40 m²		Not Listed	

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 PWP and the fact that the specific prospecting activities depend 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

Site access will be required during hole pegging and drilling activities (Phase 2 and 3). Access requirements can only be determined after Phase 1 has been concluded. A number of existing roads and tracks already traverse the proposed prospecting site and, where practicable, these roads will be used. During pegging activities, vehicles will access the site through the veld. Establishing 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 accessed via existing roads and tracks. The proposed area has multiple of access roads that can be used.

Water supply

The prospecting activity will involve drilling of boreholes and air flush drilling is preferred by the applicant. This signifies that no water resource will be used for the purpose of drilling purpose however, water requirements relates to the potable water supply for employees and workers. A temporary 260 L on-site vertical water storage tank (for drinking water and general use by persons) will be provided at the drill site.

FIGURE 4: EXAMPLE OF WATER STORAGE TANK

Ablution

On-site ablution facilities will include the installation of drum/tank-type portable toilets. This will be done because the prospecting activity is temporal for limited duration hence portable toilets is preferred. Mobile portable toilets will be of less impact on the environment and will be movable to the area of less impact.

FIGURE 5: PORTABLE TOILETS THAT WILL BE ADOPTED

Temporary office area

A TEMPORARY SITE OFFICE SHADED AREA WILL NOT BE ERECTED AT THE DRILL SITES. NO ON-SITE ELECTRICITY WILL BE GENERATED BY GENERATORS. MEALS WILL BE PROVIDED TO STAFF AND WORKERS AS NO HEATING AND/OR COLD STORAGE FACILITIES WILL BE AVAILABLE. A SHADED EATING AREA WILL BE PROVIDED.

FIGURE 6: TEMPORARY SITE TENT TO BE USED

Accommodation

No accommodation for staff and workers will be provided on-site; all persons will be accommodated in nearby villages. Workers will be transported to and from the prospecting site on a daily basis. Night security staff will be employed once equipment has been established on site.

Blasting

There will be drilling, no trenching and 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 goods 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 as possible. This includes published geological reports, infrastructure mapping, satellite imagery and existing geophysical information.

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 programme will be undertaken in order to delineate and give a preliminary assessment of the Manganese, Nickel, Chrome potential of the identified deposit. Should delineation and initial evaluation of the deposit indicate a sufficient size and grade to warrant further evaluation, an appropriate bulk sampling programme will be undertaken in order to establish grade and confirm its viability for mining.

FIGURE 7: DRILLING SETTING AND EQUIPMENT

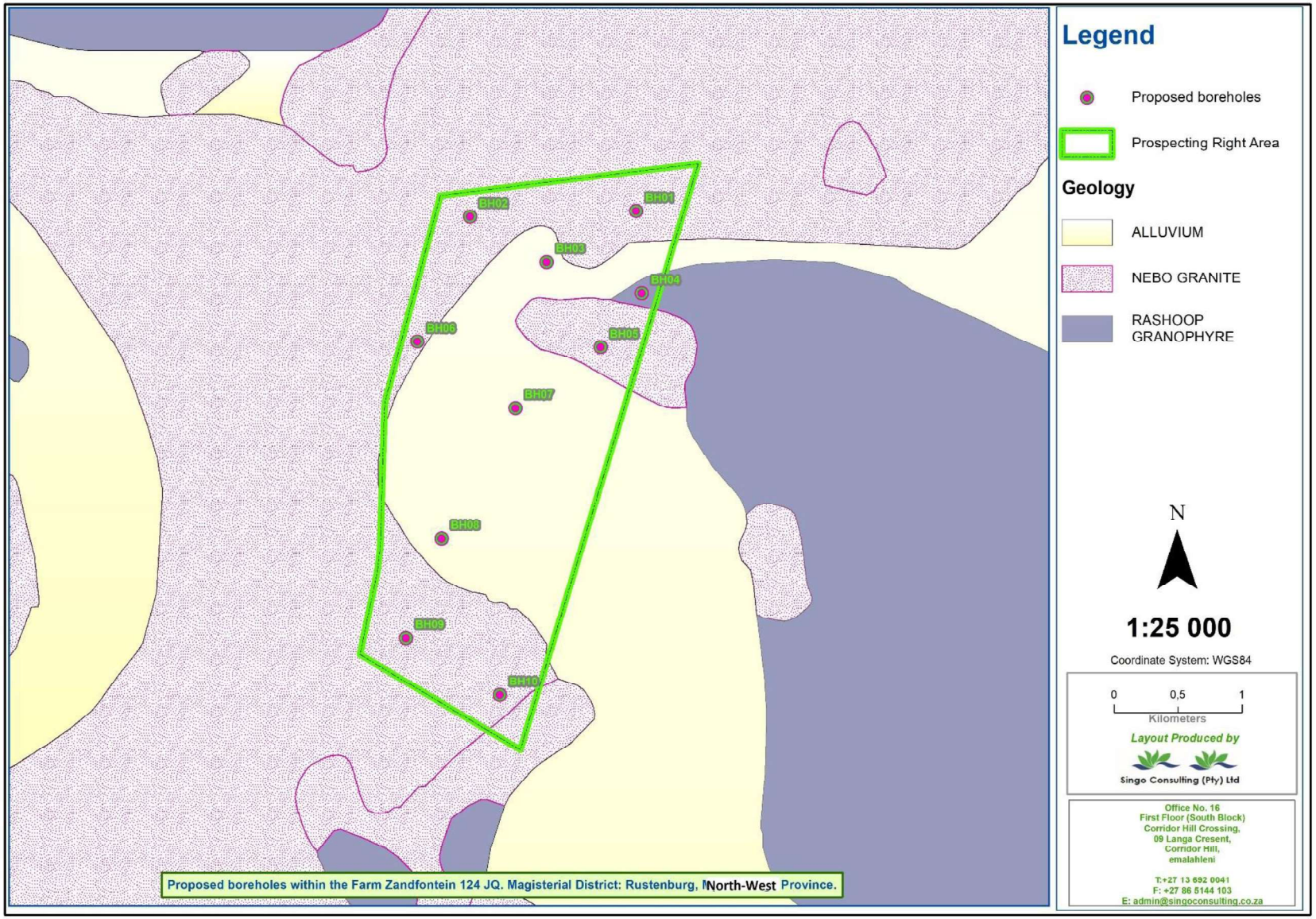

FIGURE 8: GEOLOGICAL MAP SHOWS THE NUMBER OF PLANNED BOREHOLES

Policy and legislative context

Applicable legislation and guidelines used to compile the report	Reference where applied	Development's compliance with and response to the policy and legislative context
Specific Environmental Management Acts (SEMAs)		
National legislation		
National Environmental Management Act (NEMA), 1998	This Basic Assessment Report and Environmental Management Plan	An Application for Environmental Authorization was submitted to the North West DMR and the application was acknowledged.
National Water Act (NWA), 1998	Groundwater abstraction as part of drilling activities	As per Government Notices Regulation 399, the applicant may abstract 75m^3 of groundwater per ha per annum from the A22F and A22J Quaternary Catchments. This use will be generally authorized. The proposed drilling method won't hamper with National Water Act (NWA), 1998.
Mineral and Petroleum Resources Development Act (MPRDA), 2002	Application for prospecting as per Section 16	The applicant submitted a Prospecting Right Application to the DMR.
Municipal plans		
Commission on Restitution of Land Rights	Land claims	One of the key issues identified by the Commission on Restitution of Land Rights is the need to facilitate the land claims process. The request for a Land Claim Letter was e-mailed to Keabetswe Mothupi on the 13th of November 2019. Feedback was then received on the 14th of November 2019 as the acknowledgement receipt, no land claim lodged against the area of the proposed project, see Appendix C.
Strategic Development Framework (SDF)	Alternatives	As per the Rustenburg's plan, various strategies and policies must be adopted to ensure effective spatial development. As per Section 5.1 of the SDF, the municipality must provide alternative means of support to the rural population to decrease dependence on the environment and subsistence agriculture. As such, the following policies have been adopted: Maximize economic benefit from mining industrial, business, agricultural and tourism development within the area. Promote a climate for economic development. Improve public and investor confidence in the region through crime reduction and infrastructure development. The municipality was consulted so that the prospecting activity won't hamper with municipality`s development plans.
CARA (Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	Alternatives	The conservation of soil, water resources and vegetation is promoted. Management plans to eradicate weeds

		and invader plants must be established to benefit the integrity of indigenous life. The prospecting activity ensure that disturbance to the environment is minimal and rehabilitation of the disturbed land is done.

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.

Prospecting activities do not offer many tangible benefits as it is the initial phase of mining. Prospecting precedes mining; however, it is during the prospecting phase that findings are established on whether the available reserves can be mined at an economic gain. It is understood that the mining plays a pivotal role in South African economy and boast a large labour force; hence a greater significance is placed on prospecting for realization of mining benefits.

Although prospecting activities are not labour intensive, few people will be hired to assist with general activities. The services required can also be sourced locally depending on their availability thus growing the economy of Rustenburg. With the existence of different mines located near the prospecting area collaboratively with the geological information, the area has the potential of the Chrome, Manganese and Nickel resources.

Motivation for the overall preferred site, activities and technology alternative

Preferred site

As previously mentioned, Niche Mining Resources 247 (Pty) Ltd applied for prospecting right over the area in question. Based on the outcomes of the competitor study, the likelihood of encountering further Manganese, Chrome & Nickel reserves was identified. The site is therefore considered the preferred site; alternative sites were not considered.

The site falls under the Rustenburg Layered Suite of the Bushveld Complex which contains mainly mafic rocks and is divided into a number of different zones. The marginal zone is found around the edge of the intrusion, while from the base of the complex up is the Lower Zone, the Critical Zone, the Main Zone and lastly the Upper Zone.

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 (EIA) will be required (in accordance with legislation), which will determine alternative land to mining. The technologies proposed have been chosen based on the long-term success of the company's prospecting history. The prospecting activities proposed in the PWP depends on the preceding phase, 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 PWP. All infrastructure will be temporary and/or mobile.

Description of process followed to reach proposed preferred alternatives within the site

This section is about the determination of the specific site layout and the location of infrastructure and activities on site, having considered the issues raised by interested and affected parties (I&Aps) and the consideration of alternatives to the proposed site layout.

All drill sites were located after careful investigation of environmental sensitiveness of the project area hence all drill sites are located out of environmental critical areas. All environmental sensitive areas within the prospecting site will regarded as no-go areas and this will maintain the status of the area.

Details of the development footprint alternatives considered

With reference to the site plan provided as Appendix A 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
- Type of activity to be undertaken
- Design or layout of the activity
- Technology to be used in the activity
- Operational aspects of the activity
- Option of not implementing the activity

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

Niche Mining Resources 247 (Pty) Ltd applied for Manganese, Chrome & Nickel resource prospecting on Zandfontein 124 JQ, situated under the Magisterial District of Bojanala, North West province based on the existing knowledge of the geology of the area and knowledge of nature of occurrences of Manganese, Chrome & Nickel deposits in the area.

The site has been identified based on the knowledge of the above-mentioned deposits and such, no site alternatives have been considered for the proposed activities. However, the following buffers will be applied to the final site selection:

- No drill site will be positioned within 50m of a structure (i.e. for wetland-within 500m radius, 100m away from a stream/river).
- Existing access roads will be utilized to access the drill sites.

The type of activity to be undertaken

The technologies proposed have been chosen based on the long-term success of the company's prospecting history. The prospecting activities proposed in the PWP depends on the preceding

phase, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

The design or layout of the activity

The preferred site layout is considered to ensure that break areas and ablution facilities are located away from the drilling activities to minimize the noise impacts. Site establishment are done with closure in mind to ensure that only the required size is disturbed. Due to the location of the proposed drilling (nearby village will be used for accommodation), no camp site will be required. The drilling contractor may arrange accommodation within the farm with the farm owner or may look to the nearest lodge around area of project.

The technology to be used in the activity

The method and techniques employed for the investigation of potential targets and deposits are suitable for the proposed prospecting activities. They have been selected based on their minimal invasiveness which is envisaged to have minimal impact on the receiving environment.

The operational aspects of the activity

Due to the nature of the prospecting activities, no permanent water supply, electricity, or sewerage facilities are required. The activities will commence with a desktop study, which will comprise a literature search. This approach will ensure that the client clearly delineates areas suitable for further investigation and prevent unnecessary surface disturbance.

Based on the outcomes of the desktop study, drilling and sampling of the above mentioned minerals will be undertaken for target areas only. Drilling and sampling are a low-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 they relate 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. Impacts associated with the drilling operations will be managed through the implementation of a management plan, developed as part of the application for authorisation.

The option of not implementing the activity

Drilling is required to investigate the potential and feasibility of the resources as well as being used to generate a DMR compliant mineral resource statement. There is no potential for any future investment in a mine without the confirmation of the mineral resources which can only be obtained from drilling activities. Should the prospecting right be refused, effectively a potential Manganese, Chrome & Nickel resource development will be sterilized. The socio-economic benefit and most notably the future employment potential of mine development will also be lost if the prospecting

activities are not implemented to determine the feasibility of the above-mentioned deposit that occurs within the area.

Details of the public participation process followed

Describe the process undertaken to consult I&APs, including public meetings and one-on-one consultation. 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 I&APs

The Draft Basic Assessment Report will be submitted for comment to the competent authority, commenting authorities, non-governmental organizations (NGOs), landowners, surrounding property owners and other identified stakeholders for review (see Table 5 for a list of identified stakeholders). Comments received will be recorded and will reflected in the Final Basic Assessment Report.

(Please refer to Appendix C for the detailed public participation process and the Consultation Report). The following public participation has been conducted for the proposed project to date:

- Identification of stakeholders, including occupiers of the property, owners and occupiers of land adjacent to the site, municipal officials and relevant State Departments as part of the Public Participation Process. All respondents are placed on the project database. The database was used throughout the process to inform the stakeholders of the project.

Methodology of notification

To canvass the issues and concerns of the broader public and to ensure that all IAPs are afforded the opportunity to comment on the application, the proposed project was announced as follows:

- Erection of site notices, (size A3) advertising the proposed development and displaying the contact details of the EAP was prepared and displayed on-site and other public places. The site notices serve the purpose of informing potential I&APs of the project and therefore afford them the opportunity to comment.
- Distribution of the notification letter with a registration and comment sheet, and the locality map to state departments and other potential stakeholders through emails.
- An advert was placed in the *Platinum Weekly Newspaper on the 01st of November 2019* to notify the public about the Basic Assessment process, invite members of the public to register as I&APs on the project's database and notify the public of the availability of the Draft Basic Assessment Report.

Land claims

An email of consultation for land claims was sent to the department on the 13th of November 2019. On the 14th of November 2019 Singo consulting receive acknowledgement letter for our request says a formal response could be expected from our office within the next seven working days.

Traditional authorities

No traditional authority was identified.

Municipalities

The project is located in the Magisterial District of Bojanala, under Rustenburg Local Municipality, North West province. The consultation emails sent to the municipality about the project, and BID was also sent.

Landowner and notification methodology

The landowner involved governmental farmer falls under North West Parks Board, which is used for conservation, declared as protected area. Singo Consulting (Pty) Ltd obtained the details for landowner from the comment form received from North West Parks Board on the 24th of November 2019 via email. Advert were placed in the Platinum weekly Newspaper on 01st of November 2019 (see Figure below)

Platinum Mark 2019's MADHATTER FUN RUN

Rustenburg – A madhatter fun run will be hosted for the first time this year at the Platinum Mark.

Runners will start at 8:00 on Saturday 23 November at the Gereformeerde Kerk Rustenburg Wes on the corner of Klopper and Zand Street. Your entry will include a fun and adventurous route, water stations along the route, a goody bag for the first 100 runners to complete their runs and loads of family fun afterwards.

There will be an 8km run with an entry fee of R60, 4km run for R40 and 2km run for R20.

The church premises will open at 7:00.

Also available at the event is a kiosk with delicious breakfast and drinks as well as 160 stalls with unique décor, gifts, food and much more.

For more information, contact the event organisers Bertie on 079 560 8357 and Samantha on 082 495 2191. Join us for this family run and add a little colour and a whole lot of fun for everyone.

JOINT NOTICE OF PUBLIC PARTCIPATION FOR PROSPECTING RIGHT AND ENVIRONMENTAL AUTHORIZATION APPLICATIONS

Notice of the Prospecting Right Applications Process as per the Minerals and Petroleum Resources Development Act (Act 28 of 2002) for the purpose of prospecting Manganese, Chrome & Nickel resources in North West Province.

COMPANY	DMR REFERENCE	FARM NAME, PORTION & District	EAP	EAPs Contact details
Niche Mining resources 247 (Pty) Ltd	NW 30/5/1/1/2/ 12709 PR	All portions of the farm Zandfontein 124 JQ, under the Magisterial District of Rustenburg, North West Province	1	Livhuwani Sigwadi 013 692 0041/ 076 6529 062 livhuwani@ singoconsulting.co.za
Niche Mining resources 247 (Pty) Ltd	NW /5/1/1/2/ 12711 PR.	Farm In-Die-Kom 345 JQ, Situated under the Magisterial District of Bojanala, North West Province	1	Livhuwani Sigwadi 013 692 0041/ 076 6529 062 livhuwani@ singoconsulting.co.za
Niche Mining resources 247 (Pty) Ltd	NW 30/5/1/1/2/ 12713 PR	All Portions of the farm Zilkaatsnek 439 JQ, in the Magisterial District of Brits, North-West Province	2	Takalani Rakuambo 013 692 0041/ 082 767 4011 takalani@singoconsulting.co.za
Niche Mining resources 247 (Pty) Ltd	NW 30/5/1/1/2/ 12712 PR	Portions 01 & 02 of the Farm Vaalboschlaagte 117 JP	2	Takalani Rakuambo 013 692 0041/ 082 767 4011 takalani@singoconsulting.co.za
Niche Mining resources 247 (Pty) Ltd	NW 30/5/1/1/2/ 12710 PR	RE of portion 1, RE of portion 2, portions 3,4,5 and RE of the Farm Tweekoppiesfontein 143 KP	3	Rudzani Shonisani 078 548 1244/ 013 692 0041 rudzani@singoconsulting.co.za

Registration as Interested & Affected Party: In terms of Regulations 42 & 43 of the EIA Regulations published in Government Notice No. 326 of 07 April 2017, the public is invited to register as interested and affected parties (I&APs); express interest, comment and participate in the Public Participation Process (PPP) respectively within 30-calendar days of publishing of this notices, until the **02nd of December 2019.**

DBAR & EMPR Review: The draft EMPr reports will be available for review for a 30 days calendar period from Monday, the **02nd of December 2019** to Wednesday the **22 January 2020**. The reports will be available on request, via email from the respective EAPs.

ENVIRONMENTAL ASSESSMENT PRACTITIONER

Singo Consulting (Pty) Ltd

Office No. 16, First Floor, Corridor Hill Crossing, 09 Langa Crescent, Corridor Hill, eMalahleni,1035.
Tel No: +27 13 6920 041 | **Fax No:** +27 86 5144 103 | **Email:** admin@singoconsulting.co.za

APPLICANT

Niche Mining Resources 247 (Pty) Ltd
South Downs Business Park
Cnr John Voster and Nelmapius Street, Centurion, Pretoria, Gauteng, 0046.
Cell: 063 156 7794 | **Email:** mlozis@nichemining.co.za

SHUTTERBUGS SNAP AWAY

Rustenburg – The Rustenburg Photographic Society is a passionate and informative group of photographers. Their aim is to create and maintain an active and developing photographic community.

The club creates a platform where shutterbugs can gain knowledge and develop their skills. Members have the opportunity to share their work not only locally, but also internationally.

During their monthly meeting on Wednesday 16 October, the monthly winners were announced:

- Senior open category - Simon Fletcher with *Forest Falls*.
- Junior open category - Ilana Vrey with *I C U*.

The society meets every third Wednesday of every month at the NG Proteapark at 18:30. For more information contact club chairperson Simon Fletcher on 082 371 9867 or vice chairperson Ronel Broderick on 082 451 2999.

Forest Falls by Simon Fletcher

I C U by Ilana Vrey

KEEP SAFE WHEN USING PARAFFIN

Rustenburg – From Wednesday 16 October to Monday 21 October, Engen rolled out its KlevaKidz campaign to 10 schools in the North West province as part of an initiative to raise awareness among learners about the importance of paraffin safety.

Engen KlevaKidz is an educational campaign that uses industrial theatre to engage and educate young learners across South Africa about the importance of paraffin safety.

It provides children with the tools and know-how to deal with paraffin emergencies, storage and handling.

Over the past ten years, the safety campaign has reached over 280,000 learners in 700 schools across South Africa. Through interactive, fun and educational stage drama, learners are taught how to use paraffin safely.

In the dramas, superhero safety educator 'Mr Wise' is the main character who educates young learners about how to identify and use paraffin safely while interacting with 'Bongi' and 'Junior'.

Learners from Nthebe, Machama, Segankwana and other primary schools in Rustenburg were given life-saving safety messages during the campaign.

Unathi Magida, Engen's head of transformation and stakeholder engagement, said: "The use of paraffin in low-income homes in South Africa is associated with a number of problems such as children who drink it accidentally or the spread of a fire."

Mr Wise explains the steps involved in paraffin safety.

Hi-Q THE 1 YOU CAN TRUST

SUPER SATURDAY BASH AT HI-Q RUSTENBURG

Hi-Q Rustenburg's dedicated team.

Hard at work.

Kids had a ball!

Rustenburg – Shorty's Tyres hosted a Super Saturday Bash with loads of specials and entertainment on Saturday 26 October at Hi-Q Rustenburg.

Vehicle owners who had their wheel alignment done, changed their tyres or bought mags, had a chance to pop a balloon with special prizes.

Customers enjoyed delicious snack while the little ones played on the jumping castle and had their faces painted.

FIGURE 9: PROOF OF NEWSPAPER

- A copy of the Draft Basic Assessment Report will be available for public review for a 30-day review period from Monday, the 02nd of December 2019 to Wednesday the 22 January 2020.
- All comments received during the review period of the draft Basic Assessment as well as responses provided have been captured and recorded within the Comments and Response Report in Appendix C.
- Once DMR has decided on Environmental Authorization, all registered I&APs will be notified of the outcome of the application.

The following have been identified as I&APs:

TABLE 5: IDENTIFIED LANDOWNER

Printed: 2019/10/04 12:04

windeed
A LexisNexis® Product

Deeds Office Property

ZANDFONTEIN, 124, 0 (REMAINING EXTENT) (PRETORIA)

GENERAL INFORMATION

Deeds Office	PRETORIA
Date Requested	2019/10/04 12:04
Information Source	DEEDS OFFICE
Reference	-

PROPERTY INFORMATION

Property Type	FARM
Farm Name	ZANDFONTEIN
Farm Number	124
Portion Number	0 (REMAINING EXTENT)
Local Authority	PERI URBAN
Registration Division	JQ
Province	NORTH WEST
Diagram Deed	DB155/4
Extent	971.9054H
Previous Description	LG24/67
LPI Code	T0JQ00000000012400000

OWNER INFORMATION

Owner 1 of 1

Company Type	UNKNOWN
Name	** FOR INFO REFER TO REGISTRAR OF DEEDS **
Registration Number	
Title Deed	
Registration Date	-
Purchase Price (R)	-
Purchase Date	-
Share	
Microfilm Reference	
Multiple Properties	NO
Multiple Owners	NO

ENDORSEMENTS (3)

#	Document	Institution	Amount (R)	Microfilm
1	CONS-PTN9,124,JQ	-	UNKNOWN	
2	JQ,124	-	UNKNOWN	1987 0782 1217
3	VORIGE GROOTTE-1197,	8443H	UNKNOWN	

HISTORIC DOCUMENTS (1)

#	Document	Owner	Amount (R)	Microfilm
1	T32493/1981	SA ONTWIKKELINGSTRUST	UNKNOWN	1988 0007 1511

DISCLAIMER

Summary of issues raised by I&APs

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

TABLE 6: ISSUES RAISED BY STAKEHOLDERS

I&APs List the names of persons consulted in this column. Mark with an X where those who must be consulted were in fact consulted.		Date comments received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference In this report where issues and/or responses were incorporated
Affected parties					
Landowner/s					
North West Parks Board Acting head: Conservation Peter Nel **E: hpnel@inweb.co.za** **T: 083 6548 415** **Phuti Mahloko** **E: phuti@nwpb.org.za** **T: 081 362 6401**	**X**	24/11/2019	The proposed project is falls within buffers of a protected area Detailed comment will be directed to your office once all specialist studies and draft reports have been submitted	A draft report will be send to you once it is ready	See Appendix D for full consultation
Adjacent Landowner/s	**X**				
Rupert Horley E: ruperthorley@icloud.com	**X**	16/112019	Vaalkopdam Nature Reserve declared as protected area as in terms of the Nature Environmental Management: Protected Areas Act, No 57 of 2003" includes Zandfontein 124 JQ.	Thank you for your information regarding the affected farm, your information will assist us during recommendation	See Appendix D for full consultation

Mziki Private Nature Reserve Pelham Jones E: pelham@vibe.co.za T: 082 299 3161	**X**	15/11/2019 20/11/2019	Kindly register Mziki private nature reserve You have been advised that this is a Protected Area per NW Gazette Notice and accordingly you cannot proceed Do you still require my registration?	Mziki private nature reserve has registered as I&AP if you have more information regarding the project please feel free to complete that comment form and send back to me	See Appendix D for full consultation
Municipality					
Bojanala District Municipality info@bojanala.gov.za Tsholofelod@bojanala.gov.za pogisos@bojanala.gov.za	**X**	28/10/2019			See Appendix D for full consultation
Organs of State (Responsible for infrastructure that may be affected. Roads Department, DWS, Eskom, etc.)					
Department of water and sanitation					
Ramashala L Email: RamashalaL@dws.gov.za	**X**				See Appendix D for full consultation.
Cadace Enoch Tel: 012 336 7193 Email: EnochC@dws.gov.za	**x**				See Appendix D for full consultation
Theunissen Cornia Email: theunissenc@dws.gov.za	**x**				See Appendix D for full consultation
Nemutandani T Environmental officer Tell: 082 896 8222	**x**	06/11/2019	Comment received from the depart with the details of Nemutandani T as an Environmental Officer	Interested and affected party registration confirmation email has been sent and notification of the draft review date	See Appendix D for full consultation

Email: nemutendanit@dws.gov.za					
Pieter Ackerman (PrLArch) Chief Landscape Architect (DWS), South Africa Sub Directorate Instream Water Use Tel: 012 336 8217 Cell: 082 807 3512 Fax: 012 336 6608 E: AckermanP@dws.gov.za	X	04/11/2019	Herewith our standard checklist for Section 21 c and i water uses Regards	The checklist standard received from the department will be considered during compiling this report	See Appendix D for full consultation
Eskom					
Wayleaves E: WayleavesNWOU@eskom.co.za E: TshidziDM@eskom.co.za	X	13/11/2019			See Appendix D for full consultation.
Transnet					
					See Appendix D for full consultation.
Local Municipality					
Rustenburg local Municipality **Kelebogile Makgole** **Environmental assessment officer** **Tell: 014 590 3185** **Cell: 072 5825 9460** **www.rustenburg.gov.za** **Kmkgoe@rustenburg.gov.za**	X	19/11/2019	The Unit: IEM I will comment on the draft basic assessment report and EMPr when it is ready	Thank you for responding on this proposed project, the draft basic assessment report and EMPr will be sent to you when its ready	See Appendix D for full consultation.
Department of Land Affairs					
Lengane Bogatsu lengane.bogatsu@drdlr.gov.za	X	25/11/2019	The applied land/farm at this stage confirmed that no land claim lodged against the farm	Noted, the results will use to update this report	See Appendix D for full consultation.

Keabetswe Mothupi keabetswe.mothupi@drdlr.gov.za					
Traditional leaders					
No traditional leaders					See Appendix D for full consultation.
Department of Environmental Affairs					
Munzhedzi S E: smunzhedzi@environment.gov.za	**X**				See Appendix D for full consultation
Other Interested & Affected parties					
John Power E: john.safaris@gmail.com T:076 198 2502	**X**	25/11/2019	Being a protected area is the main reason for objection to this, as prospecting opens to mining directly - am sure many other suitable places for such.	After all studies relating to the proposed project with all comments from affected parties then the recommendation will be done	See Appendix D for full consultation.
Klipplaat 77JQ Portion 20 Sello Maboe E: sello.maboe@gmail.com T: 0824178833	**X**	02/12/2019	The farm Zandfontein 124 JQ, to the best of my knowledge, lies in a protected area. We are also concerned about the impact of mining operations on farming operations, and hence food security, to which the local farmers contribute significantly through mainly their livestock enterprises.	Kindly note that we are very appreciate your information regarding the affected farm and adjacent farms. Since we know that the farm is declared as protected area, we will consider all steps need to be followed and recommend knowing that the proposed farm is protected land	See Appendix D for full consultation.
Belinda Cooper Co ordinator - Magaliesberg Biosphere E: hello@magaliesbergbiosphere.org.za T: 0832366978 www.magaliesbergbiosphere.org.za	**X**	02/12/2019	These properties are variously protected areas Please register the Magaliesberg Biosphere as an interested and affected party for both applications	Magaliesberg have been registered as I&AP of this project	See Appendix D for full consultation.

Name: Gary Surname : Watkins Company : Not applicable / private individual Designation : Not applicable / private individual Address : L37 Bodley Road Laezonia Centurion Tel No. : 082 416 7712 Fax No. : 086 689 7862 E-mail : gary@workinfo.com Cell No. : 082 416 7712	**X**	15/11/2019	Kindly register the writer as I&AP of the proposed project	Kindly note that you are registered as I&AP of this project	See Appendix D for full consultation.
David AJ Starley Phone: + 27 (0)14 533 1967 Cell: + 27 (0)83 604 0642	**X**	21/11/2019	The public participation process had been not followed correctly in order to ensure that all the relevant IAPs have been given an opportunity to comment. Please advise as to how, where and when the public participation process initiated and where the document submitted Please supply me with scoping report and other documentation pertinent the project	The proposed project has been advertised on the local newspaper and A2 notices placed along the boundary of the proposed and adjacent farms. Other public participation documents dropped to the Rustenburg local municipality. Only draft EMPr will be made available to you once is ready	See Appendix D for full consultation.

Concluding remarks on stakeholder consultation

The main issue that was raised by stakeholders and I&Aps is that the applied land in North West Provincial Gazette dated 21st February 2017,Volume 260, No 7734, Mankezi Tlhape, Member of the Executive Council responsible for Rural, Environment and Agricultural Development, declared Vaalkop dam a Nature Reserve. The schedule of the "Declaration of Properties as Vaalkop dam Nature Reserve in terms of the Nature Environmental Management : Protected Areas Act, No 57 of 2003" includes Zandfontein 124 JQ. Therefore these conclude that no land declared as protected area should be modified into other land use not relating to conservation purpose. In this phase the proposed land will not out rule the current land use but only prospecting activities will be implemented.

The environmental attributes associated with the alternatives

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

Niche Mining Resources Pty Ltd applied for Prospecting Right over the area of interest in the close vicinity of the Vaalkop dam Nature Reserve and private nature reserves. Based on the outcomes of that study, the possibility of encountering further Manganese, Chrome and Nickel reserves was identified on the properties and is subject to this Prospecting Right Application.

The company applied for prospecting on the properties as discussed in this report to determine the presence of Manganese, Chrome and Nickel, whether they are feasible and justify further studies towards a Mining Right. No alternatives are available that will have an impact on a different setting than the environment discussion provided in the following.

Baseline environment

Type of environment affected by the proposed activity

Current geographical, physical, biological, socio- economic, and cultural character.

Topography

Topographically, the North West Province is indicated to have one of the most uniform terrains of all the provinces within South Africa. The topography of the eastern region is more variable than that of the southern and western regions.

The topographical map of the proposed area is depicted as Figure 9 and the topography of the area is generally flat, consisting of grasslands with few trees and shrubs providing ideal game spotting conditions.

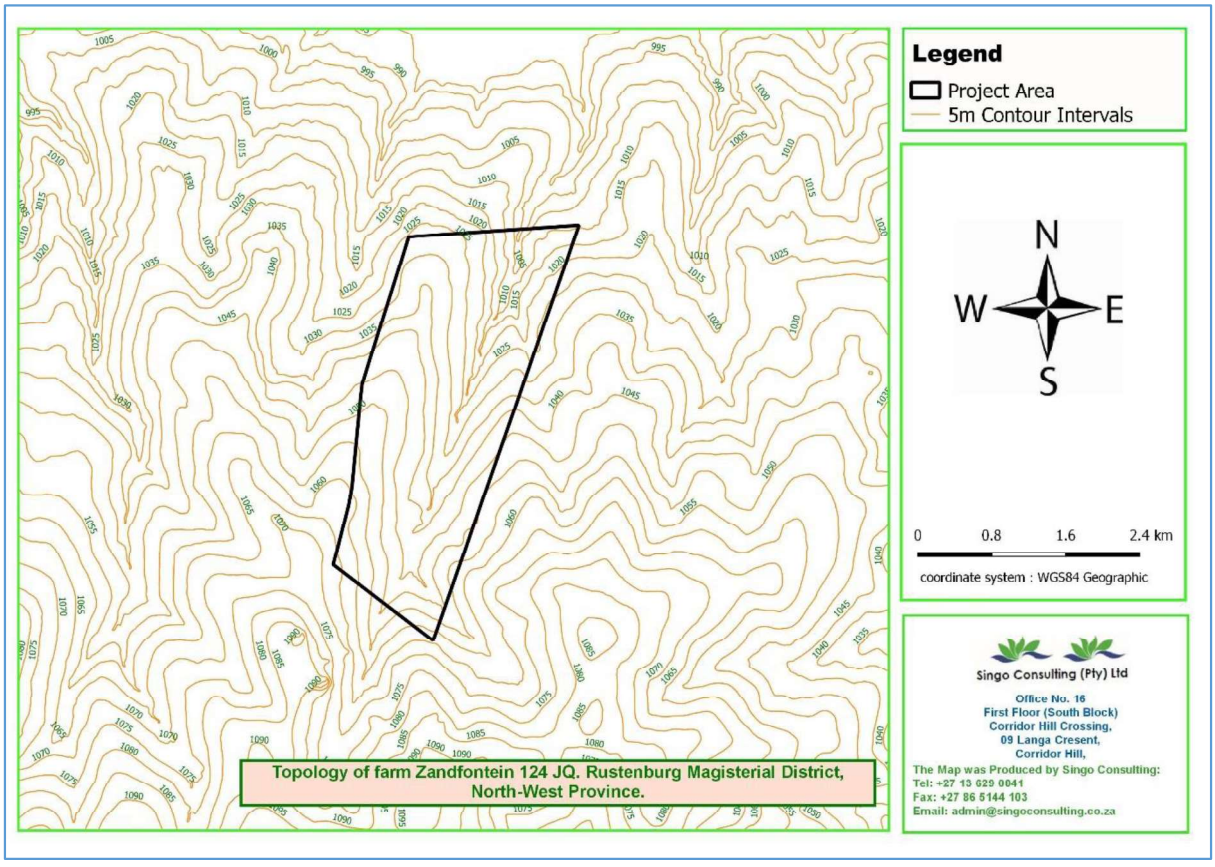

FIGURE 10: TOPOGRAPHICAL MAP OF THE PROPOSED PROJECT SITES

Climate

Climate is basically the statistics of weather conditions over long periods of time. It entails patterns of; temperature, humidity, wind, precipitation, atmospheric particle count in a region over long periods of time. The study area displays warm summers and cold winters typical of the North West climate.

The region is characteristic of quintessential Africa and forms part of the southern Kalahari Desert. The summer months (from August to March) bring brief but refreshing afternoon thundershowers. The area has an above average rainfall of 300 to 700 mm annually. Summer temperatures range between 22 and 34°C and winter brings with it dry, sunny days and chilly nights.

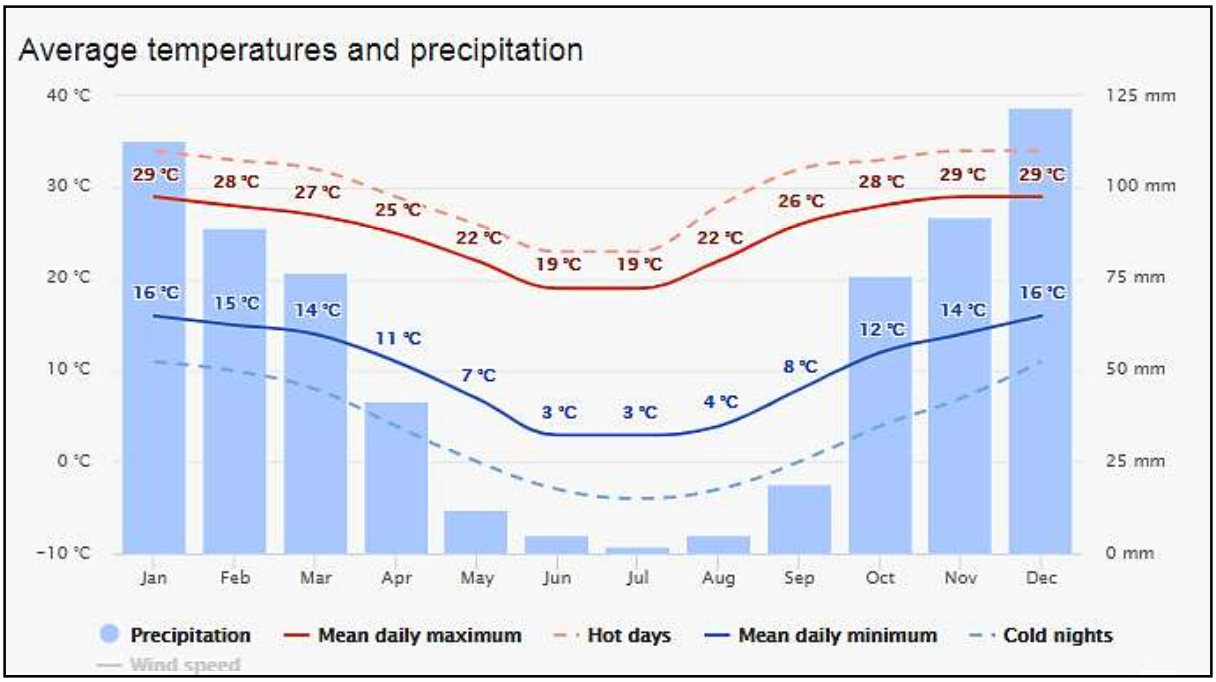

FIGURE 11: AVERAGE TEMPERATURES AND PRECIPITATION OF THE PROJECT AREA.

The "mean daily maximum" (sold red line) shows the maximum temperature of an average day for every month for Rustenbuerg. Likewise, "mean daily mininmum" (solid blue lie) shows the average minimum temperature. Hot days and cold night (dashed red and blue lines) show the average of the hottest day and coldest night of each month of the last 30 years.

Geology

The site falls under the Western limb of the Bushveld complex. The Eastern and Western Limbs are nearly identical in appearance, the major difference being that the Western Limb is underlain mostly by quartzite and the Eastern Limb by shale. The mineralisation is associated with the Critical Zone rock. The Merensky Reef and UG Reef host the platinum group mineralisation, whereas the lower group and middle group chromite seams are generally developed for ferrochrome production. The main zone rocks are also sourced as dimension stone. The granite rocks are host to fluorite deposits.

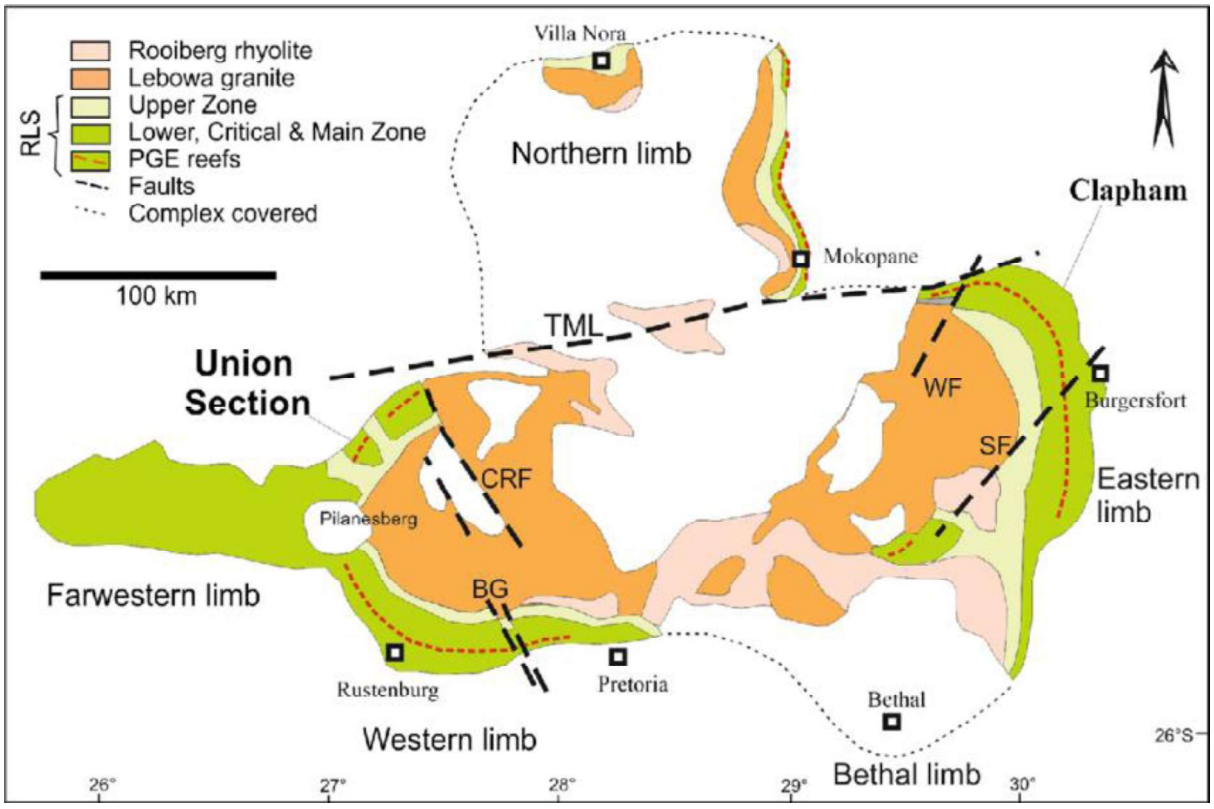

FIGURE 12: GEOLOGICAL MAP OF THE BUSHVELD COMPLEX, TOGETHER WITH THE LIMBS.

The Bushveld complex was formed during a magnificent event. A series of surges led to the emplacement of magma on the surface as a result of alternating stress and pressure conditions in the earth's crust. Lava was forced into the interior of the southern African subcontinent, with the lava flow continuously fed from a central volcanic pipe. The lava crystallized and gave rise to different layers, which have been classified as the Bushveld Complex.

The Bushveld Complex Geology

The Bushveld Complex, found in the northern part of South Africa, is the world's largest layered intrusion. The complex plays host to over half of the worlds platinum, chromium, vanadium and refractory minerals. The complex is early Proterozoic in age and consists of three large suites of intrusive rocks, occupying a total surface area of approximately 65,000km2, and is known for its enormous concentrations of magmatic ores, a variety of pegmatitic and hydrothermal deposits, as well as industrial mineral deposits formed by the metamorphism of the floor rocks of the Complex (Caincross and Dixon, 1995).

The four lithological units of the Bushveld Complex are:

- Rustenburg Layered Suite
- Rashoop Granophyre Suite
- Lebowa Granite Suite, and

- Rooiberg Group

The fourth suite, the Rooiberg Group of acid and basic volcanic rocks, was previously allocated to the Transvaal Supergroup (SACS,1980), but is now accepted to be an intergral part of the Bushveld Complex (Schweitzer *et al.,* 1995a, b).

- **Rustenburg Layered Suite**

The Rustenburg Layered Suite contains mainly mafic rocks and is divided into a number of different zones. The marginal zone is found around the edge of the intrusion, while from the base of the complex up is the Lower Zone, the Critical Zone, the Main Zone and lastly the Upper Zone.

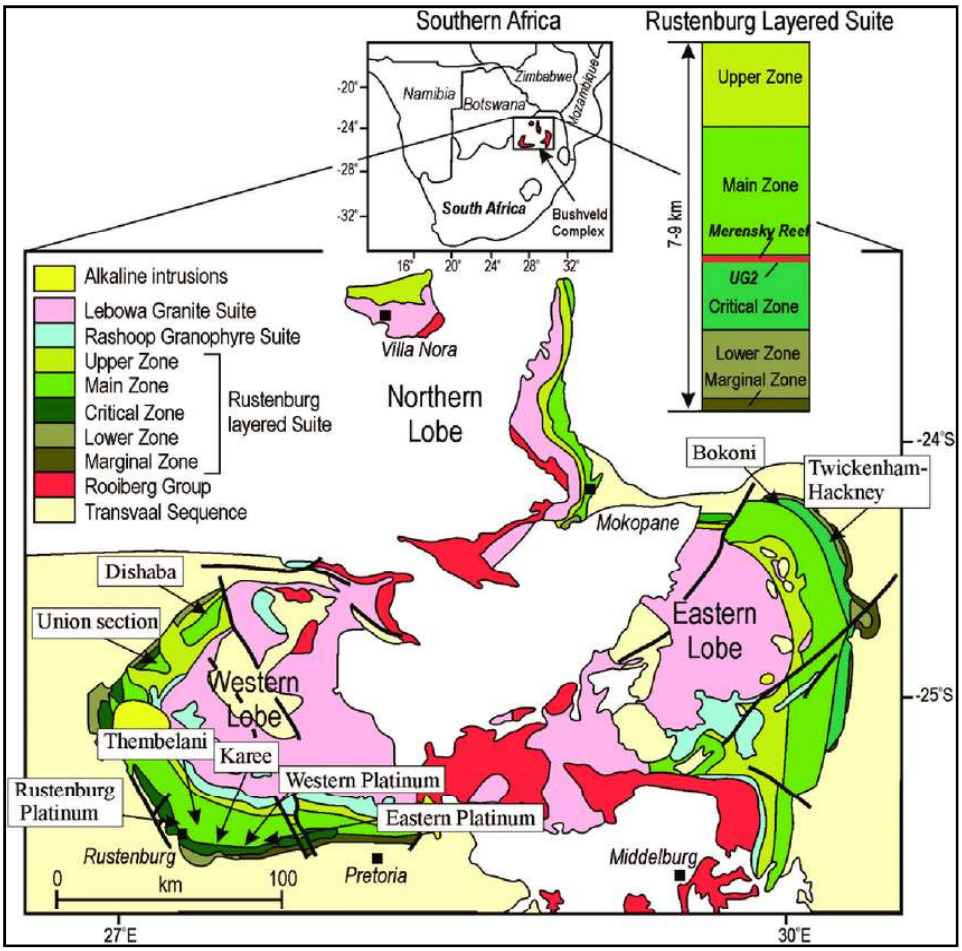

FIGURE 13: THE RUSTENBURG LAYERED SUITE

- **Rashoop Granophyre Suite**

The Rashoop Granophyre Suite of the Bushveld Complex is subdivided by Walraven (1987a) into three different types.

- Stavoren Granophyre

This granophyre is present throughout the Bushveld Complex and predates the basic rocks and granites of the Complex (Walraven, 1985). It is magmatic in origin and cogenetic with Rooiberg Group volcanics. It consists of medium to fine-grained rocks composed of K-feldspar, plagioclase and quartz together with hornblende, minor biotite and accessory iron oxide and zircon. It is characterised by micrographic intergrowths of quartz and feldspar. It includes sedimentary xenoliths where roof rocks are sedimentary, and spherulitic zones where they consist of Rooiberg Group volcanics (Hall, 1932, Walraven, 1985). The Stavoren Granophyre is well developed on the northern end of the Stavoren Fragment just off the northern boundary of the present study area.

- Diepkloof Granophyre

This is texturally similar to the Stavoren Granophyre and restricted to the eastern part of the Bushveld Complex underlying volcanic rocks of Rooiberg Group (Walraven, 1985). It is cogenetic with granodioritic rocks present in similar geologic settings elsewhere in the Bushveld Complex and is presumed to have formed by the melting of volcanic roof rocks as a result of intrusion of basic rocks of the complex. It has the same age as the basic rocks (Walraven, 1985).

- Zwartbank Pseudogranophyre

It is restricted to parts of the Bushveld Complex underlying the sedimentary rocks of Pretoria Group. It differs texturally from Stavoren and Diepkloof Granophyre and consists of intergrown quartz and feldspar indicative of replacement (Walraven, 1985). It is believed to have been formed by severe recrystallisation of sedimentary roof rocks as a result of intrusion of basic rocks of the Bushveld (De Waat, 1972, Walraven, 1985).

- **Lebowa Granite Suite**

It is restricted to parts of the Bushveld Complex underlying the sedimentary rocks of Pretoria Group. It differs texturally from Stavoren and Diepkloof Granophyre and consists of intergrown quartz and feldspar indicative of replacement (Walraven, 1985). It is believed to have been formed by severe recrystallisation of sedimentary roof rocks as a result of intrusion of basic rocks of the Bushveld (De Waat, 1972, Walraven, 1985).

The Nebo Granite forms a regional sill like intrusive of A-type granite (Kleeman and Twist. 1989; MacCaskie, 1983; McCarthy and Hasty, 1976; Hill *et al.,* 1996), It has an estimated thickness of some 2.5km (McCaskie, 1983). De Waal (1963), Snyman (1958) and Marlow (1976) described the main phase of this granite as *red* to grey in colour, coarse grained. Granular K-feldspar perthite, quartz and plagioclase are the major constituents, whereas hornblende, biotite and muscovite are minor constituents. Accessory minerals include

opaque minerals, zircon, rutile and fluorite. Local granophyric and aplitic varieties are developed.

- **Rooiberg Group**

These intercratonic volcanic rocks largely confined to the roof of the Bushveld Complex consist of nine magma types varying in composition from basalt to rhyolite (Hatton and Schweitzer, 1995). Basalts and andesites intercalated with dacites and rhyolites are found towards the base; rhyolite is the chief magma composition in the upper succession. According to Hatton and Schweitzer (1995), crustally contaminated plume magma synchronously intruded beneath the Rooiberg Group to produce the mafic rocks of the Rustenberg Layered Suite.

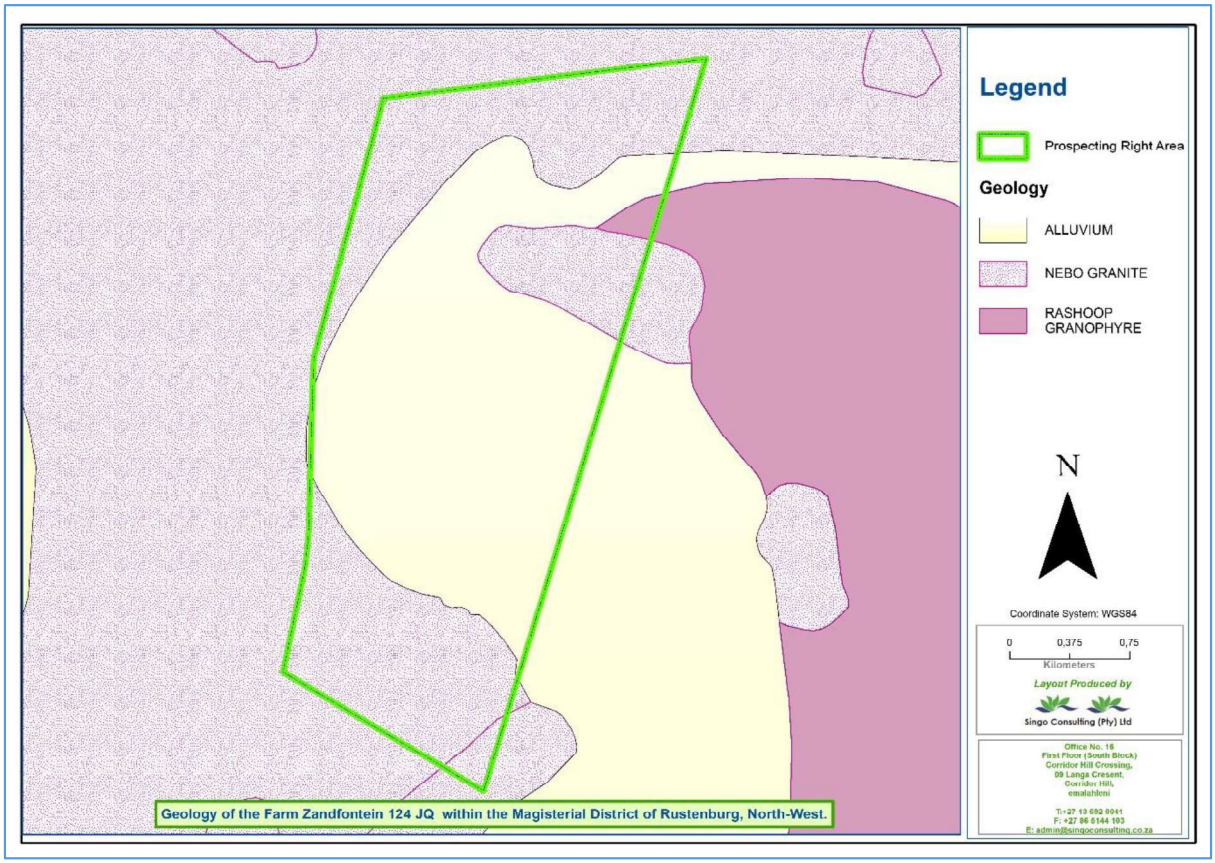

FIGURE 14: GEOLOGICAL MAP OF THE PROPOSED SITE

Bushveld Complex Platinum Group element (PGE) mineralization

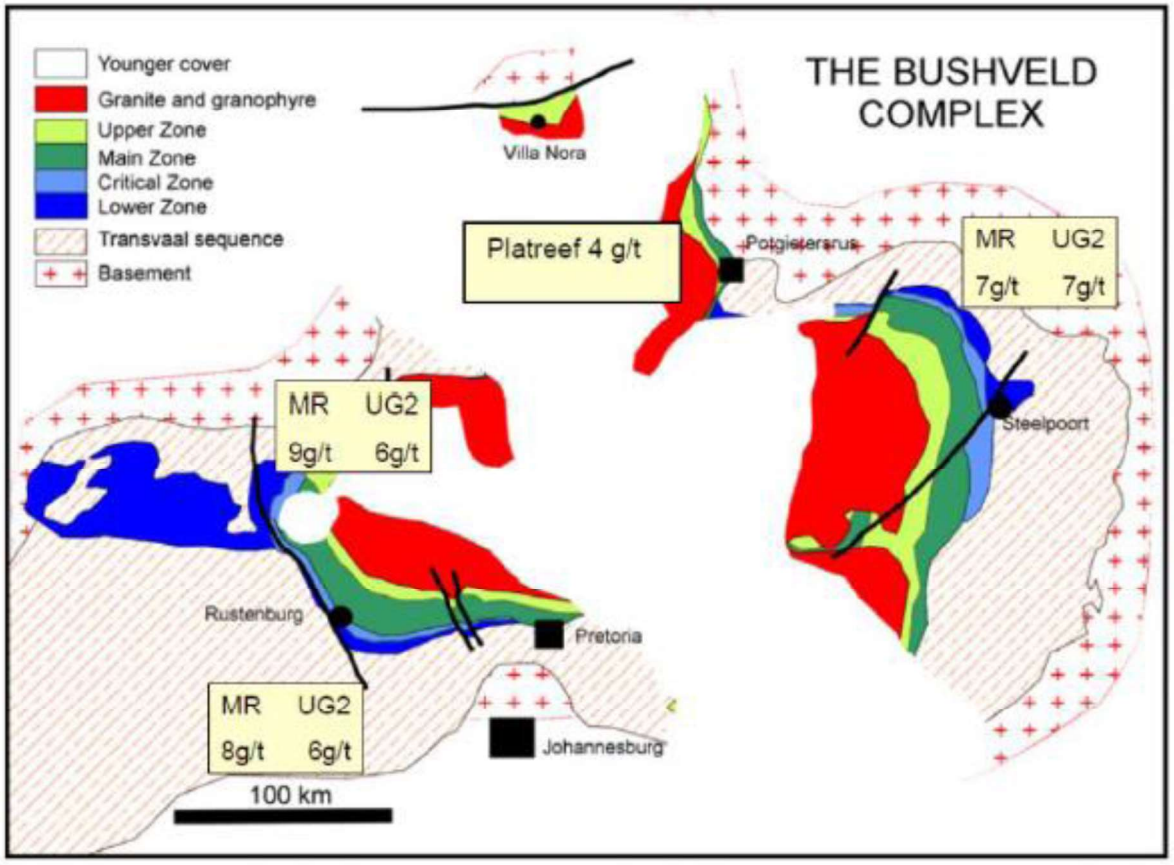

FIGURE 15: SIMPLIFIED MAP OF THE BUSHVELD COMPLEX SHOWING GENERALIZED PGE GRADES FOR THE MERENSKY REEF, UG2 CHROMITITE LAYER AND PLATREEF

- **Merensky Rief**

Although the Merensky Reef is generally regarded as a uniform reef type, large variations occur in reef thickness, reef composition, as well as the position of the mineralisation. The rock-forming minerals of the Merensky Reef comprise approximately equal amounts of dark iron-magnesium silicate minerals and lighter calcium-aluminium-sodium silicate minerals (called a feldspathic pyroxenite) under- and overlain by thin (5 to 15 mm) often discontinuous layers of chrornite concentrations.

The total thickness of this package is generally less than 30 cm. This zone, commonly known as the Merensky pegmatoid, contains the base metal sulfide grains and associated platinum group minerals.

The Merensky Reef has been traced for 300 km around the entire outcrop of the eastern and western limbs of the Bushveld Complex, and to depths of 5 km. The rock-forming silicate minerals of the Merensky Reef consist predominantly of orthopyroxene (~60 per cent), plagioclase feldspar (~ 20 per cent), pyroxene (~15 per cent), phlogopite *(~5* per cent), and occasional olivine.

Secondary minerals such as talc, serpentine, chlorite and magnetite have widespread occurrence. The base metal sulfides consist of pyrrhotite (~40 per cent), pentlandite (~30 per cent), chalcopyrite (~15 per cent), and trace amounts of millerite (NiS), troilite (FeS), pyrite (FeSJ, and cubanite (Cu2FeS4) T. he major platinum group minerals are cooperite (PtS), braggite [(Pt,Pd)NiS], sperrylite (PtAs2) and PGE alloys, although in some areas minerals such as laurite (RuS2) can be abundant.

- **The UG-2 Reef**

The UG-2 Reef is a platiniferous chromititc layer which, depending on the geographic location within the Complex, is developed some 20 to 400 metres below the better known Merensky Reef. The chromitite itself is usually 1 m thick but can vary from ~0.4 to up to 2.5 m. Thin chromitite seams (generally less than 20 cm in thickness) may be present in both the footwall and, more commonly, in the hanging wall rocks.

The UG-2 consists predominantly of chromite (60 to 90 per cent by volume) with lesser silicate minerals *(5* to 30 per cent pyroxene, and 1 to 10 percent plagioclase (2)). Other minerals, present in minor concentrations, can include the silicates: phlogopite and biotite, the oxides: ilmenite, rutile and magnetite, and base metal sulfides. Secondary minerals include quartz, serpentine and talc, see Table I. The Cr203, content of the UG-2 Reef varies from 30 to 35 per cent (the pure chromite mineral has an average Cr203 content of 44 per cent (12)).

Total PGE values vary from locality to locality, but on average range between 4 and *7* g ton-[1]. Figure 15 summaries the contribution of the individual PGE. The base metal distribution follows a similar trend to that of the PGE, with most of the values occurring in the bottom and top part of the reef. The base metal content of a typical UG-2 Reef is approximately 200 to 300 ppm nickel occurring as nickel sulfide and less than 200 ppm copper occurring as copper iron sulfide.

	Pt	Pd	Ru	Rh	Ir	Os	Pt:Pd
Western Bushveld	52	24	14	8	< 2	< 1	2.2
Eastern Bushveld	41	37	11	7	3	1	1.1

FIGURE 16: UG-2 DISTRIBUTION OF PGE IN THE BUSHVELD, PERCENTAGE, AND THE PLATINUM: PALLADIUM RATIO

The platinum group minerals present in the UG-2 Reef are highly variable, but generally the UG-2 is characterized by the presence of abundant PGE sulfides, comprising predominantly laurite (RuOsIr sulfide), cooperite (PtS), braggite (Pt, Pd, NiS), and an unnamed PtRhCuS. The platinum group minerals only reach an average size of approximately 12 µm, with particles larger than 30 µm being extremely rare. Most of the platinum group minerals occur in association with the base metal sulfides and silicates. It is only the mineral laurite which exhibits a preferred association with the chromite grains.

Both the grain size and associations are extremely important as these affect the metallurgical behaviour during subsequent processing. The major base metal sulfides constitute chalcopyrite, pentlandite and pyrrhotite. The base metal sulfides occur almost entirely within the interstitial silicate and are only very rarely enclosed within the chromite particles. The grain size of the base metal sulfides rarely exceeds 30 µm.

- **The Platreef**

In the northern limb of the Bushveld Complex, the Lower and the Critical Zones of the Bushveld are poorly developed. Where the Bushveld rocks are in contact with the floor rocks (that is the Archaean granite and sediments of the Transvaal Sequence), a unique type of mineralisation has developed, see Figure 16. This reef, known as the Platreef (13, 14) consists of a complex assemblage of pyroxenites, serpentinites and calc-silicates.

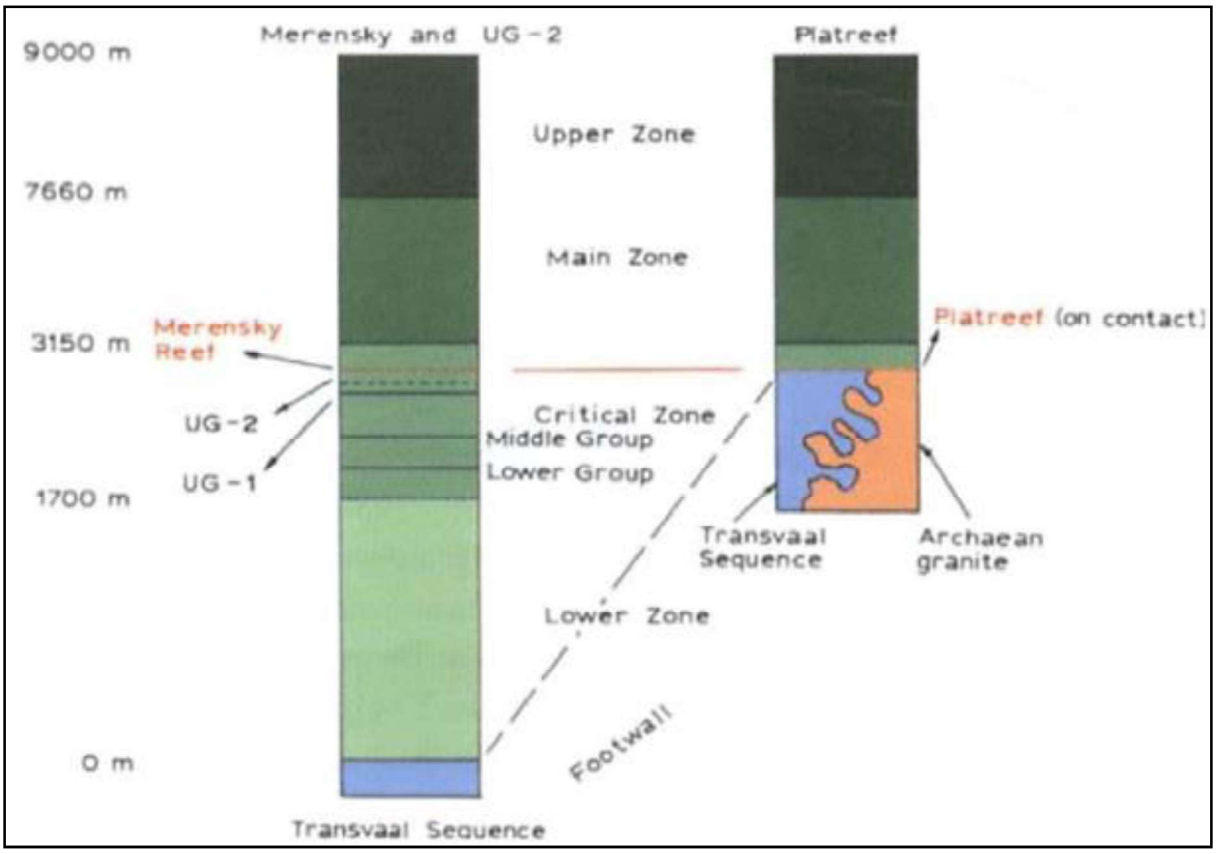

FIGURE 17: STRATIGRAPHIC COLUMN SHOWING THE POSITION OF THE UG-2 REEF RELATIVE TO THE MERENSKY REEF: THE PLATREEF IS INTERPRETED AS A MERENSKY EQUIVALENT (MODIFIED AFRER VERMAAK (2)).

The different nature of these rocks, compared to normal Merensky Reef, is the result of the hot Bushveld magma reacting with the lime-rich floor rocks. An exchange of heat and material between the magma and the floor rocks resulted in the formation of abundant lime-rich minerals (calc-silicates) as well as the serpentinisation of the overlying pyroxenites.

Base metal mineralisation and PGE concentrations are found to be highly irregular, both in value as well as in distribution. The mineralisation in places reaches a thickness of up to 40 metres. Although the major platinum group minerals consist of PGE tellurides, platinum arsenides and platinum sulfides, there appears to be a link between the rock type and the type of PG-minerals: serpentinites are characterised by a relative enrichment in sperrylite (PtAsJ, whereas the upper pyroxenites are generally characterised by more abundant PGE sulfides and alloy. PGE alloys generally dominate mineralisation closer to the floor rocks.

Common base metal sulfides include pyrrhotite, pentlandite, chalcopyrite and pyrite, and although PG-minerals frequently occur, enclosed in or on grain boundaries of these base metal sulfides, a high association of PG-minerals with silicate minerals is found in some areas.

Soils

The dominant soil-forming processes have been rock weathering, the formation of orthic topsoil horizons and, commonly, clay alleviation, giving rise typically to lithucutanic horizons. Soil forms that are typical of these processes are Glenrosa and Mispah. Any other soil form can however also be found in these land types. Oakleaf soil forms, deep or shallow, developed by rock weathering also occur in upland sites.

The steep slopes, middle plateau and Puttersvlei (upper plateau) areas of Karoo NP, excluding the northern most corner, fall into the Ib land type. Surface rock with underlying soil or rock covers sixty to eighty percent of these areas. The parent material of the slopes consists of mudstone, siltstone and sandstone with some dolerite intrusions, and typically Mispah or Glenrosa soil forms. Dolerite covers most of the middle plateau, with an influence of mudstone, siltstone and sandstone closer to the upper slopes.

Fertile soils occur on this flat plateau with little erosion save where the deep red soils gradually erode from a natural basin. Dolerite rocks cover most of the Puttersvlei section of land type Ib, with the underlying sandstone appearing in terraces, descending in a northerly direction. The northernmost corner of the upper plateau occurs in land type Db. Prismacutanic and/or pedocutanic diagnostic horizons characteristically dominate this land type. Non-red B horizon, duplex soils cover more than half the land area.

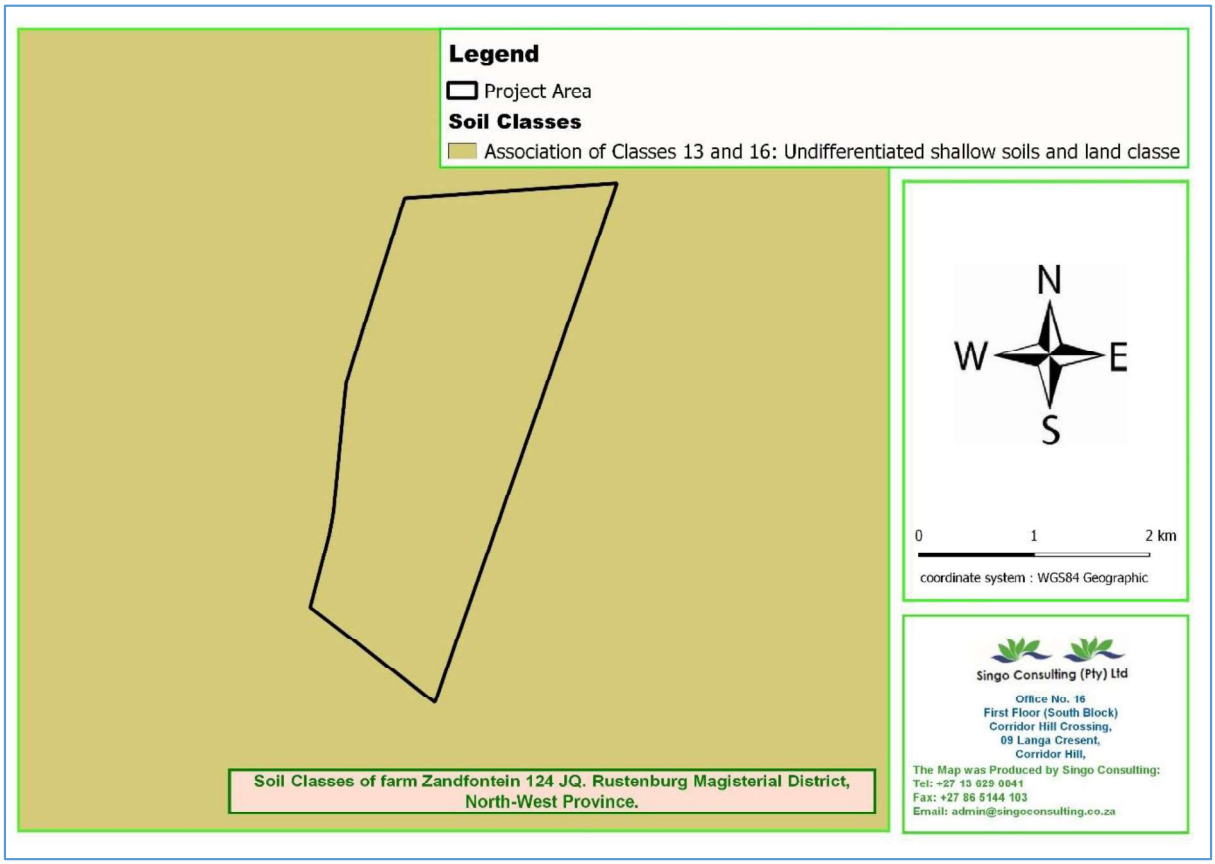

Figure 18: Soil map on site

The applied land is associated with one soil class as mentioned on the map above Figure 18. The GIS specialist confirmed that the area is associated with undifferentiated soils and land classes.

FIGURE 19: PICTURE OF SOIL SEEN ON THE SITE DURING SITE ASSESSMENT

Fauna and Flora

The vegetation surveys were undertaken within vegetation polygons identified by a combination of Mucina and Rutherford vegetation mapping (2006), photograph interpretation and mapping by the Terrestrial Biodiversity Assessment Plan (BGIS, 2013).

Vegetation surveys were conducted to:

- Assess the presence of an endangered ecological community under the IUCN Red list;
- Determine whether vegetation patches meet the endemic vegetation definition as defined under the NEMBA;
- Record rare and threatened flora species

The aim of the faunal investigation is to present a description of the faunal attributes of the study area, the Red Listed faunal status of the area as well as inherent faunal sensitivities of identified habitat units. Results of this investigation will ultimately be incorporated into the ecological overview of the study area.

Animal or faunal assessments were done visually and bird species were verified from the Sasol Birds of Southern Africa (Sinclair et al., 2002). For mammals; tracks, spoors and faecal remnants were used as signs of their possible occurrence on the site. Occurrence of reptiles was assessed through field observation and comparison to the SARCA list of observed species for the study area.

Figure 20: Fauna and Flora on site as observed during site assessment

The study area is situated within the Mixed Bushveld. Mixed Bushveld is consist of Vulnerable species and other threatened species. It is characterized by the presence of the species such as Aristida congesta, Brachiaria serrata, Cynodon dactylon, Digitaria tricholaenoides, Diheteropogon amplectens, Eragrostis chloromelas, Eragrostis racemosa, Heteropogon contortus, Loudetia simplex, Schizachyrium sanguineum, Setaria sphacelata, Themeda triandra, and a wide variety of herbaceous forbs and other grasses.

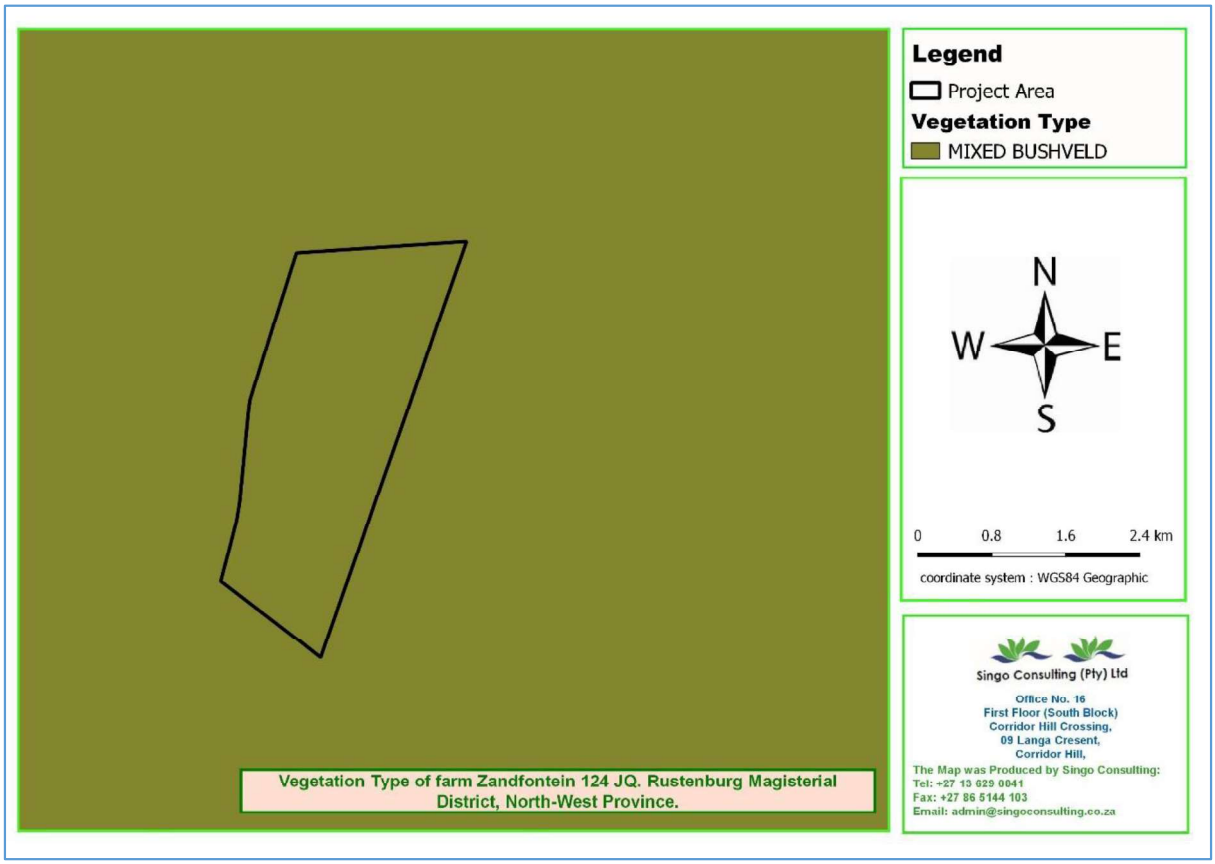

FIGURE 21: ENVIRONMENTAL VEGETATION MAP FOR THE PROPOSED PROJECT.

Water resources

Hydrogeologically, the study area can be subdivided/ transverse by non-perennial river which supply Vaalkop dam during rainy season. Faulted and weathered volcanic rocks also fall under this category of aquifer types. The inter-granular aquifers correspond to the Platberg and Kalahari Group sediments consisting of sandstone and alluvial gravel.

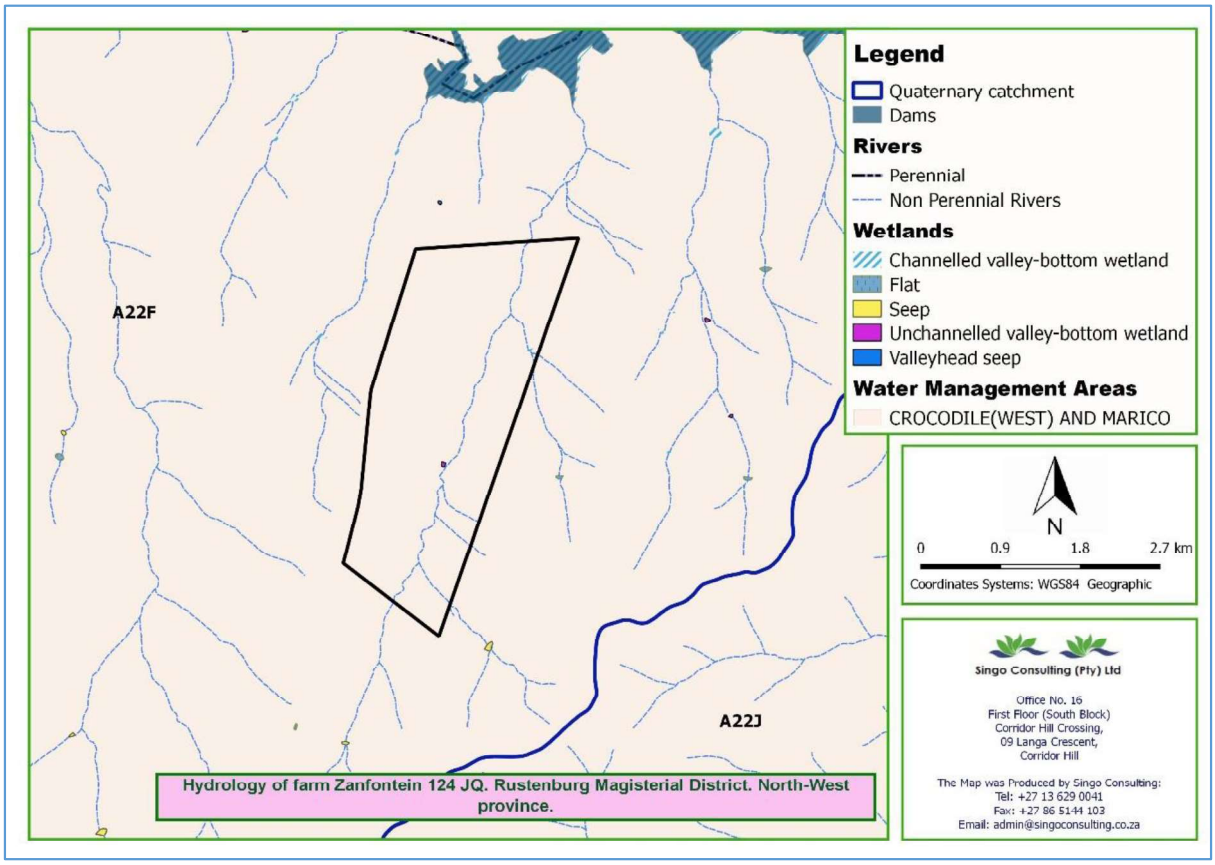

FIGURE 22: SURFACE WATER MAP FOR THE PROJECT AREAS

Surface water

A map below shows the tributaries transact within the proposed farm and the dam on the boundary of the proposed project. A detailed hydrological study is currently conducted in and surround the far

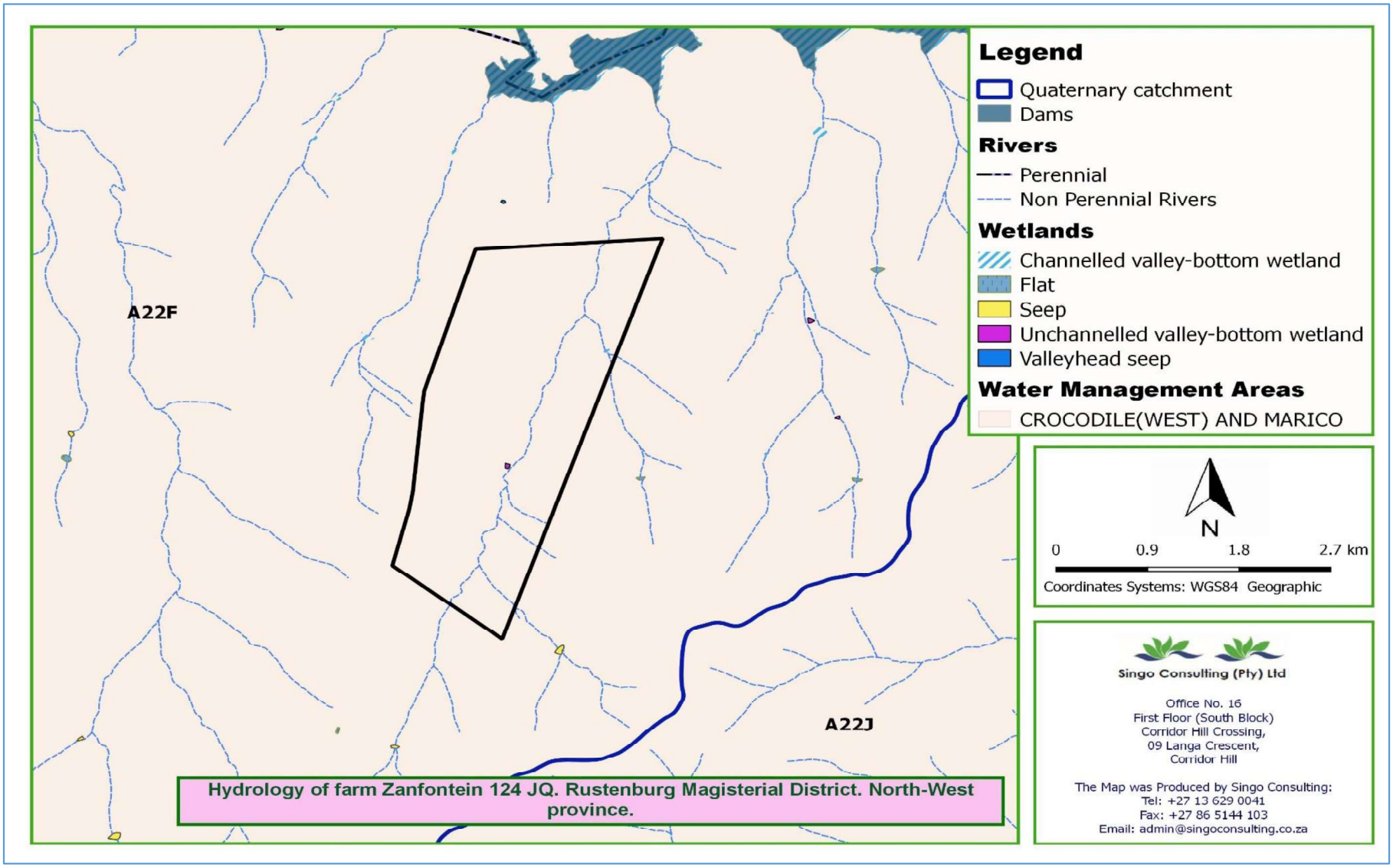

FIGURE 23: HYDROLOGICAL MAP

Critical Biodiversity Area

CONSERVATION ASSESSMENT PLAN FOR THE STUDY SITES

The proposed Prospecting Right site falls within an Ecological Support Area 1 (ESA 1) and (ESA 2), Critical Biodiversity Area 1 and 2. ESA is classified an intact Natural Area that supports a Critical Biodiversity Area (CBA).

A discussion document on North West Environmental Outlook highlights the current status of mining activities that have already come into conflict with land management objectives and compatible land uses as stipulated in the conservation plan, especially in the Bojanala Centre.

Below summaries what each terrestrial CBA layer consisted of:

• Terrestrial CBA 1

− National Protected Area Expansion Strategy (NPAES) focus areas

− Locally endemic vegetation types (1)

− Endangered vegetation types that are along an ecological corridor

− Special plant species that are listed as endangered according to IUCN

• Terrestrial CBA 2

− Endangered vegetation types that are outside of corridor linkages

− Degraded NPAES focus areas

− Regionally endemic vegetation types (3)

− Important bird areas

− Hills and ridges

• Terrestrial Ecological Support (ESA)

− 1 km formal protected area buffer

− Dolerite areas

FAUNAL HABITAT ASSESSMENT

Since the proposed land is fall under protected area, which is declared by North west government 21st February 2017 the land is regarded as the home of various species. The proposed land has more than 340 birds species and two types of fish are also protected within the vaalkom dam which are carp and yellowfish.

FLORA HABITAT ASSESSMENT

According to the North-West Province's Biodiversity Sector Plan (2015) small parts (natural veld) of the project site is situated in Critical Biodiversity Areas (CBA1 & 2) and Ecological Support Areas (ESA1 & 2). The rest of the site is a natural protected land of natural savanna present on the property.

According to SANBI's POSA species list a number of protected and Red Data species occur in the quarter degree squares. These species were listed in terms of the National Threatened species list, the National Forest Act (Act 84 of 1998) and the North-West Nature Conservation Ordinance (Act 12 of 1983).

The Department of Rural, Environmental and Agriculture Development (READ) defines Critical Biodiversity Areas and Ecological Support Areas as follows:

Critical Biodiversity Areas (CBAs) are terrestrial and aquatic areas of the landscape that need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. In other words, if these areas are not maintained in a natural or near-natural state then biodiversity targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity compatible land uses and resource uses.

Ecological Support Areas (ESAs) are terrestrial and aquatic areas that are not essential for meeting biodiversity representation targets (thresholds), but which nevertheless play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration. The degree or extent of restriction on land use and resource use in these areas may be lower than that recommended for CBAs.

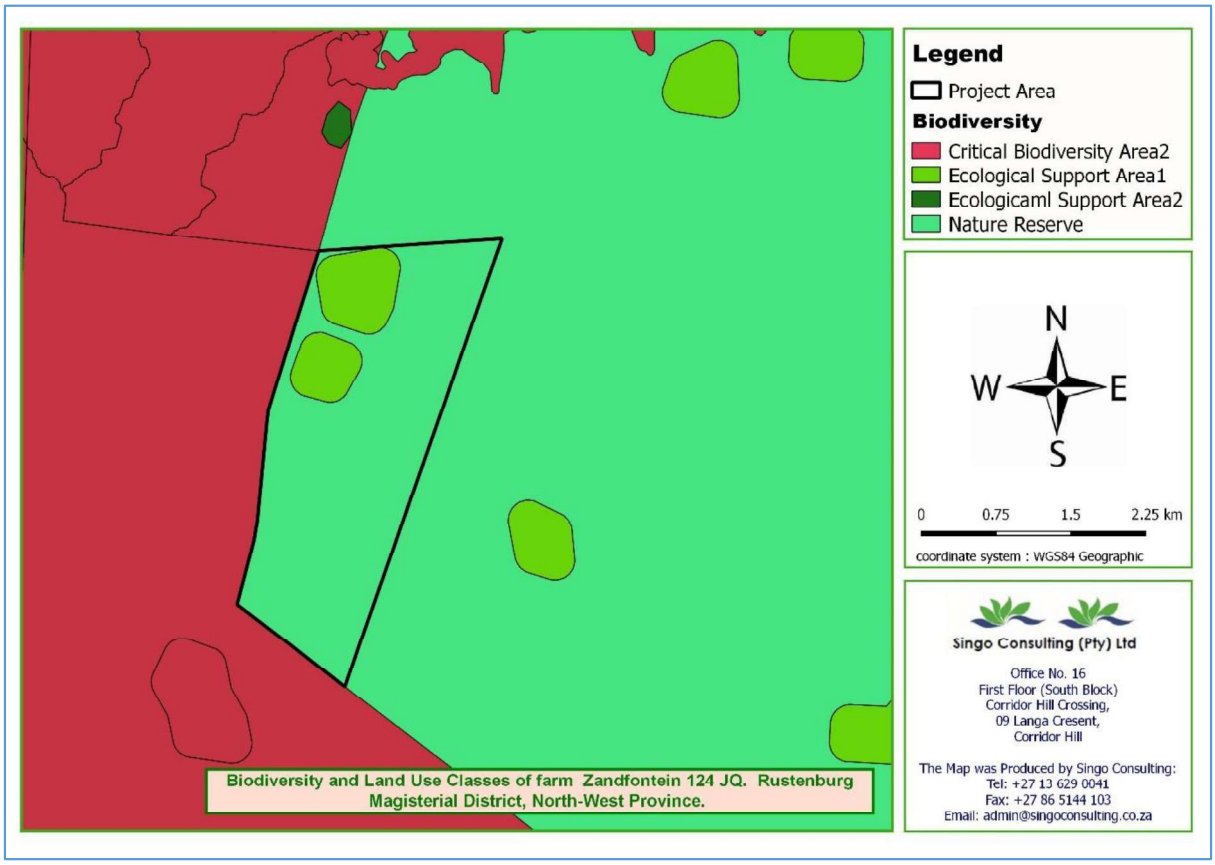

FIGURE 24: CRITICAL BIODIVERSITY MAP FOR THE PROPOSED AREAS.

The impact on natural habitat types can never be completely ameliorated if development proceeds but can be minimized. Where natural habitat types are to be transformed, especially the woodland areas, consideration should be given to the quality of the habitat based on the presence of micro-habitats and areas of high quality must be conserved. Endangered plant and animal species should be identified and relocated to safe habitats.

Protected vegetation within the vicinity should be identified, demarcated and marked. The content of the tags should include the protection status, common name of the tree, and a warning not to cut, disturb or damage the tree. Therefore, plants or trees should not be removed, damaged or destroyed further without authorization by the relevant authorities or person(s).

All activities must be limited to daylight hours.

Activities and associated vehicles and machinery should take cognizance of the weather conditions, the prevailing wind direction and vehicles and machinery should adhere to speed limits and be restricted to established haul road network. Schedule of spraying water (with a

suitable dust suppression agent) with a dump truck on dust prone portions of the working area should be implemented.

All medicinal species (from affected vegetation units) must be removed with the necessary permits and established in a nursery. After construction, the species must be re-planted during the rehabilitation phase. A management plan (to be compiled by the ECO) should be implemented to ensure proper establishment of ex situ individuals and should include a monitoring programme for at least two years after re-establishment (to ensure successful translocation).

Rehabilitation should consist of indigenous species only, and preferably of species native to the study site and immediate surroundings. The species selected should strive to represent habitat types typical of the ecological landscape prior to construction. Rehabilitation should strive to increase spatial habitat heterogeneity. A monitoring programme should be implemented to evaluate the success of rehabilitation and to take necessary action if required.

Heritage resources

Heritage resources such as Stone Age sites, rock paintings and engravings; stone tools; small, inconspicuous stone walled sites from the Late Iron Age farming communities; formal and informal graveyards, etc may occur in the study area.

No heritage sites or artefacts were discovered within or near the prospecting area during site assessment. However, should any heritage resources 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.

Socio-economic environment

The Bojanala Platinum District Municipality is a Category C municipality situated in the North West Province. It is bordered by the Waterberg District Municipality to the north, Dr Kenneth Kaunda District Municipality to the south, City of Tshwane Metro to the east, West Rand District Municipality to the south-east, and Ngaka Modiri Molema District Municipality to the west. It is one of four district municipalities in the province and comprises five local municipalities: Kgetlengrivier, Madibeng, Moses Kotane, Moretele and Rustenburg. The seat of Bojanala Platinum is Rustenburg. The proposed project is fall under Rustenburg local municipality where most of the economic growth generated by tourism and mining belt of the North West Province. Mining sector contribute (30-35%) of North West of economic growth.

Description of the current land uses

The determination of the existing site-specific and surrounding land use provides input into the process of impact identification and the establishment of closure objectives. Site-specific land use has been confirmed as protected area and prospecting activities may present a disturbance to the protected species within the fenced government property. Rehabilitation objectives to restore the site to pre-prospecting state must consider safety matters and an effective re-vegetation effort to reverse the impacts as far as is practicable.

Description of environmental features and infrastructure on the site

A number of water courses have been identified 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 in the event that any prospecting activities are undertaken within such areas or within 500 m of any water course.

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.

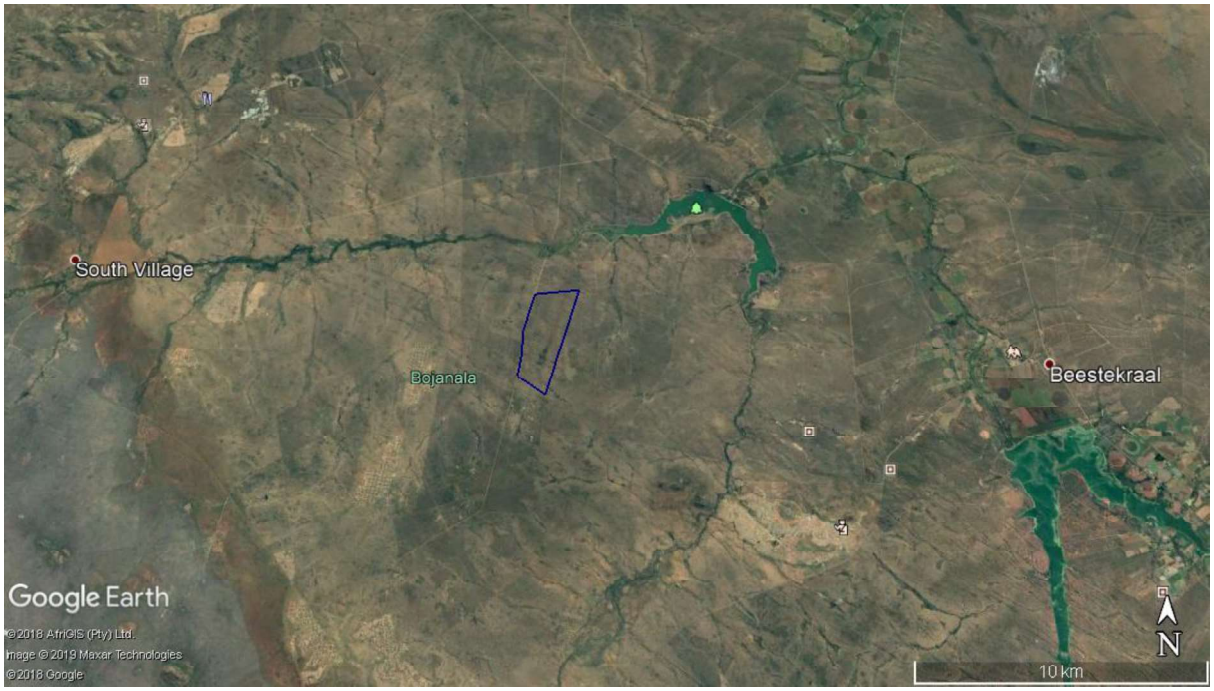

FIGURE 25: LAND USE MAP OF THE PROPOSED LAND

Impacts and risks identified, including nature, significance, consequence, extent, duration and probability of the impacts, and 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 7: 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						
Data acquisition	N/A	Data collection and assessment (desktop only)	1. None identified.	N/A	N/A	N/A
Desktop study	N/A	Data assessment	2. None identified.	N/A	N/A	N/A
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: • Vegetation clearing of drill pad area • Drill pad compaction	8. Destruction and / or disturbance of on-site fauna and flora.	Partial	No	Yes
			9. Soil disturbance and compaction resulting in soil erosion.	Yes	Partial	No
			10. Dust emission resulting from site clearing, soil stripping and construction activities (including	Yes	No	Yes

Phase		Activities	Potential impacts	Reversible	Irreplaceable damage	Can impact be avoided
		• Excavation and lining of drill water sump • Erection of temporary site office shaded area, potable ablution faculties and water storage tanks and core bay • Erection of fuel storage tank • Erection of safety barrier • Waste generation and management	vehicle entrained dust).			
			11. Visual impact affecting visual character and "sense of place".	Yes	No	Partial
			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: • Scout and delineation • drilling • Drill maintenance and re-fuelling • Core sample collection and storage	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
			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

Phase		Activities	Potential impacts	Reversible	Irreplaceable damage	Can impact be avoided
		• Drill fluid collection, storage and evaporation • 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
	Decommissioning	Removal of temporary infrastructure, including office shaded area, potable ablution faculties, water storage tanks and core bay. Borehole capping Drill pad rehabilitation, including: • Ripping of drill pad and access road • Re-spreading of stockpiled topsoil • 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
			26. Soil erosion resulting from the re-spreading of topsoil before vegetation is reestablished.	Yes	No	Yes

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

Impact evaluation is conducted in terms of the criteria detailed in Table 09 to Table 13. 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. As such, an impact magnitude and significance rating applied to rate each identified impact in terms of its overall magnitude and significance.

In order 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 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 environmental conditions 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 8: 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 determined by assessing its effect on a wide area or group of people. It can be site-specific (within the boundaries of the development area), local, regional or national and/or international.

TABLE 9: 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 10: IMPACT DURATION

Rating	Description	Quantitative rating
Low	Short term: Quickly reversible, less than 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 11: IMPACT PROBABILITY

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 12: IMPACT INTENSITY

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
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 13: 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
	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

Positive and negative impacts of the proposed activity (initial site layout) and alternatives on the environment and 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.

Now there is no alternative layout. Should we receive comments that warrant changing site layout, Niche Mining Resources 247 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 0.45 Ha (4 500m2) of the 700.54 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

Even if there were some graves unnoticed, 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. As such, it is 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 it may impact. The fact that the prospecting activities will be undertaken in a phased approach will allow 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 them 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 as a result of increased activity and the possible resultant increase in opportunistic crime

- 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 one major dam (Vaalkop Dam) adjacent to the proposed project. Possible pollution sources include oil spillage and all areas cleared of vegetation. The eroded soil particles may be carried by storm water to these rivers and the dam 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 event of spills when carried by storm water to the water courses. This impact is considered 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 the surrounding area are regarded to be that of "wilderness" and prospecting activities may result in localised visual impacts.

Positive impacts (Advantages)

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

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 following section provides a summary of the key management measures associated with the impacts identified in the previous section. The detailed rating and management plan 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, negative impacts 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 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 environmental resources utilised 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 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 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 as a result 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 landowners (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 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 matte 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 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 possible to minimise the potential for soil erosion. Where access to drill sites must 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 minimise 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.

- 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 sufficient capacity to receive drill fluids and allow for evaporation.
- The sump will be constructed to divert storm water away from and/or around the sump to avoid clean storm water inflow.
- Oils and lubricant will be stored in secondary containment structures.
- Where possible, vehicle maintenance will be undertaken off-site.
- 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.
- A waste management system will be implemented and sufficient waste bins will be provided for onsite. A fines 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.
- Waste 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 possible.

Motivation where no alternative sites were considered

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

Statement motivating the alternative development location in 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.

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.

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

The stakeholder consultation process is currently being conducted in an interactive manner, providing landowner and identified stakeholders with the opportunity to provide input into the project. This is a key focus, as the local residents can provide 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 they may have. All comments and concerns will be captured and included in 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
- GIS base maps
- DWA information documents like the ISP and Groundwater Vulnerability Reports
- Municipal Integrated Development Plan
- Municipal Strategic Development Framework

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 14: 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 and access route.	**POTENTIAL IMPACT** Including the potential impacts for cumulative impacts, e.g. dust, noise, drainage, surface disturbance, fly rock and surface water contamination.	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated, e.g. construction, commissioning, operational decommissioning, closure, post-closure.	**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 and alternative activity.	**Significance if mitigated**
Phase 1: 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 2: Data acquisition and desktop study						
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 landowner, 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	6

NAME OF ACTIVITY E.g. for prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office and access route.	**POTENTIAL IMPACT** Including the potential impacts for cumulative impacts, e.g. dust, noise, drainage, surface disturbance, fly rock and surface water contamination.	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated, e.g. construction, commissioning, operational decommissioning, closure, post-closure.	**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 and alternative activity.	**Significance if mitigated**
					conducted to minimize disturbance and aid rehabilitation efforts and significant vegetation such as trees and large shrubs will be avoided. 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 minimize 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,	Loss of fauna	Construction phase	10	11. Access control procedures must be agreed on with farm owners and staff trained.	8

NAME OF ACTIVITY E.g. for prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office and access route.	POTENTIAL IMPACT Including the potential impacts for cumulative impacts, e.g. dust, noise, drainage, surface disturbance, fly rock and surface water contamination.	ASPECTS AFFECTED	PHASE In which impact is anticipated, e.g. construction, commissioning, operational decommissioning, closure, post-closure.	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 and alternative activity.	Significance if mitigated
	breeding and grazing practices.					
	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: • Vegetation clearing of drill pad area • Drill pad compaction • Excavation and lining of drill water sump • Erection of temporary site office shaded area, potable ablution faculties and water storage tanks and core bay • Mobile fuel storage tank • Erection of safety	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 minimize 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 minimize the destruction of flora and faunal habitat which may result from fire.	7
	9. Soil disturbance and topsoil stockpiling resulting in soil compaction and erosion.	Loss of soil resources	Construction phase	11	17. Small vegetation will be stripped and keep on the safety area for latter. 18. Where practicable topsoil will be stripped to a depth of 10cm.	7

NAME OF ACTIVITY E.g. for prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office and access route.	**POTENTIAL IMPACT** Including the potential impacts for cumulative impacts, e.g. dust, noise, drainage, surface disturbance, fly rock and surface water contamination.	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated, e.g. construction, commissioning, operational decommissioning, closure, post-closure.	**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 and alternative activity.	**Significance if mitigated**
barrier • Waste generation and management					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. 21. Mechanical erosion control methods will be implemented if required. This may include the use of geotextiles to stabilize slopes.	
	10. Dust emission resulting from site clearing, and construction activities (including vehicle entrained dust).	Dust emissions	Construction phase	10	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.	6
	11. Visual Impact affecting visual character and "sense of place".	Loss in aesthetics	Construction phase	6	24. The shaded office area, portable ablution facilities, vertical water tanks and any other infrastructure should be acquired with a consideration for color.	5

NAME OF ACTIVITY E.g. for prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office and access route.	**POTENTIAL IMPACT** Including the potential impacts for cumulative impacts, e.g. dust, noise, drainage, surface disturbance, fly rock and surface water contamination.	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated, e.g. construction, commissioning, operational decommissioning, closure, post-closure.	**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 and alternative activity.	**Significance if mitigated**
					Natural earth, green and mat black options which will blend in with the surrounding area must be favored.	
	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	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 unauthorized persons encountered on site. 27. If deemed necessary, the South African Police Service will be informed of unauthorized persons encountered on site.	7
	13. Potential destruction of heritage resources.	Loss of Cultural and/or Heritage Significance	Construction phase	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:	14. Water and soil pollution resulting from disposal of drill fluids.	Loss of water resources, loss of soil	Operational phase	12	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	5

NAME OF ACTIVITY E.g. for prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office and access route.	**POTENTIAL IMPACT** Including the potential impacts for cumulative impacts, e.g. dust, noise, drainage, surface disturbance, fly rock and surface water contamination.	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated, e.g. construction, commissioning, operational decommissioning, closure, post-closure.	**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 and alternative activity.	**Significance if mitigated**
• Scout and delineation drilling • Drill maintenance and re-fueling • Core sample collection and storage • Drill fluid collection, storage and evaporation • Waste generation and management		resources			divert stormwater away and / or around the sump to avoid clean stormwater inflow.	
	15. Continued soil erosion from topsoil stockpile and soil compaction from drill pad platform.	Loss of soil resources	Operational phase	11	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. 32. The topsoil stockpile will be shaped to divert storm water around the drill pad to minimize 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.	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	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-	5

NAME OF ACTIVITY E.g. for prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office and access route.	POTENTIAL IMPACT Including the potential impacts for cumulative impacts, e.g. dust, noise, drainage, surface disturbance, fly rock and surface water contamination.	ASPECTS AFFECTED	PHASE In which impact is anticipated, e.g. construction, commissioning, operational decommissioning, closure, post-closure.	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 and alternative activity.	Significance if mitigated
					site. 37. 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. 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	

NAME OF ACTIVITY E.g. for prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office and access route.	**POTENTIAL IMPACT** Including the potential impacts for cumulative impacts, e.g. dust, noise, drainage, surface disturbance, fly rock and surface water contamination.	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated, e.g. construction, commissioning, operational decommissioning, closure, post-closure.	**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 and alternative activity.	**Significance if mitigated**
					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	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.	6
	18. Visual Impact affecting visual character and "sense of place"	Loss in aesthetic value	Operational phase	6	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.	5
	19. Vehicle traffic and drill noise impact affecting wildlife game farm animals.	Loss of fauna	Operational phase	6	48. Site activities will be conducted during daytime hours 07h00 – 17h30 to avoid night time noise disturbances.	4

NAME OF ACTIVITY E.g. for prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office and access route.	**POTENTIAL IMPACT** Including the potential impacts for cumulative impacts, e.g. dust, noise, drainage, surface disturbance, fly rock and surface water contamination.	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated, e.g. construction, commissioning, operational decommissioning, closure, post-closure.	**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 and alternative activity.	**Significance if mitigated**
	20. Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of cattle	Operational phase	10	49. Access control procedures must be agreed on with farm owners.	8
	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	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 unauthorized persons encountered on site.	7
	22. Impact on the pans and associated ecosystems in the area.	Loss of sensitive environments, loss of fauna, loss of flora,	Operational phase	12	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.	5
Removal of temporary	23. Destruction and/or disturbance of onsite	Loss of sensitive	Decommissioning	10	56. Drill holes must be temporarily plugged immediately after drilling is	7

NAME OF ACTIVITY E.g. for prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office and access route.	**POTENTIAL IMPACT** Including the potential impacts for cumulative impacts, e.g. dust, noise, drainage, surface disturbance, fly rock and surface water contamination.	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated, e.g. construction, commissioning, operational decommissioning, closure, post-closure.	**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 and alternative activity.	**Significance if mitigated**
infrastructure including: • Removal of temporary site office shaded area, potable ablution faculties, water storage tanks and core bay • Borehole capping • Drill pad rehabilitation including: • Ripping of drill pad and access road • Re-vegetation	fauna.	environments, loss of fauna, loss of flora			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	
	24. Dust emissions from decommissioning activities (including vehicle entrained dust).	Increase in dust emissions	Decommissioning	9	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.	6
	25. Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of cattle	Decommissioning	10	60. Access control procedures must be agreed on with farm owners and all staff trained.	8
	26. Potential water and soil pollution resulting from hydrocarbon spills	Loss of water resources, loss of soil resources	Decommissioning	12	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	7

NAME OF ACTIVITY E.g. for prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office and access route.	**POTENTIAL IMPACT** Including the potential impacts for cumulative impacts, e.g. dust, noise, drainage, surface disturbance, fly rock and surface water contamination.	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated, e.g. construction, commissioning, operational decommissioning, closure, post-closure.	**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 and alternative activity.	**Significance if mitigated**
					contamination. 63. 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 re-spreading of topsoil before vegetation is re-established.	Loss of soil resources	Decommissioning	11	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. 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 F.

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 special study conducted yet			

Environmental impact statement

Summary of the key findings of the environmental impact assessment

The proposed prospecting site is classified as non-arable land with a moderate to low grazing capacity with game farming being the predominant land use in the area. No land claims have been lodged against all the farm portions for which prospecting rights have been applied for, and an enquiry was submitted to the North West Department of Rural Development and Land Reform.

The protection of water quality and availability has been identified as key aspects of 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 DWA's, Aquifer Vulnerability of South Africa Report, the area in which the project is located is considered to be associated with aquifers with the most vulnerability ratings.

There is one major dam and a river, 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.

Final site map

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

Please refer to Annexure H for the composite map.

Summary of positive and negative impacts and risks of 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 environmental resources utilised 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.

Proposed impact management objectives and impact management outcomes for inclusion in the EMPr

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

The objectives of the EMPr will be to:

- Provide sufficient information to strategically plan the prospecting activities and avoid unnecessary social and environmental impacts.
- Provide sufficient information and guidance to plan prospecting activities in a manner that would reduce impacts (social and environmental) as far as 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 and environmental Impacts can be managed and mitigated effectively. Through the implementation of the mitigation and management measures, it is expected that:

- Noise impacts can be managed through consultation and the restriction of operating hours
- Soil and water pollution can be effectively managed through containment
- Ecological impact can be managed through the implementation of pollution prevention measures, minimising land clearing, restricting working hours (faunal disturbance) and rehabilitation
- Access control to farms can be managed through developing and ensuring compliance to appropriate access control procedures
- Risks associated with crime can be mitigated by avoiding recruitment activities on site, as well as monitoring and reporting.
- Visual impact can be minimised by considering drill site infrastructure placement and materials used.

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

Description of any assumptions, uncertainties and knowledge gaps

Which relate to the assessment and mitigation measures proposed.

The following assumptions, uncertainties and gaps are applicable to this project. Due to significant time constraints allowed for the impact assessment, 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.

Reasoned opinion as to whether the proposed activity should/should not be authorised

- It is the wish of the EAP that the activity may be authorised
- The proposed prospecting area is targeted as, historically, Manganese, Chrome and Nickel occurrences are known in the area, and a number of these have been exploited for these minerals in the past.
- The proposed project area is regarded as protected area, declared by North west government for the area of conservation
- The site is therefore considered 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 present on these properties. In addition, should

economical reserves be present and the applicant does not have the opportunity to prospect, the opportunity to utilise these reserves for future phases will be lost.

- The option of not approving the activities will also serve the conserved natural protected species, which will remain natural without any disturbances by human being activities.

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

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.

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 EMP.

Financial provision

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

A financial provision of approximately, R37230 which includes rehabilitation activities has been made by Niche Mining Resources 247 (Pty) Ltd. A breakdown of these costs is presented in the table below. The applicant undertakes to provide financial provision through funding from the personal account. Please refer to Appendix E (Financial Capability Letter) for more details on the financial provision for the proposed activity.

CALCULATION OF THE QUANTUM

CALCULATION OF THE QUANTUM

NICHE-MINING

Singo Consulting (Pty) Ltd

NW 30/5/1/1/2/12711 PR

Applicant: Niche Mining Resources 247 (Pty) Ltd
Evaluator: Kenneth Singo

Ref No.:
Date: Dec-19

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**	**1**	**0**
2 (A)	**Demolition of steel buildings and structures**	**m2**	**0**	**228**	**1**	**1**	**0**
2(B)	**Demolition of reinforced concrete buildings and struct**	**m2**	**0**	**336**	**1**	**1**	**0**
3	**Rehabilitation of access roads**	**m2**	**0**	**41**	**1**	**1**	**0**
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	395	1	1	**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**	**238 697**	**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**	**1**	**0**
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	198 195	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	575 653	1	1	**0**
9	Rehabilitation of subsided areas	ha	0	133249	1	1	**0**
10	**General surface rehabilitation**	**ha**	**0,9**	**126059**	**0,01**	**0,05**	**56,72655**
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	**56,72655**

1	Preliminary and General	6,807186	weighting factor 2: 1	**6,807186**
2	Contingencies	5,672655		**5,672655**
			Subtotal 2	**69,21**
			VAT (15%)	**37160,87**
			Grand Total	**37230**

SIGN Ndinannyi Kenneth Singo
DATE 2019/12/03

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

The drilling contractor will be responsible for rehabilitating the drill pad once the drilling activities have been completed at each exploration hole. The responsible exploration geologist will confirm the quality of rehabilitation conducted by drilling contractor and sign it off. The financial guarantee was calculated using the DMR official financial quantum calculator. This information has been provided in the Prospecting Work Programme that was submitted to the DMR. Please refer to Appendix E for more details on the financial provision for the proposed activity.

Method of assessment

Singo Consulting (Pty) Ltd used the *Guideline Document for the Evaluation of Financial Provisions* published by the mining industry. Table 15 presents the step-by-step details on how the financial provision was derived. For the purpose of determining the quantum for closures, it is assumed that the infrastructure will have no salvage value.

TABLE 15: DMR FINANCIAL PROVISION METHODOLOGY

Step	Description	DMR applicable table	Outcomes
1	Determine primary mineral and saleable mineral by-products	Table B.12	Mineral: Manganese, Chrome and Nickel
2	Determine Risk Class	Table B.12	Primary Risk Class: C (Small operation, no waste, no processing). Risk Class C is considered a low risk with a low probability of occurrence of the impact with a negligible consequence.
3	Determine the Area Sensitivity	Table B.4	Medium to High Sensitivity. The area is largely being disturbed by game farming; however the natural state is still present in good condition. The river systems in this area, although non-perennial is a tributaries feeding the Vaalkop dam. The land in question is used for Natural species protected land and therefore some the local communities (in this case the farmers) drive the bulk of their income directly from the area. The area can be considered sensitive to further development past the prospecting application, should the prospecting activities prove that the area is economically viable for the purposes of a mining right application, which will compromise the existing economic activity.
4.1	Determine the level of information	N/A	Limited information is available and is based on desktop investigations and stakeholder consultation.
4.2	Determine the closure components	Table B.5	See Table 23 of this report.
4.3	Determine the unit rates for closure components	Table B.6	See Table 2 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

Step	Description	DMR applicable table	Outcomes
			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 purpose 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.

Financial provision

The financial provision required by the holder of the prospecting right must be determined 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
- 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.

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 PWP as the case may be.

The amount required to finance the prospecting activities amounts to R 37230. Financing will be sourced from the capital expenditure, as planned by the company; The company's annual financial statement for 2019/2020 was also submitted to the DMR for confirmation that the company has funding available to implement the proposed project.

The current expenditure provided for in the PWP does not include the calculated financial provision as included in this Basic Assessment, as these values were not available at the time of the submission of the PWP. The provision for closure must be updated in the PWP prior to the decision by the DMR, should this decision be positive.

- **Cost estimate for the proposed prospecting**

ACIVITY	YEAR 1 Expenditure (R`)	YEAR 2 Expenditure (R`)	YEAR 3 Expenditure (R`)	YEAR 4 Expenditure (R`)	YEAR 5 Expenditure (R`)
Phase 1 (Months 0 to 12)					
Literature surveys	R 2 500.00	R1 500.00			
Desk top studies	R 10 000.00	R 5 000.00			
Geophysical or geotechnical work	R 10 000.00	R 4 000.00			
Research and target identification		R 5 000.00			
Phase 2 (Months 13 to 24)					
Invasive work, (Drilling 05 boreholes a depth of 50m)		R48 024 9.00	R48 024 9.00	R48 024 9.00	R48 024 9.00
Sampling work		R 25 000.00	R 15 000.00	R 9 000.00	R 5 000.00
Laboratory work		R 22 800.00	R 11 200.00	R 8 800.00	R 4 800.00
Analytical and modelling work			R 40 000.00	R 20 000.00	R 7 000.00
Infill work			R 25 000.00	R 15 000.00	
Bulk sampling and testing to be carried out					
Phase3 (Months 25 to 60)					
EIA and EMP for mining right application				R 40 000.00	R 20 000.00
Pre-feasibility studies				R 25 000.00	R 10 000.00
Investment decision making application for mining rights				R 22 800.00	R 10 400.00
Annual Total	**R 22,500.00**	**R 543 549.00**	**R 571 449.00**	**R620 849.00**	**R 537 449.00**
				Total Budget	**R2 295 796.00**

- ****R1000/Metre drilling rate; R7500/wash sample and Salaries will be paid as per invoice of geologist. Last two years are planned as retention and are based on the outcomes of the first three years. Estimated borehole depth is 100 M.**
-

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 NEMA (Act 107 of 1998). The EIA report must include the:

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 as a result of increased activity and the possible resultant increase in opportunistic crime
- 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 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 environmental resources utilised 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 game 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 hunting activities on game farms.
    - Farm owner must be consulted and informed of activities which may affect cattle being held in restricted holding pens, to prevent possible injury or damage as a result 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.

- 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 as a result 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 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.

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.

Prospecting will be undertaken in phases; the first phase being a desktop assessment, followed drilling. Based on the outcome of these activities, the desktop study and potential drill sites will be determined. Potential heritage impact will only occur once the desktop study has been used to identify sites for drilling.

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

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

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

PART B: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

Environmental management programme

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).

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).

Composite map

Provide a map (Attached as an Appendix H) 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 H for the composite map.

Description of impact management objectives, including management statements

Determination of closure objectives

Ensure that the closure objectives are informed by the type of environment described. Each phase of the prospecting activities depends on the success of the previous. Depending on the outcome of the Phase 1 assessment, a drilling programme will be initiated. The location and extent of drill sites can thus not be determined at this stage.

The rehabilitation plan is developed on the basis that the rehabilitated areas are safe, stable, non-polluting and 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 include:

- Eliminating 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

- Establishing the rehabilitated area, which is not subject to soil erosion and may result in the loss of soil, degradation of the environment and pollution of surface water resources
- 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

Volumes and rate of water use required for the operation.

No water will be used

Has Water Use License been applied for?

The use of abstracting groundwater will be generally authorised in terms of the NWA. Based on the outcomes of discussions with the DWA, the potential abstraction of water due to drilling activities will be clarified. Should it be deemed necessary, on instruction by the department, to submit a water use license application, this will be undertaken.

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	No mitigation proposed	Identification of the potential mineral resources 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	1. Map indicating the location of each drilling site must be submitted to the relevant landowners, and to the DMR and DWS. Upon agreement of the activity location, the applicant can proceed. 2. Use existing track and roads in all instances as far as possible. 3. Where track clearing is necessary, raised blade clearing will be conducted to minimize disturbance and aid rehabilitation efforts and significant vegetation, like trees and large shrubs. 4. Site activities will be conducted during the day from 07h00–17h00 to avoid night time noise disturbances and collisions with fauna. 5. Vehicle speed will be reduced, particularly in highly vegetated	• The prospecting activities must be undertaken in line with the approved PWP. • 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.

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			areas to avoid deaths by vehicle impact. 6. Where track clearing is necessary, raised blade clearing must be conducted to minimize disturbance and aid in rehabilitation efforts. 7. As part of rehabilitation, all compacted roads and drill pads will be ripped and revegetated. 8. Site activities will be conducted during the day from 07h00-17h00 to avoid night time noise disturbances. 9. Access control procedures must be agreed on with farm owners and trained staff. 10. 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		
Site establishment activities including: • Vegetation clearing of drill pad area • Drill pad	Construction	Approximately 4 000m^2	11. The removal of vegetation in the drill pad area will be minimized. 12. If possible, raised blade clearing must be conducted for the entire drill pad to minimize disturbance and aid rehabilitation efforts. 13. The design of the drill fluid sump must incorporate effective fauna	• 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	Concurrently with the completion of prospecting activities in an area.

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
compaction • Excavation and • lining of drill water sump • Erection of temporary site office shaded area, potable ablution faculties and water storage tanks and core bay • Erection of fuel storage tank • Erection of safety barrier • Waste generation and management			egress to avoid entrapment. 14. A fire emergency procedure will be developed to contain and minimize the destruction of flora and faunal habitat which may result from fire. 15. If the drill pad is cleared of all vegetation, lower blade clearing will be undertaken 16. Where possible, topsoil will be stripped to a depth of 10cm. 17. 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. 18. Mechanical erosion control methods will be implemented if required. This may include the use of geotextiles to stabilize slopes. 19. Based on visual observation, wet dust suppression will be undertaken to manage dust emissions from vehicle movement and other construction activities as needed. 20. 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	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 Authorization at all times.	

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			resources. 21. The shaded office area, portable ablution facilities, vertical water tanks and any other infrastructure should be acquired with a consideration for color. Natural earth, green and mat black options which will blend in with the surrounding area must be favored. 22. Casual labor will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment. 23. The landowner (state land owner) will be notified of unauthorized persons encountered on site. 24. If deemed necessary, the South African Police Service will be informed of unauthorized persons encountered on site. 25. Prior to site establishment, a Heritage Impact Assessment must be undertaken and mitigation and/or management measures for the protection of such resources must be implemented.		
Exploration drilling and core sample collection and	Operational	Included into the Site establishment size of 18 450m^2	26. Regular inspections of all vehicles must be carried out to ensure that leaks are identified early and rectified.	• The applicant must adhere to the NEMA Section 2 Principle and ensure that a cradle to grave approach is followed in	Concurrently with the completion of prospecting activities in an

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
storage including: • Scout and delineation drilling • Drill maintenance and re-fuelling • Core sample collection and storage • Drill fluid collection, storage and evaporation • Waste generation and management			27. A sufficient number of waste receptacles will be provided. 28. Waste separation will be undertaken at source and separate receptacles will be provided (i.e. general waste, recyclables and hazardous waste). 29. Receptacles will be closed (i.e. fitted with a lockable lid) to eliminate the possibility of access by animals overnight. 30. Waste 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. 31. Based on visual observation, wet dust suppression will be undertaken when required to manage dust emissions from vehicle movement. 32. Depending on the need and quantity of water used for wet suppression, chemical suppression alternatives must be considered to conserve water. 33. Visual impact of structures will be mitigated through measures as included in Item 35. 34. Visual dust dispersion will be	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 Authorization at all times.	area.

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			mitigated through measures as included in Item 33. 35. Site activities will be conducted during the day between 07h00-17h00 to avoid night time noise disturbances. 36. Access control procedures must be agreed on with farm owners. 37. Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment. 38. The landowner (the Department of Rural Development and Land Reform) will be notified of unauthorised persons encountered on site. 39. If deemed necessary, the South African Police Service will be informed of unauthorised persons encountered on site. 40. The prospecting areas must be clearly demarcated. 41. No prospecting activities may be undertaken in the pan areas. 42. All site plans must indicate the presence of pans.		
Removal of temporary infrastructure	Decommissioning	Included into the site establishment size of 18 450m^2	43. Drill holes must be temporarily plugged immediately after drilling is completed and remain plugged	• The applicant must adhere to the NEMA Section 2 Principle and ensure that a cradle to	Concurrently with the completion of prospecting

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
including: • Removal of temporary site office shaded area, potable ablution faculties, water storage tanks and core bay **Borehole capping** Drill pad rehabilitation including: • Ripping of drill pad and access • road • Re-vegetation			until they are permanently plugged below ground to eliminate risk posed to fauna by open drill holes. 44. Drill holes must be permanently capped as soon as possible. 45. Based on visual observation, wet dust suppression will be undertaken to manage dust emissions from vehicle movement. 46. Depending on the need and quantity of water used for wet suppression, chemical suppression alternatives must be considered to conserve water. 47. Access control procedures must be agreed on with farm owners and all staff trained. 48. All fuel storage tanks will be emptied prior to removal. 49. Drill holes must be permanently capped as soon as is practicable to eliminate the risk of groundwater contamination. 50. Wastes will be removed and disposed of at an appropriately 51. licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility. 52. Mechanical erosion control	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 Authorization at all times.	activities in an area.

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			methods will be implemented if required. This may include the use of geotextiles. 53. Re-vegetation will be conducted by hand seeding exposed areas using indigenous grass species as determined by a suitably qualified ecologist. 54. Re-vegetation efforts will be monitored every 2nd month for 6 months after initial seeding. 55. An effective vegetation cover of 45% must be achieved. Reseeding will be undertaken if this cover has not been achieved after 6 months.		

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.

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)	**Potential impact**	**Aspects affected**	**Phase** (in which impact is anticipated)	**Mitigation type**	**Standard to be achieved**
Phase 1: Data acquisition and desktop study					
Data collection and assessment (desktop only)	1. None identified.	N/A	Planning	• Control potential deviations from the approved PWP through effective implementation of the data acquisition and desktop study.	Remain within the ambits of the PWP and Environmental Authorization.
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 PWP and Environmental Authorization.
	3. Soil compaction resulting from repeated use of access roads to drill sites.	Loss of soil resources	Construction phase	• Control through clear delineation of prospecting area. • Control through implementation of soil management programme in terms of the correct topsoil removal, and rehabilitation practices as per EMP.	Remain within the ambits of the PWP and Environmental Authorization. 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 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	Remain within the ambits of the PWP and Environmental Authorization.

Activity (whether listed or not)	**Potential impact**	**Aspects affected**	**Phase** (in which impact is anticipated)	**Mitigation type**	**Standard to be achieved**
				communication.	
	5. Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of fauna	Construction phase	• Control through 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 PWP and Environmental Authorization.
	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: • Vegetation clearing of drill pad area • Drill pad compaction • Excavation and lining of drill water sump • Erection of temporary site office shaded area, potable ablution faculties and water storage tanks and core bay • Mobile of fuel storage tank	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 PWP and Environmental Authorization.
	8. Soil disturbance and resulting in soil compaction and erosion.	Loss of soil resources	Construction phase	• Control through 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 PWP and Environmental Authorization. Retain topsoil integrity for the reuse in rehabilitation.
	9. Dust emission resulting from site clearing, soil stripping and	Dust emissions	Construction phase	• Control through implementation of dust suppression methods, when required. Dust suppression methods	Remain within the designated area demarcated for

Activity (whether listed or not)	**Potential impact**	**Aspects affected**	**Phase** (in which impact is anticipated)	**Mitigation type**	**Standard to be achieved**
• Erection of safety barrier • Waste generation and management	construction activities (including vehicle entrained dust).			could include wet suppression.	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 clear delineation of the prospecting area. • Control through implementation of environmental induction and toolbox talks, as well as the implementation of a fine system.	Remain within the ambits of the PWP and Environmental Authorization. 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.	Increase in petty crimes	Construction phase	• Control through 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.
	12. Potential destruction of heritage resources.	Loss of Cultural and/or Heritage Significance	Construction phase	• Control through clear delineation of the prospecting area. • Control through 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	13. Water and soil pollution	Loss of water	Operational phase	• Control through clear delineation of	Remain within the

Activity (whether listed or not)	**Potential impact**	**Aspects affected**	**Phase** (in which impact is anticipated)	**Mitigation type**	**Standard to be achieved**
core sample collection and storage including: Scout and delineation drilling Drill maintenance and re-fuelling Core sample collection and storage Drill fluid collection, storage and evaporation Waste generation and management	resulting from disposal of drill fluids.	resources, loss of soil resources		the prospecting area. • Control through implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. • Control through implementation of a soil management programme in terms of the correct topsoil removal, stockpiling and rehabilitation practices as per the EMP. • Control through implementation • of the NWA GN704 water management principles.	ambits of the PWP and Environmental Authorization. Retain topsoil integrity for the reuse in rehabilitation.
	14. Continued soil erosion from topsoil stockpile and soil compaction from drill pad platform.	Loss of soil resources	Operational phase	• Control through clear delineation of the prospecting area. • Control through implementation of a soil management programme in terms of the correct topsoil removal, stockpiling and rehabilitation practices as per the EMP	Remain within the ambits of the PWP and Environmental Authorization. Retain topsoil integrity for the reuse in rehabilitation.
	15. 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 clear delineation of the prospecting area. • Control through implementation • of the NWA GN704 water management principles.	Remain within the ambits of the PWP and Environmental Authorization. Retain topsoil integrity for the reuse in rehabilitation.
	16. Dust emissions from drilling and general site activities (including	Increase in dust emissions	Operational phase	• Control to the implementation of dust suppression methods, when this is required. Dust suppression methods	Remain within the designated area demarcated for

Activity (whether listed or not)	**Potential impact**	**Aspects affected**	**Phase** (in which impact is anticipated)	**Mitigation type**	**Standard to be achieved**
	vehicle entrained dust)			could include wet suppression.	prospecting activities. Remain within the NEMA: Air Quality Act, 2004 Dust Regulation guidelines for rural communities.
	17. Visual Impact affecting visual character and "sense of place"	Loss in aesthetic value	Operational phase	• Control through clear delineation of the prospecting area. • Control through implementation of the conditions in the EMP.	Remain within the ambits of the PWP and Environmental Authorization. No removal of vegetation outside of demarcated areas.
	18. Vehicle traffic and drill noise impact affecting wildlife game farm animals.	Loss of fauna	Operational phase	• Control through clear delineation of the prospecting area. • Control through implementation of environmental induction and toolbox talks, as well as implementation of a fine system.	Remain within the ambits of the PWP and Environmental Authorization.
	19. Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of cattle	Operational phase	• Control through clear delineation of the prospecting area. • Control through implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. • Control through 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 PWP and Environmental Authorization.

Activity (whether listed or not)	**Potential impact**	**Aspects affected**	**Phase** (in which impact is anticipated)	**Mitigation type**	**Standard to be achieved**
	20. 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 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.
	21. Impact on the pans and associated ecosystems in the area.	Loss of sensitive environment, loss of fauna, loss of flora	Operational phase	• Control through clear delineation of the prospecting area. • Control through implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. • Control through 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 PWP and Environmental Authorization.
Removal of temporary infrastructure including: Removal of temporary site office shaded area, potable ablution faculties, water storage tanks and core bay Borehole capping Drill pad rehabilitation including: Ripping of drill pad and access road	22. Destruction and / or disturbance of on-site fauna.	Loss of sensitive environments, loss of fauna, loss of flora	Decommissioning	• Control through clear delineation of the prospecting area. • Control through implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. • Control through 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 PWP and Environmental Authorization.

Activity (whether listed or not)	**Potential impact**	**Aspects affected**	**Phase** (in which impact is anticipated)	**Mitigation type**	**Standard to be achieved**
	23. Dust emissions from decommissioning activities (including vehicle entrained dust).	Increase in dust emissions	Decommissioning	• Control through 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 NEMA Air Quality Act, 2004 Dust Regulation guidelines for rural communities.
	24. Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of cattle	Decommissioning	• Control through clear delineation of the prospecting area. • Control through implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. • Control through 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 PWP and Environmental Authorization.
	25. Potential water and soil pollution resulting from hydrocarbon spills.	Loss of water resources, loss of soil resources	Decommissioning	• Control through clear delineation of the prospecting area. • Control through implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. • Control through implementation • of the NWA GN704 water management principles.	Remain within the ambits of the PWP and Environmental Authorization.
	26. Soil erosion resulting	Loss of soil	Decommissioning	• Control through clear delineation of	Remain within the

Activity (whether listed or not)	Potential impact	Aspects affected	Phase (in which impact is anticipated)	Mitigation type	Standard to be achieved
	from the re-spreading of topsoil before vegetation is reestablished.	resources		the prospecting area. • Control through implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. • Control through implementation of a soil management programme in terms of the correct topsoil removal, stockpiling and rehabilitation practices as per the EMP.	ambits of the PWP and Environmental Authorization.

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)	None identified.	1. No mitigation proposed	N/A	Remain within the ambits of the PWP and Environmental Authorization
Phase1: Drilling				
	Site establishment	2. Site activities will be conducted during daytime hours 07h00 – 17h30 to avoid night time noise disturbances and night time collisions with fauna. 3. Vehicle speed will be reduced, particularly in highly vegetated areas is one way to avoid deaths by vehicle		

ACTIVITY (whether listed or not listed)	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		impacts.		
	Soil compaction	4. Where track clearing is necessary, raised blade clearing be conducted to minimise disturbance and aid rehabilitation efforts. 5. 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 PWP and Environmental Authorization. • Retain topsoil integrity for the reuse in rehabilitation.
	Vehicle traffic noise impact affecting cattle and/or wildlife.	6. 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 PWP and Environmental Authorization.
	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	7. 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 PWP and Environmental Authorization.
	Potential destruction of heritage resources.	8. 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: • Vegetation clearing of drill pad area • Drill pad compaction	Destruction and / or disturbance of on-site fauna and flora.	9. The removal of vegetation within the drill pad area will be minimised. 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 PWP and Environmental Authorization.

ACTIVITY (whether listed or not listed)	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
• Excavation and lining of drill water sump • Erection of temporary site office shaded area, potable ablution faculties and water storage tanks and core bay • Erection of fuel storage tank • Erection of safety barrier • Waste generation and management		The design of the drill fluid sump must incorporate effective fauna egress to avoid entrapment. 10. A fire emergency procedure will be developed to contain and minimise the destruction of flora and faunal habitat which may result from fire.		
	Soil disturbance resulting in soil compaction and erosion.	11. In the event that the drill pad is cleared of all vegetation, lower blade clearing will be undertaken prior to the stripping of topsoil. 12. Topsoil including the remaining vegetation, will be stripped and stockpiled up-slope of the pad. The stockpile will be shaped to divert storm water around the drill pad to minimise soil erosion of the pad. 13. 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. 14. Mechanical erosion control methods will be implemented if required. This may include the use of geotextiles to stabilise slopes.	Concurrently with the completion of prospecting activities	• Remain within the ambits of the PWP and Environmental Authorization. • Retain topsoil integrity for the reuse in rehabilitation.
	Dust emission resulting from site clearing, soil stripping and	15. Based on visual observation, wet dust suppression will be undertaken to manage dust emissions from vehicle movement and other construction	Concurrently with the completion of prospecting activities	• Remain within the designated area demarcated for prospecting activities. • Remain within the NEMA Air Quality

ACTIVITY (whether listed or not listed)	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
	construction activities (including vehicle entrained dust).	16. activities as and when needed. 17. 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.		Act, 2004 Dust Regulation guidelines for rural communities.
	Visual Impact affecting visual character and "sense of place".	18. 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 PWP and Environmental Authorization. • No removal of vegetation outside of demarcated areas.
	Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.	19. Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment. 20. The landowner (state land owner) will be notified of unauthorised persons encountered on site. 21. If deemed necessary, the South African Police Service will be informed of unauthorised persons encountered on site.		Maintain a 100% crime free area within the control of the prospecting activities and applicant.
	Potential destruction of heritage resources.	22. Prior to the site establishment, a heritage impact assessment must be undertaken and mitigation and / or management measure for the	Concurrently with the completion of prospecting activities	• Comply with the requirements by SAHRA. • No damage may result on heritage and cultural significant sites.

ACTIVITY (whether listed or not listed)	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		protection of such resources must be implemented		
Exploration drilling and core sample collection and storage including: • Scout and delineation drilling • Drill maintenance and re-fuelling • Core sample collection and storage • Drill fluid collection, storage and evaporation • Waste generation and management	Water and soil pollution resulting from disposal of drill fluids.	23. A sump will be constructed with a sufficient capacity to receive drill fluids and allow for evaporation 24. The sump will be constructed to divert storm water away and / or around the sump to avoid clean stormwater inflow.	Concurrently with the completion of prospecting activities	• Remain within the ambits of the PWP and Environmental Authorization. • Retain topsoil integrity for the reuse in rehabilitation.
	Continued soil erosion from topsoil stockpile and soil compaction from drill pad platform.	25. In the event that raise blade clearing is not undertaken 26. The topsoil stockpile will be shaped to divert storm water around the drill pad to minimise soil erosion of the pad. 27. Management efforts through the use of mechanical erosion control methods will be implemented if required. This may include the use of geotextiles.	Concurrently with the completion of prospecting activities	• Remain within the ambits of the PWP and Environmental Authorization. • Retain topsoil integrity for the reuse in rehabilitation.
	Potential water and soil pollution resulting from hydrocarbon spills and drill maintenance activities.	28. Fuel storage tanks will have a secondary containment structure with a capacity of 110% of the total tank capacity. 29. Oils and lubricant will be stored in secondary containment structures. 30. Where practicable, vehicle	Concurrently with the completion of prospecting activities	• Remain within the ambits of the PWP and Environmental Authorization. • 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
		maintenance will be undertaken off-site. 31. If vehicle maintenance is done on-site (like breakdown maintenance), drip trays and/or UPVC sheets will be used to prevent spills and leaks onto the soil. 32. Unused machinery must be completely drained of oil and other hydrocarbons to ensure that leaks do not develop. 33. Regular inspections of all vehicles must be carried out to ensure that all leaks are identified early and rectified. 34. A sufficient number of waste receptacles will be provided. 35. Waste separation will be undertaken at source and separate receptacles will be provided (general waste, recyclables and hazardous waste). 36. Receptacles will be closed (i.e. fitted with a lockable lid) to eliminate the possibility of access by animals overnight. 37. 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.		
	Dust emissions from drilling and general site	38. Based on visual observation wet dust suppression will be undertaken when required to manage dust emissions	Concurrently with the completion of prospecting	• Remain within the designated area demarcated for prospecting activities.

ACTIVITY (whether listed or not listed)	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
	activities (including vehicle entrained dust)	from vehicle movement. 39. Depending on the need and quantity of water used for wet suppression, chemical suppression alternatives must be considered in order to conserve water resources.	activities	• Remain within the NEMA Air Quality Act, 2004 Dust Regulation guidelines for rural communities.
	Visual Impact affecting visual character and "sense of place"	40. Visual impact of structures will be mitigated through measures as included in Item 35. 41. 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 PWP and Environmental Authorization. • No removal of vegetation outside of demarcated areas.
	Vehicle traffic and drill noise impact affecting wildlife game farm animals.	42. 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 PWP and Environmental Authorization.
	Poor access control resulting in impacts on cattle movement, breeding and grazing practices	43. Access control procedures must be agreed on with farm owners.	Concurrently with the completion of prospecting activities	Remain within the ambits of the PWP and Environmental Authorization.
	Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft	44. Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment. 45. The landowner (Department of Rural Development and Land Reform) will be notified of unauthorised persons	Concurrently with the completion of prospecting activities	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
	and opportunistic crime.	encountered on site. 46. If deemed necessary, the South African Police Service will be informed of unauthorised persons encountered on site.		
	Impact on the pans and associated ecosystems in the area.	47. The prospecting areas must be clearly demarcated. 48. No prospecting activities may be undertaken within the pan areas. 49. All site plans must indicate the presence of pans.	Concurrently with the completion of prospecting activities	Remain within the ambits of the PWP and Environmental Authorization.
Removal of temporary infrastructure including: • Removal of temporary site office shaded area, potable ablution faculties, water storage tanks and core bay • Borehole capping Drill pad rehabilitation including: • Ripping of drill pad and access road • Re-vegetation	Destruction and / or disturbance of on-site fauna.	50. 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. 51. Drill holes must be permanently capped as soon as is practicable	Concurrently with the completion of prospecting activities	Remain within the ambits of the PWP and Environmental Authorization.
	Dust emissions from decommissioning activities (including vehicle entrained dust).	52. Based on visual observation wet dust suppression will be undertaken to manage dust emissions from vehicle movement. 53. Depending on the need and quantity of water used for wet suppression, chemical suppression alternatives must	Concurrently with the completion of prospecting activities	• Remain within the designated area demarcated for prospecting activities. • Remain within the NEMA Air Quality Act, 2004 Dust Regulation guidelines for rural communities.

ACTIVITY (whether listed or not listed)	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		be considered in order to conserve water resources.		
	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	54. 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 PWP and Environmental Authorization.
	Potential water and soil pollution resulting from hydrocarbon spills.	55. All fuel storage tanks will be emptied prior to removal. 56. Drill holes must be permanently capped as soon as is practicable to eliminate the risk of groundwater contamination. 57. 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.	Concurrently with the completion of prospecting activities	Remain within the ambits of the PWP and Environmental Authorization.
	Soil erosion resulting from the re-spreading of topsoil before vegetation is reestablished.	58. Mechanical erosion control methods will be implemented if required. This may include the use of geotextiles. 59. Re-vegetation will be conducted through hand seeding exposed areas using indigenous grass species as determined by a suitably qualified ecologist. 60. Re-vegetation efforts will be monitored every 2nd month for 6 months after initial seeding.	Concurrently with the completion of prospecting activities	Remain within the ambits of the PWP and Environmental Authorization.

ACTIVITY (whether listed or not listed)	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		61. An effective vegetation cover of 45% must be achieved. Re-seeding will be undertaken if this cover has not been achieved after 6 months.		

Determination of the amount of financial provision

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

Each phase of the prospecting activities depends on the success of the previous. Depending on the outcome of the Phase 1 assessment, a drilling programme will be initiated. The location and extent of the drill sites cannot be determined at this stage.

The rehabilitation plan is developed on the basis that the rehabilitated areas are safe, stable, non-polluting and 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
- 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

Consultation with landowners

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.

Rehabilitation plan

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

Each phase of the prospecting activities depends 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 prioritised through detailed anomaly-specific loam sampling will be tested by initial drilling. The location and extent of soil sampling and drill sites cannot be determined at this stage. Prospect activity mapping could thus not be undertaken.

Due to the nature of the activities, the impacts will be 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.

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 6 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 6 months.

Compatibility of rehabilitation plan with closure objectives

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 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.

Quantum of financial provision required

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 2019 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 2019, 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.

Financial provision as determined

Confirm that the financial provision will be provided as determined.

The prospecting activities will require R **37230** (including VAT) for environmental rehabilitation. Financing will be sourced from the capital expenditure as planned by the company; this capital will come from the treasury of the company.

It should be noted that the current expenditure provided for in the PWP does not included the calculated Financial Provision as included in this Basic Assessment, as these values were not available at the time of the submission of the PWP. The provision for closure should be included in the PWP prior the decision by the DMR should this decision be positive.

CALCULATION OF THE QUANTUM

NICHE-MINING

Singo Consulting (Pty) Ltd

NW 30/5/1/1/2/12711 PR

Applicant: **Niche Mining Resources 247 (Pty) Ltd** Ref No.:

Evaluator: **Kenneth Singo** Date: **Dec-19**

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**	**1**	**0**
2 (A)	**Demolition of steel buildings and structures**	**m2**	**0**	**228**	**1**	**1**	**0**
2(B)	**Demolition of reinforced concrete buildings and struct**	**m2**	**0**	**336**	**1**	**1**	**0**
3	**Rehabilitation of access roads**	**m2**	**0**	**41**	**1**	**1**	**0**
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	395	1	1	**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**	**238 697**	**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**	**1**	**0**
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	198 195	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	575 653	1	1	**0**
9	Rehabilitation of subsided areas	ha	0	133249	1	1	**0**
10	**General surface rehabilitation**	**ha**	**0,9**	**126059**	**0,01**	**0,05**	**56,72655**
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		**56,72655**

1	Preliminary and General	6,807186	**weighting factor 2** 1	**6,807186**
2	Contingencies	5,672655		**5,672655**
			Subtotal 2	**69,21**
			VAT (15%)	**37160,87**
			Grand Total	**37230**

SIGN Ndinannyi Kenneth Singo

DATE 2019/12/03

Compliance monitoring mechanisms

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

- Monitoring of Impact Management Actions
- Monitoring and reporting frequency
- Responsible persons
- Time period for implementing impact management actions
- 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. • Consultation to be signedoff by Environmental Management. • All grievances to be signed-off by Environmental Management. • All corrective action and close out of grievances to be signed-off by Environmental Management. • Proof of consultation to be submitted to the Department of Mineral Resources prior to airborne survey is conducted. • Record of grievances, corrective action taken and close out to be submitted to

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
				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: Emergency Preparedness and Response Plan; and Access control procedures and requirements.	Prospecting manager	• Confirmation of the extent of site activities to be submitted to the Department of Mineral Resources prior to such activities been undertaken. • Proof of consultation with directly affected landowners and the outcome of such consultation to be submitted to the Department of Mineral Resources. • 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 • Monthly monitoring reports to be signed-off by the Environmental Manager. • Corrective action to be confirmed and signed-off by the Environmental Manager. • Consolidated monthly monitoring reports (including the corrective action taken) to be submitted to the Department of Mineral Resources.

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
	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 • Monthly monitoring reports to be signed-off by the Environmental Manager. • Corrective action to be confirmed and signed-off by the Environmental Manager. • 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 • Monthly monitoring reports to be signed-off by the Environmental Manager. • Corrective action to be confirmed and signed-off by the Environmental Manager. • 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	All secondary containment structure will be inspected on a regular basis to confirm the integrity thereof and to identify potential leaks.	Prospecting Manager Contractor	• Monthly monitoring reports to be signed-off by the Environmental Manager. • Corrective action to be confirmed and

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
	and waste management	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.		signed-off by the Environmental Manager. • Consolidated monthly monitoring reports (including the corrective action taken) to be submitted to the Department of Mineral Resources. • Incident reporting will be undertaken as required in terms of the relevant legislation including, but not limited to, the Mineral and Petroleum Resources Development Act 28 of 2002; and 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. • Monthly monitoring reports to be signed-off by the Environmental Manager. • Corrective action to be confirmed and signed-off by the Environmental Manager. • Consolidated monthly monitoring reports (including the corrective action taken) to be submitted to the Department of Mineral Resources. • Final impact and risk assessment report for site closure to be submitted to the DMR for approval.

Frequency of performance assessment submission

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 include the financial provision assessment. The reports should be submitted to the DMR.

Environmental Awareness Plan

Manner in which 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 17. The purpose of this schedule is to ensure that employees are not only trained but that the principles are continuously re enforced.

TABLE 16: 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	• 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. • Establish a basic knowledge of the environmental legal framework and consequences of non-compliance. • Clarify the content and required actions for the implementation of the Environmental Management Plan. • Confirm the spatial extent of areas regarded as sensitive and clarify restrictions. • 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 daily as part of daily tool box talks.

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

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
- 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
- Content and implementation of the approved Environmental Management Plan
    - Allocated responsibilities and functions
    - Management and mitigation measures
    - Identification of risks and requirements adaptation
- Sensitive environments and features
    - Description of environmentally sensitive areas and features
    - Prohibitions as it relates to activities in or in proximity to such areas
- 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 centres (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 minimise 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
- 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.

Specific information required by the Competent Authority

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

No specific information was required by the Competent Authority.

UNDERTAKING

The EAP herewith confirms:

- The correctness of the information provided in the reports
- The inclusion of comments and inputs from stakeholders and I&APs
- The inclusion of inputs and recommendations from the specialist reports where relevant
- 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

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Signature of the Environmental Assessment Practitioner (Singo Consulting (Pty) Ltd)

Name of company

Singo Consulting (Pty) Ltd

Date 03-11-2019

-END-