

**PROPOSED PROSPECTING RIGHT ON PORTION 6 AND
7 OF THE FARM GAMS 367 (15 065.81 HA), FOR IRON;
ZINC; LITHIUM; LEAD; NICKEL; AND COPPER
IN MAGISTERIAL DISTRICT OF GORDONIA LOCAL
MUNICIPALITY, NORTHERN CAPE PROVINCE.**

FINAL BASIC ASSESSMENT REPORT



AUGUST 2023

REFERENCE NUMBER: NC30/5/1/2/2/13382PR

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EXECUTIVE SUMMARY

African Exploration Mining and Finance Corporation SOC Ltd (“hereinafter referred to as “the Applicant”), applied for environmental authorisation (EA) and a prospecting right for iron ore, lead, zinc ore, nickel ore, and copper ore on Portion 6 and 7 of the farm Gams No 367, Magisterial District of Gordonia, Northern Cape. The proposed activity will make use of non-invasive as well as invasive prospecting that will include borehole drilling to retrieve geological core samples. No bulk sampling will be done.

The proposed project triggers listed activities in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and the Environmental Impact Assessment Regulations 2014 (as amended 2017) and therefore requires an environmental impact assessment (basic assessment process) that assess project specific environmental impacts and alternatives, consider public input, and propose mitigation measures, to ultimately culminate in an environmental management programme that informs the competent authority (Department of Mineral Resources and Energy) when considering the environmental authorisation. This report, the Final Basic Assessment Report, forms part of the departmental requirements, and presents the first report of the EIA process.

Project Description

The proposed prospecting footprint applied for is 15 065.81 ha on portion 6 and 7 of the Farm Gams 367 for Iron; Zinc; Lithium; Lead; Nickel; and Copper in Magisterial District of Gordonia Local Municipality, Northern Cape Province.

The proposed activity will make use of non-invasive as well as invasive prospecting activities that will include borehole drilling to retrieve geological core samples. No bulk sampling will be done. Prospecting sites will be moved to various area depending on sensitivity and accessibility.

Non-Invasive Activities will consist of the following:

Historical and newly acquired data:

- Will be subjected to detailed geological, facies and sedimentological interpretations by integration into a three-dimensional software package (typically DataMine™).
- Advanced studies may follow on from the initial phases of prospecting depending on the results obtained and could include metallurgical and rock mechanics studies, resource estimations, environmental impact assessments, socio-economic studies, culminating in a pre-feasibility study if successful.

Geochemical Survey:

- Geochemical surveys will entail studies of soil samples and may be extended to samples taken selectively from the material historically derived. All samples will be sent to a suitable laboratory for comprehensive analyses.

Geophysical Survey:

- Geophysical surveys would include radiometric and other appropriate surveys.
- Analysis will be assigned to a competent and well-established firm of specialist geophysicists.

Other methods:

- Electronic data capture of all information into a GIS (ArcView™) system with three dimensional modelling in DataMine™. Aerial photographs and satellite imagery are available from which useful spatial and topographical data may be obtained in respect of mapping prospective sites.
- If warranted the more costly techniques of aerial magnetometry and/or seismology may be considered, although the nature of the terrain will make the latter difficult to mount.

Invasive Activities will consist of the following:

- Drilling: Reverse Circulation drilling is the most cost-effective method for the testing and assessing the deposit with Percussion techniques being offered as an alternative should circumstances so require. Initially 10 such boreholes are proposed. Up to 20 diamond drill holes are suggested to recover core samples in support of laboratory analysis. Laboratory will proceed concurrently with drilling. All drilling shall be undertaken to a maximum depth of 500 meters.
- There won't be any excavation, and pitting.
- No extensive trenching will be done, only for the water reticulation and sump during drilling (no more than 1m X 1m area per drilling site) water will be brought to site from a commercial resource and not from the farm property(ies).

Site Alternative 1:

Site Alternative 1 was identified as the preferred and only viable site alternative based on the following: The Prospecting area with a footprint of approximately 15 065.81 ha on portion 6 and 7 of the Farm Gams 367, in Magisterial District of Gordonia Local Municipality, Northern Cape Province (hereafter referred to as the application property).

- The mineral deposits being applied for are confined to the Hotazel Formation of the Griqualand West Supergroup of the middle Proterzoic age. The base of the Hotazel Formation consists of a bright-red banded iron-formation bed (varying from massive to fine-grained specularite

and/or euhedral magnetite crystals) overlying volcanic glass breccias and lavas of the Ongeluk Formation.

- There are two main groups of minerals from the Kalahari manganese field: the first is associated with the ore and often consists of microscopically identifiable minerals; the second group consists of minerals found in cracks, fissures and pockets. A large portion of the minerals are calcium-manganese silicates with varying amounts of sulphides, carbonates and borates. Minerals such as sphalerite (ZnS), galena (PbS), etc. are some of the are common components of the sulphides. In addition, there are known mines and reported mineral occurrences of the minerals being applied for in the vicinity of the proposed area.

Availability of the mineral resource will only be determined should prospecting the prospecting right be granted and drilling can take place.

Layout Alternative: Site 1

Final Layout Alternative (FLA) (Preferred Layout): During the EIA phase, the potential impact of the proposed activities on the receiving environmental were assessed by, amongst others, the wetland, ecologist specialists. The specialists considered the initial layout based on the drilling plan and accordingly submitted their respective recommendations. Following receipt of the specialist reports, the initial layout of the project was refined to accommodate their findings. Prospecting sites will be moved to various area depending on sensitivity and accessibility.

No-go Alternative:

The no-go alternative was not deemed to be the preferred alternative as:

- The applicant will not be able to prospect for any possible mineral resource;
- The application, if approved, would allow the applicant to determine the available mineral as well as provide employment opportunities to local employees. Should the no-go alternative be followed, these opportunities will be lost to the applicant, potential employees and clients; and
- The applicant will not be able to diversify the income of the property.

Not proceeding with the proposed operation will entail that a mineral which if found will contribute towards the local and provincial social and economic structures of the area, will not be mined, and that this opportunity will be lost.

Public Participation Process:

In accordance with the timeframes stipulated in the EIA Regulations, as amended, the Draft Basic Assessment Report was compiled and distributed for comment and perusal to the I&APs and stakeholders. A 30-day commenting period that ended on 23 August 2023 at 17:00, was allowed for perusal of the documentation and submission of comments.

During this public participation process the relevant stakeholders and I&APs were informed of the project by means of a notification letter sent via email. An advertisement in the Gemsbok Newspaper on 21 July 2023 and Site notices that were placed in Afrikaans and English at the Dawid Kruiper Public Library in Upington, at the farm boundary fence of Portion 6 Road marker R360-1 36 0N and portion 7 on the R360 approximately 1.35km from the Kalahari guest farm. Two hard copies of the Draft Basic Assessment and EMPR were made available to the public at the Dawid Kruiper Public Library and Wessels and Smith Attorneys

The comments received on the DBAR is incorporated into the Final Basic Assessment Report (FBAR) to be submitted for decision making to DMRE.

Basic Assessment Report:

The Basic Assessment Report identifies the potential positive and negative impacts that the proposed activity will have on the environment and the community as well as the aspects that may impact on the socio-economic conditions of directly affected persons, and proposes possible mitigation measure that could be applied to modify / remedy / control / stop the identified impacts.

The key finding of the environmental impact assessment entail the following:

Topography:

The topography of the study area varies between parallel dunes about 3–8 m above the plains and flat, gravel plains. This topography consists of open shrublands with ridges of grassland dominated by *Stipagrostis amabilis* on the dune crests and *Acacia haematoxylon* on the dune slopes, also with *A. mellifera* on lower slopes and *Rhigozum trichotomum* in the interdune straiten. On the flat plains, the area consists of low karroid shrublands. Karoo-related elements (shrubs) meet here with northern floristic elements, indicating a transition to the Kalahari region and sandy soils. The altitude varies between 814 - 914m.

Visual Characteristics:

The viewshed analysis showed that the visual impact of the proposed prospecting operation will be of low significance. The small scale of the proposed operation contributes to the low visual significance. Should the Applicant successfully rehabilitate the prospecting areas (upon closure), no residual visual impact is expected upon closure of the prospecting activities.

Air and Noise Quality:

The proposed activity will contribute the emissions of a drilling rig and a field vehicles to the receiving environment for the duration of the operational phase. Should the prospecting holder implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use. The potential impact on the noise ambiance of the receiving environment is expected to be of low significance and representative of the machinery already operational at the property.

Geology & Soil:

The proposed prospecting area consists of Cenozoic Kalahari Group sands and small patches also on calcrete outcrops and screes on scarps of intermittent rivers (mekgacha). In places Dwyka Group tillites outcrop. The soils are deep (>300 mm), red-yellow, apedal, freely drained, with a high base status, typical of Ae land type. The area also consists of Aeolian sand underlain by superficial silcretes and calcretes of the Cenozoic Kalahari Group. Fixed parallel sand dunes, with Af land type almost exclusively.

Hydrology:

The proposed site falls within three Quaternary Catchments. The greater part of the study area lies within Catchment D42E which includes the Doringdam Spruit. This spruit has a part of its source area in the project area and then passes on down to the Molopo River. It is NFEPA listed as being an Orange River tributary.

In the south-eastern corner of the study area is Catchment D73E. This area includes the headwaters of an unnamed watercourse which flows southwards to enter the Orange River near Upington. The catchment is small and is probably of very low significance. Finally, the north-eastern corner of the study area just reaches into Catchment D42D. This catchment flows around the northern side of Catchment D42E and enters the Molopo River.

While Catchments D42E and D73E have clear evidence of channels with erosion features, Catchment D42D appears to have no clear drainage line. Its surface topography tends to have very low gradients and it consists primarily of dune fields and plains with numerous depressions (pans). Therefore, any

rainfall into its area is likely to be held and then to either evaporate away, or else to percolate down into the soil. An implication of this is that it may contribute some ground water to the other two catchments.

The applicant is in the process of applying for a water uses authorisation to the Department of Water and Sanitation, in terms of the National Water Act, 1998 (Act No 36 of 1998) which will be submitted for the Section 21 (c) and (i) waters uses.

Mining, Biodiversity and Groundcover:

The prospecting activities does not require the removal of any large trees or vegetation of significance. The proposed prospecting area does indeed fall in sections within a Ecological Support Area, however it can be considered that due to the small footprint of a borehole, the drill position can be manipulated to drill between the small geophytes. In light of this, the impact of the prospecting operation on the vegetation cover of the receiving environment is deemed to be of low significance. According to the Terrestrial Impact Assessment (Appendix K2), the area indicated as Ecological Support Area matches that of the Aquatic Biodiversity Theme. This correlation is considered to be realistic since the areas which may contain water would be the most important in that arid landscape. The pans were the only place where animals such as Springbok were seen and it was also noticed that they contain numerous Ground Squirrel as well as a smaller number of Bat-eared Fox burrows. Should the mitigation measures and monitoring programmes proposed in this document be implemented, no fatal flaws could be identified that prevents the activity continuing.

Fauna:

Various small mammals and reptiles occur on the property. The fauna at the site will not be impacted by the proposed prospecting activity as they will be able to move away or through the site, without being harmed. Workers should be educated and managed to ensure that no fauna at the site is harmed.

As per the screening report, a few species had been identified with a high to medium sensitivity. According to the Terrestrial Impact Assessment (Appendix K2), the Ludwig's Bustard (*Neotis ludwigii*) has indeed been listed as being of High and medium sensitivity which is recorded from the area as it is listed in the SABAP observation lists. It was not seen during the course of the site visit while the Northern Black Korhaan (*Afrotis afraoides*) was commonly seen. Since the major threat to the species is documented as collisions with power and telephone lines, the proposed drilling of six boreholes is unlikely to pose any new level of threat in the project area other than for some temporary disturbance from the drilling sites.

Furthermore, the fauna of the area will be disturbed by the human presence and drilling activity. While this will not be of relevance to the more common species such as Springbok, other species and especially smaller burrowing species which will not move very freely due to either specialised habitat requirements or to territorial restrictions, could be affected. Activity near pans during the wet season could have significant impacts on the birds which utilise them.

With this said, the drilling sites will have to be fully rehabilitated as per the mitigation measures set out in this document as well as in consultation with the landowner / landowners. Should this prospecting right be granted farm owners will be consulted prior to commencement of any activities to ensure that safety of animals and workers.

Cultural and Heritage Environment:

As per the screening report, the area has a low heritage impact but has a very high palaeontology sensitivity and according to the SAHRA Paleontological sensitivity map the study area is of moderate sensitivity and a desktop study is required for this aspect.

The Heritage Impact Assessment (Appendix K3) states that due to the geographical size of the exploration application and the fact that no intrusive activities will occur at this point of the application, it was deemed not feasible to conduct fieldwork at this point. Several large-scale heritage surveys were conducted for renewable energy and mining projects in the area and the archaeological character of the area is now well described. This provides the opportunity to establish potential heritage resources that could be affected in the area. It is clear from the studies conducted that the general area has a wealth of heritage sites and a cultural layering dating back to the Stone Age with scatters and sites dating to the Early Stone Age (ESA), Middle Stone Age (MSA) and Late Stone Age (LSA). Sites and artefacts dating to these periods are scattered over the landscape with MSA and LSA sites centred on rocky outcrops, pans and watercourses and similar sites are expected to occur in the project area.

No intrusive activities will occur at this point of the application and the potential impact on heritage resources is expected to be very low.

However, once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, which should be conducted prior to the commencement of prospecting activities. A paleontological desktop study should be conducted once the impact areas are confirmed. The Applicant will implement a chance-find protocol on site for the duration of the site establishment, operational- and decommissioning phase. Should sensitive areas be identified the boreholes will move accordingly.

Site Specific Infrastructure:

The prospecting site will contain the following:

- Surveying Equipment;
- Chemical toilet;
- Drilling equipment;
- Geophysical logging equipment;
- Field Vehicles;
- Sample Analysis equipment; and
- Other relevant field equipment.

During the Environmental Impact Assessment process, the feasibility of the proposed site was assessed to identify fatal flaws that are deemed as severe as to prevent the activity continuing or warrant a site or project alternative. The outcome of the assessment showed that should the mitigation measures and monitoring programmes proposed in this document be implemented, no fatal flaws could be identified that prevents the activity continuing.

Environmental Management Programme (EMPR)

The EMPR provides a description of the impact management outcomes and closure objectives. It presents the impacts to be mitigated in their respective phases as well as stipulates the mitigation measures to be applied on site.

The financial provision amount that will be necessary for the rehabilitation of damages caused by the operation, both sudden closures during the normal operation of the project and at final, planned closure gives a sum of R 140,953.42.

LIST OF ABBREVIATIONS

BGIS	Biodiversity GIS
CARA	Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)
CBA	Critical Biodiversity Area
DALR&RD	Department of Agriculture, Land Reform and Rural Development
DBAR	Draft Basic Assessment Report
DMRE	Department of Mineral and Resources and Energy
DoT	Department of Transport
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIA Regulations	Environmental Impact Assessment Regulations, 2014 (as amended)
EISC	Ecological Importance and Sensitivity Category
EMPR	Environmental Management Programme
ESA	Early Stone Age
FBAR	Final Basic Assessment Report
GDP	Gross Domestic Product
GNR	Government Notice
I&APs	Interested and Affected Parties
LSA	Late Stone Age
MHSA	Mine Health and Safety Act, 1996 (Act No. 29 of 1996)
MPRDA	Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
MSA	Middle Stone Age
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:AQA	National Environmental Management: Air Quality Control Act, 2004 (Act No. 39 of 2004)
NEM:BA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NEM:WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NFEPA	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resources Act, 1999 (Act No 25 of 1999)
NRTA	National Road Traffic Act, 1996 (Act No. 93 of 1996)
NWA	National Water Act, 1998 (Act No. 36 of 1998)

PCB's	Polychlorinated Biphenyl
PCO	Pest Control Officer
PES	Present Ecological State
PPE	Personal Protective Equipment
PR	Prospecting Right
PSM	Palaeontological Sensitivity Map
RA	Risk Assessment
REC	Recommended Ecological Category
S1	Site Alternative 1
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SAMBF	South African Mining and Biodiversity Forum
USBM	US Bureau of Mines
WMA	Water Management Area
WULA	Water Use Licence Application

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BASIC ASSESSMENT REPORT

And

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATION IN TERMS OF THE NATIONAL ENVIRONMENTAL 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:	NC30/5/1/2/2/13382PR

IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 29 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 can 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:
 - (i) the nature, signification, consequence, extent, duration, and probability of the impacts occurring to; and
 - (ii) the degree to which these impacts –
 - (aa) can be reversed;
 - (bb) may cause irreplaceable loss of resources; and
 - (cc) can be managed, avoided or mitigated;
- (e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to –
 - (i) identify and motivate a preferred site, activity and technology alternative;
 - (ii) identify suitable measures to manage, avoid or mitigate identified impacts; and
 - (iii) identify residual risks that need to be managed and monitored.

PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1. CONTACT PERSON AND CORRESPONDENCE ADDRESS

a) Details of: Greenmined Environmental

In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) the proponent must appoint an independent Environmental Assessment Practitioner (EAP) to undertake the environmental impact assessment (EIA) of any activities regulated in terms of the aforementioned Act. African Exploration Mining and Finance Corporation SOC Ltd appointed Greenmined Environmental to undertake the study needed. Greenmined Environmental has no vested interest in African Exploration Mining and Finance Corporation SOC Ltd or the proposed project and declares its independence as required by the Environmental Impact Assessment Regulations, 2014 (as amended) (EIA Regulations).

i) Details of the EAP

Name of the Practitioner: Mrs Murchellin Saal (Senior Environmental Consultant)
Tel No.: 021 851 2673
Fax No.: 086 546 0579
E-mail address: murchellin.s@greenmined.co.za

ii) Expertise of the EAP.

(1) The qualifications of the EAP

(with evidence).

Mrs. M Saal has twelve years of experience in environmental legal compliance audits, (GIS) geographic information system, mining right and permit applications and applications for environmental authorisations & Water use applications. Full curriculum vitae with evidence is attached as Appendix I.

(2) Summary of the EAP's past experience.

(In carrying out the Environmental Impact Assessment Procedure)

Mrs. Murchellin Saal has 12 years' experience in doing Water use Licence Applications, Environmental Impact Assessments and Mining applications in South Africa. Mrs. M Saal is a registered Environmental Assessment Practitioner (registration no: 2021/4203) with EAPASA (Environmental Assessment

Practitioners Association of South Africa) since 2021. See a list of past projects attached as Appendix I.

b) Location of the overall Activity.

Table 1: Location of the proposed project.

Farm Name:	Portion 6 and 7 of the farm Gams No 367, Magisterial District of Gordonia, Northern Cape.
Application area (Ha)	15 065.81 ha
Magisterial district:	Gordonia District Municipality
Distance and direction from the nearest town	The proposed area is situated about 33 km north of Upington.
21 digit Surveyor General Code for each farm portion	<ul style="list-style-type: none"> • C02800000000036700006 • C02800000000036700007

c) Locality map

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

The requested map is attached as Appendix B.

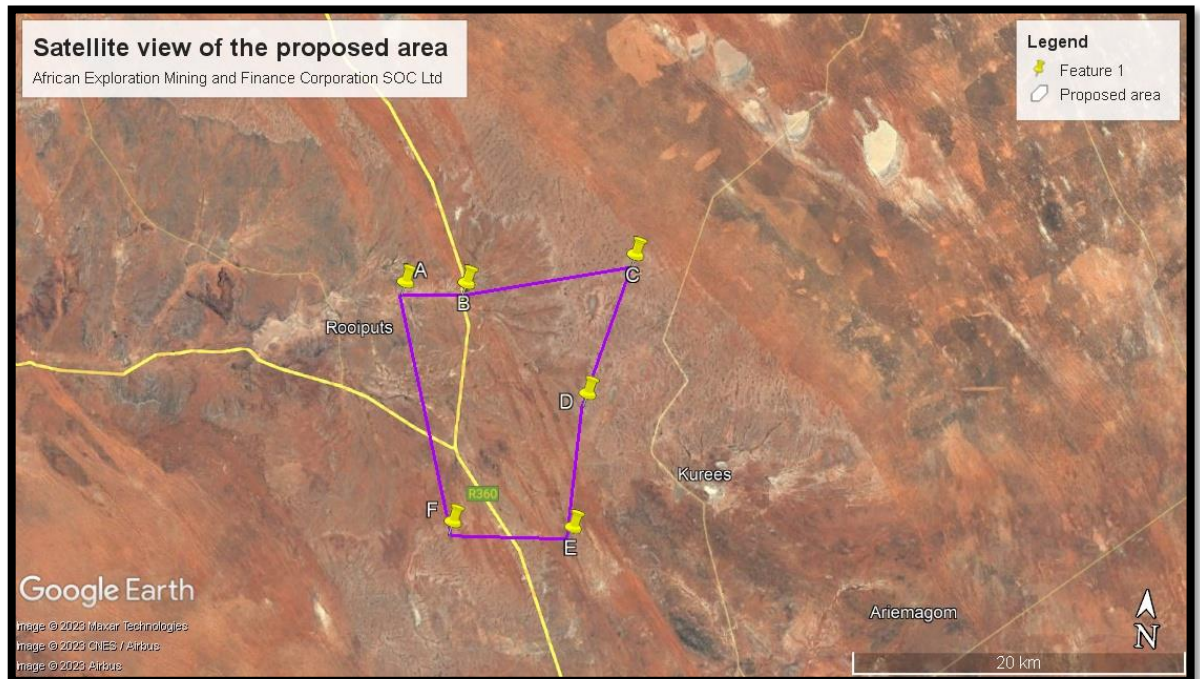


Figure 1: Satellite view of the proposed prospecting right area of African Exploration Mining and Finance Corporation SOC Ltd (image obtained from Google Earth).

d) 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 aforesaid main and listed activities, and infrastructure to be placed on site

African Exploration Mining and Finance Corporation SOC Ltd (“hereinafter referred to as “the Applicant”) applied for a prospecting right over Portion 6 and 7 of the farm Gams No 367, Magisterial District of Gordonia, Northern Cape (15 065.81ha). The proposed prospecting area is a natural area. The planned activity for the proposed site is detailed below under point i. All activities will be contained within the boundaries of the site. Prospecting drill sites will be moved to various area depending on sensitivity and accessibility.

See attached as Appendix C and C1 for a copy of the prospecting activities and the proposed drill plan of the prospecting right.

i) Listed and specified activities

Table 2: Listed and specified activities triggered by the associated prospecting activities

NAME OF ACTIVITY (E.g. For prospecting – drill site, site camp, ablution facilities, accommodation, equipment storage, sample storage, site office, access route etc... etc... etc E.g. for mining – excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	Aerial extent of the activity Ha or m ²	LISTED ACTIVITY Mark with an X where applicable or affected	APPLICABLE LISTING NOTICE (GNR 324, GNR 325, GNR 326 OR GNR 327)
Prospecting	15 065.81 ha	X	GN517 Environmental Impact Assessment Regulations Listing Notice 1 Activity 20
Drilling	0.3 ha	X	GN517 Environmental Impact Assessment Regulations Listing Notice 1 Activity 20
Site Camp	80 m ²	X	GN517 Environmental Impact Assessment Regulations Listing Notice 1 Activity 20
Ablution Facilities	10 m ²	X	GN517 Environmental Impact Assessment Regulations Listing Notice 1 Activity 20
Equipment storage	50 m ²	X	GN517 Environmental Impact Assessment Regulations Listing Notice 1 Activity 20
Sample Storage	40 m ²	X	GN517 Environmental Impact Assessment

NAME OF ACTIVITY (E.g. For prospecting – drill site, site camp, ablution facilities, accommodation, equipment storage, sample storage, site office, access route etc... etc... etc E.g. for mining – excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	Aerial extent of the activity Ha or m ²	LISTED ACTIVITY Mark with an X where applicable or affected	APPLICABLE LISTING NOTICE (GNR 324, GNR 325, GNR 326 OR GNR 327)
			Regulations Listing Notice 1 Activity 20
Temporal Site Offices	40 m ²	X	GN517 Environmental Impact Assessment Regulations Listing Notice 1 Activity 20
Access Roads	100 m ²	X	GN517 Environmental Impact Assessment Regulations Listing Notice 1 Activity 20
GN517 Environmental Impact Assessment Regulations Listing Notice 1 Activity 20 <i>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, as well as any other applicable activity as contained in the Listing Notice or in Listing Notice 3 of 2014, required to exercise the prospecting right.</i>			

ii) Description of the activities to be undertaken

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

The proposed prospecting footprint applied for is 15 065.81 ha on Portion 6 and 7 of the Farm Gams 367 for Iron; Zinc; Lithium; Lead; Nickel; and Copper in Magisterial District of Gordonia Local Municipality, Northern Cape Province.

The proposed activity will make use of non-invasive as well as invasive prospecting activities that will include borehole drilling to retrieve geological core samples. No bulk sampling will be done. Prospecting sites will be moved to various areas depending on sensitivity and accessibility.

DESCRIPTION OF PLANNED NON-INVASIVE ACTIVITIES:

(These activities do not disturb the land where prospecting will take place, e.g. aerial photography, desktop studies, aeromagnetic surveys, etc.)

Phase 1:

Database compilation

Upon granting of the Prospecting Right, the initial activity will be to source additional public domain data from agencies such as the Council for Geoscience and Department

of Mineral Resources. In particular, historical exploration work such as sample data, geophysics, and diamond drill information is particularly relevant to inform the ongoing exploration programme.

Preliminary project logistical activities

Prior to engaging in exploration of any new area, it is necessary to contact and obtain the permission of the surface rights holders to engage in exploration activities on their land. Initially, the site exploration works will be the low-key activities mentioned below; therefore, accommodation will be at a suitable local commercial facility. Should the project progress, certain, logistical activities such as identification of a suitable site office/accommodation will require completion prior to commencing Phase 3 activities.

Remote sensing/Field mapping/Geochemical survey/Geophysical survey

These activities will be conducted to outline potential deposits of the metals being applied for. Remotely sensed data such as ASTER and Sentinel multispectral data will be processed using GIS software to locate features diagnostic to these deposits. As for field mapping, it will be conducted by walking over the prospecting right and taking field observations and samples of the rocks that outcrop; Geochemical survey will be conducted preferably through hand-held XRF techniques.

With regards to geophysics, public and private domain geophysical data that exists over the project area will be procured and utilised to facilitate and inform the ongoing exploration. At any stage of the project, it may be decided that additional, more detailed geophysical surveys may be required for various technical reasons. These surveys may comprise magnetic and electromagnetic surveys although other techniques may also be considered. The decision to utilise additional geophysical methods will be taken by the Competent Person, in consultation with the companies consulting geophysicists, at the appropriate stage of the project. All the above work will be continually compiled and interpreted within the GIS environment. This will enable the focus of ongoing activities on the areas of potential.

DESCRIPTION OF PLANNED INVASIVE ACTIVITIES:

(These activities result in land disturbances e.g. sampling, drilling, bulk sampling, etc.)

Phase 2-3

Drilling/Trenching

Drilling will be carried out to provide sample material from intersections of the targeted strata or geological features. A small excavator or tractor-loader-backhoe will be used for trenching of a 1 m x 1 m water reticulation sump during drilling. On the other hand, the preferred method to employ for drilling is Reverse Circulation (RC) and/or diamond drill techniques. The objective of drilling programme is to assess the presence of potentially economic mineralisation. The number of drill holes to be dug and their depths to the top will depend on the results of Phase 1 and initial act2. Once favourable geological or geomorphological features such as channel lag gravel is encountered, then a detailed drilling grid will be prepared to focus on establishing the extent (and/or potential available volume) of the gravel deposit. Due to the small scale and nature of the prospecting activities the pollution potential is of low significance. The project is expected to have a negligible impact in this regard as prospecting activities will be done by drilling prospecting boreholes in phases of 6 areas consisting of a total of 100 drilling prospecting boreholes comprising an area of approximately 400 square meters per site with a total of no more than 0.4 ha disturbed at any given time. Prior to moving to the next drill block these sites will have to be fully rehabilitated as per the mitigation measures set out in this document as well as in consultation with the landowner / landowners., thereby keeping the impact on the receiving environment as low as possible.

At this stage of the project, it is impossible to define the exact locations of drill sites or number of drillholes to be dug. However, the detailed drilling spacing will be planned to allow the defining of an Inferred Mineral Resources as per the SAMREC code.

1.1 Access Road

Access routes to the drill sites will also be located existing roads will be used and new tracks only permitted in exceptional circumstances.

1.2 Equipment and Infrastructure

The applicant plans to establish an area of 1m X 1m area per drilling site No extensive trenching will be done. The only equipment to be used during the invasive phase of the prospecting activities is the percussion drill rig, two vehicles and a small excavator or tractor-loader-backhoe to be used for trenching. No other infrastructure is needed or will be established. The drilling crew will reside at the nearest accommodation in Upington and therefore no campsite is needed on the earmarked properties.

1.3 Water Use

The drilling operation requires $\pm 1\ 000$ l of water per day that will be sourced from a commercial source. Potable water will be brought to site daily by the employees.

1.4 Electricity

The prospecting activities do not require electricity.

1.5 Waste Management

Due to the nature of the project, the small scale of the activity, and the fact that no infrastructure is established, or maintenance work done within the earmarked footprint, very little to no general waste is generated as a direct result of the prospecting activities. Any waste generated during the invasive phase, is contained in the site vehicles, and daily removed from the site.

Hazardous waste will mainly be the result of accidental spillages or breakdowns. Such contaminated areas will be cleaned up immediately and contaminated soil will be contained in designated hazardous waste containers to be removed daily to a hazardous waste disposal yard at Upington. Major spill or leak of hydrocarbons or any other hazardous solvents into the ground and/or water resources, must be reported within the prescribed timeframes to all relevant authorities, including the Directorate: Pollution and Chemicals Management. Containment, clean-up, and remediation must commence immediately in the case of NEMA section 30 incidents, and the necessary documentation must be completed and submitted within the prescribed timeframes.

The applicant is reminded of its “general duty of care towards the environment” as prescribed in section 28 of the NEMA, 1998 which states that “Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.

1.6 Servicing and Maintenance

No workshop or service area is needed or will be established within the boundaries of the prospecting right. When needed the maintenance/service of the drill rig will be

performed on site within the 400 square metre drilling area and in line with approved impact management measures (i.e., hydrocarbon spill management, etc.).

The prospecting site will contain the following:

- Surveying Equipment;
- Chemical Toilet;
- Drilling equipment;
- Geophysical logging equipment;
- Field Vehicles;
- Sample Analysis equipment; and
- Other relevant field equipment.

DESCRIPTION OF PRE-/FEASIBILITY STUDIES:

(Activities in this section include but are not limited to: initial geological modelling, resource determination, possible future funding models, etc.)

Scoping study

Following the completion of the Phase 2 and initial stages of Phase 3 work and should a potentially economic Mineral Resource have been defined that is metallurgically recoverable; a Scoping Study will be completed as per normal industry practice. This will include a preliminary prospecting mine and plant design, provisional environmental and social impact studies, and a financial model that will provide an indication whether the project is potentially viable. This work is generally performed by a Competent Person and will be done off-site. Should the Scoping study prove positive, the decision will be taken to move the project to the Feasibility study.

Feasibility study

A multi-disciplinary pre-feasibility study will be done based on the geological model and mineral resource category outlined above. The outcome of the pre-feasibility Study will be a complete prospecting mine and plant design, together with a preliminary EMPR for the operations. Should this prove positive, feasibility study work will commence.

Feasibility study will essentially improve the degree of accuracy of the pre-feasibility. This may include the detailed prospecting design, bulk sampling, or trial mining; preparation and application for the water use licence, EMPR, and prospecting licence; and placement of provisional orders for construction. The outcome of the feasibility

study will provide a blueprint for construction, and the procurement of permitting and project finance.

DECOMMISSIONING PHASE

The decommissioning phase will entail the removal of the drill rig and any foreign material from site; progressive closing of the drill holes and using material from around the boreholes and landscaping any compacted surfaces (if needed) will be implemented as the contractor moves from one borehole to the next. Upon closure of the prospecting right the area will return to its natural state. Due to the nature of the activity no buildings or permanent infrastructure needs to be demolished and the access roads will remain intact to be used by the landowner.

The decommissioning activities will therefore consist of the following:

- Removal of all prospecting machinery from the prospecting area;
- Removal of the chemical toilet from the prospecting area;
- Capping of all the boreholes with sand material from around the boreholes;
- Landscaping and replacing the topsoil (if removed); and
- Controlling the invasive plant species.

The PR Holder will comply with the minimum closure objectives as prescribed by the DMRE and detailed below:

- Final Rehabilitation:
Final rehabilitation of the surface area shall entail landscaping, levelling, maintenance, and clearing of invasive plant species (if applicable). All equipment, plant and other items used during the prospecting period will be removed from site (section 44 of the MPRDA, 2002). Waste material of any description will be removed from the prospecting area and disposed of in line with the company's waste management procedure. It will not be permitted to be buried or burned on the site. The replacement of topsoil in areas surrounding the development footprint should be sought in situ immediately after the disturbance. The management of invasive plant species will be done (if applicable) in a sporadic manner during the life of the activity. Species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto) will be eradicated from the site. All re-growth of invasive vegetative material must be monitored by the Applicant during the

decommissioning phase of the development. Final rehabilitation shall be completed within a period specified by the Regional Manager. All areas under rehabilitation are to be treated as no-go areas using danger tape and steel droppers/fencing and cordoned off, to prevent vehicular, pedestrian and livestock access. Rehabilitation structures must be inspected regularly for the accumulation of debris, blockages, instabilities, and erosion with concomitant remedial and maintenance actions.

Once the prospecting area was rehabilitated the PR Holder is required to submit a closure application to the Department of Mineral Resources in accordance with section 43(4) of the MPRDA, 2002 that states: *“An application for a closure certificate must be made to the Regional Manager in whose region the land in question is situated within 180 days of the occurrence of the lapsing, abandonment, cancellation, cessation, relinquishment or completion contemplated in subsection (3) and must be accompanied by the prescribed environmental risk report”*. The Closure Application will be submitted in terms of Regulation 62 of the MPRDA, 2002, and Government Notice 940 of NEMA, 1998 (as amended). See attached as Appendix C a copy of the site activities map for the proposed project.

The table below lists the GPS coordinates of the proposed prospecting area as shown on the Regulation 2(2) Prospecting Plan attached as Appendix A.

See attached as Appendix C a copy of the site activities map for the proposed project.

Table 3: GPS Coordinates of the proposed prospecting footprint.

Name	DEC DEGREES	
	LAT	LONG
A	-28.064612	20.991008
B	-28.062907	21.028319
C	-28.041620	21.130234
D	-28.118121	21.106681
E	-28.190596	21.103276
F	-28.191853	21.029594
A	-28.064612	20.991008

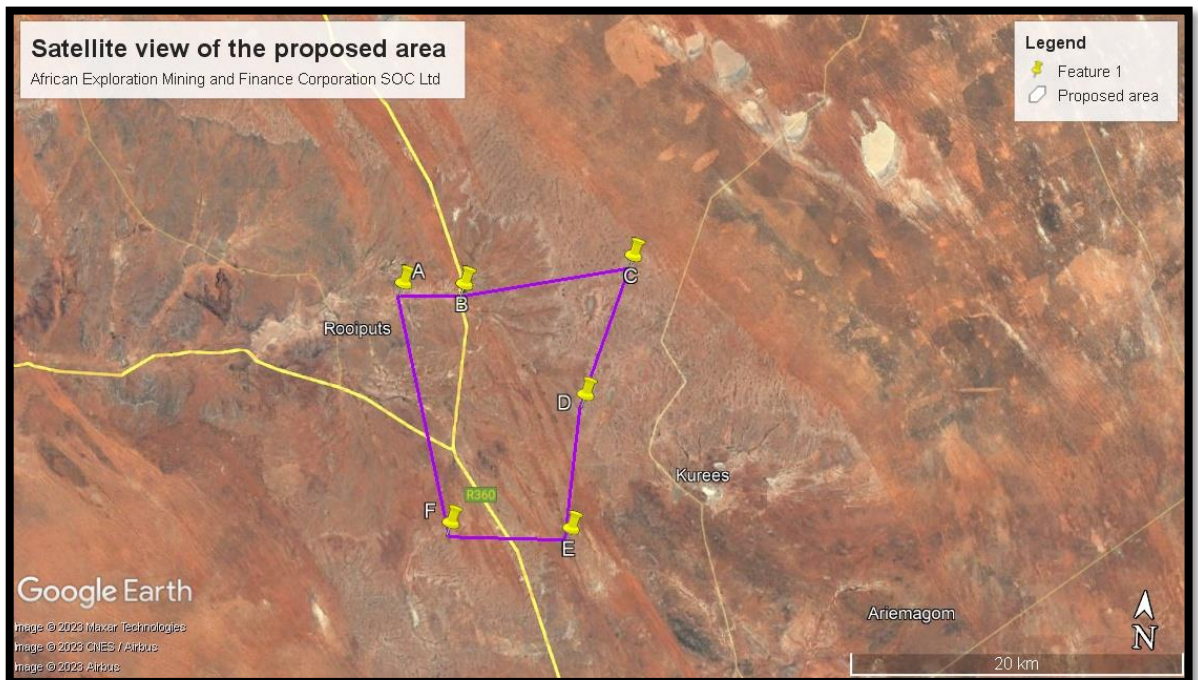


Figure 2: Satellite view showing the position of Site Alternative 1 (purple polygon) within the surrounding landscape (image obtained from Google Earth).

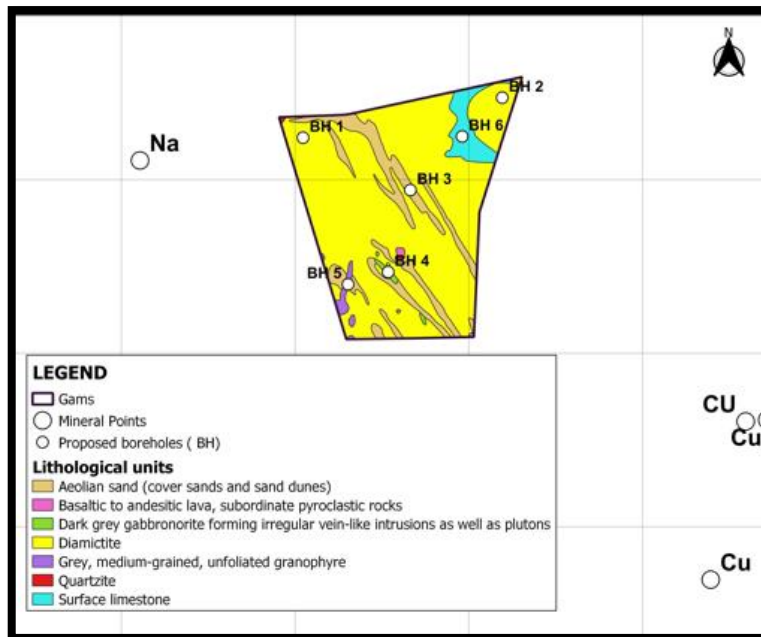


Figure 3: Drilling plan showing the proposed drilling locations of Site Alternative 1. Prospecting sites will be moved to various areas depending on sensitivity and accessibility.

Should the PR be issued and the prospecting for Iron; Zinc; Lithium; Lead; Nickel; and Copper be allowed, the proposed project will comprise of activities that can be divided into three key phases as discussed in more detail below:

Phase	Activity (what are the activities that are planned to achieve optimal prospecting)	Skill(s) required (refers to the competent personnel that will be employed to achieve the required results)	Timeframe (in months) for the activity)	Outcome (what is the expected deliverable, e.g. geological report, analytical results, feasibility study, etc)	Timeframe for outcome (deadline for the expected outcome to be delivered)	What technical expert will sign off on the outcome? (e.g. geologist, mining engineer, surveyor, economist, etc)
1	Non-Invasive prospecting <ul style="list-style-type: none"> - Desktop study - Remote sensing data processing - Field mapping - Geochemical survey - Geophysical survey - Planning of trenching/drilling and sampling programme 	Geologist	18 months	Preliminary reports on historical data. Conceptual target map. Geological map. Geochemical anomaly targets (Target generation) Geophysical anomaly map (Target generation) Trenching/Drilling plans.	1-18 months	Geologist
2	Invasive prospecting <ul style="list-style-type: none"> - Trenching/Drilling on wide spaced grid; - Follow up trenching/drilling on denser grid in identified target Non-Invasive prospecting <ul style="list-style-type: none"> - Geochemical analysis of samples - Geological modelling and Resource estimation 	Geologist, Economic Geologist and Geologist	18 months	First phase exploration drilling report	18-36 months	Geologist, and Economic Geologist
3	<ul style="list-style-type: none"> - Invasive prospecting - Advanced phase of detailed drilling/trenching and sampling; - Mineral resource and reserve estimations in line with industry requirements; Non-Invasive prospecting	Geologist Economic, Geologist Environmentalist and Mine Geologist	24 months	Second phase exploration drilling report	30-36 months	Geologist Economic, Geologist Environmentalist and Mine Geologist

	<ul style="list-style-type: none">- Scoping study;- Prefeasibility study;- Environmental impact assessment for a potential mining operation;- Conceptual mine planning;- Permitting and authorisations					
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e) Policy and Legislative Context

Table 4: Policy and Legislative Context.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT. (E.g. in terms of the National Water Act a Water Use License has/has not been applied for)
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983).	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity: <i>Physical Environment – Geology and Soil.</i> Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Management of invader plant species.</i>	The mitigation measures proposed for the site includes specifications of the CARA, 1983.
Mine Health and Safety Act, 1996 (Act No 29 of 1996) read together with applicable amendments and regulations thereto including relevant OHSA regulations.	Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Management of Health and Safety Risks.</i>	The mitigation measures proposed for the site includes specifications of the MHSA, 1996
Mineral and Petroleum Resources Development Act, 2002, (Act No. 28 of 2002) read together with applicable amendments and regulations thereto. <ul style="list-style-type: none"> • Section 16 	Part A(1)(d) Description of the scope of the proposed overall activity	Application for a prospecting right submitted to DMRE-NC. Ref No: NC30/5/1/2/2/13382PR
National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 (as amended by GNR 326 effective 7 April 2017) <ul style="list-style-type: none"> • GNR 517 Listing Notice 1 Activity 20 	Part A(1)(d)(i) Listed and specified activities.	Application for environmental authorisation submitted to DMRE-NC Ref No: NC30/5/1/2/2/13382PR
National Environmental Management: Air Quality Control Act, 2004 (Act No 39 of 2004) read together with applicable amendments and regulations thereto specifically the National Dust Control Regulations, GN No R827.	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – <i>Air and Noise Quality.</i> Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Dust Handling.</i>	The mitigation measures proposed for the site consider the NEM:AQA, 2004 and the National Dust Control Regulations.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT. (E.g. in terms of the National Water Act a Water Use License has/has not been applied for)
National Environmental Management Act: Biodiversity Act, 2004 (Act No. 10 of 2004) read together with applicable amendments and regulations thereto.	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity - <i>Biological Environment</i> Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Management of invader plant species.</i>	The mitigation measures proposed for the site includes specifications of the NEM:BA, 2004.
National Environmental Management: Waste Act, 2008 (Act No 59 of 2008) read together with applicable amendments and regulations thereto. NEM:WA, 2008: National norms and standards for the storage of waste (GN 926)	Part A(1)(d)(ii) Description of the activities to be undertaken	The mitigation measures proposed for the site consider the NEM:WA.
National Heritage Resources Act. 1999 (Act No 25 of 1999).	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – <i>Human Environment</i>	The mitigation measures proposed for the site includes specifications of the NHRA, 1999.
Guideline on Need and Desirability	Part A(1)(f) Need and desirability of the proposed activities.	The need and desirability of the project was assessed in accordance with these guidelines.
The South African Constitution	Implied throughout the document	To be upheld throughout the EIA assessment, planning-, construction-, operational- and decommissioning phases.
Financial Provisioning Regulations, 2015 (as amended),	Part A(1)(h)(i)(l) Closure phase of the proposed activity	Application for environmental authorisation submitted to DMRE-NC to be applied throughout the EIA assessment, Closure phase. Ref No: NC30/5/1/2/2/13382PR
Public Participation Guideline in terms of the NEMA EIA Regulations	Part A(1)(h)(ii) Details of the Public Participation Process Followed	Public participation was conducted in accordance with the guidelines published in terms of the NEMA EIA Regulations

f) Need and desirability of the proposed activities.

(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 rout of the activity)

Table 5: Need and desirability determination.

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
<u>How will this development impact on the ecological integrity of the area?</u>		
Question	Response	Level of Desirability
How were ecological integrity considerations taken into account?	As discussed under <i>Part A(1)(g)(iv)(1)(a) Type of environment affected by the proposed activity</i> , prospecting of the proposed area will be performed over a period of 5 years and divided into three phases. The prospecting programme will consist of non-invasive and invasive exploration. Non-invasive prospecting activity is implemented to limit the environmental footprint experienced within the prospecting area and generally leaves little to no evidence of exploration activity. The Invasive exploration will however entail drilling and minimal trenching. Also refer to: <ul style="list-style-type: none"> Part A(1)(g)(i) Details of the development footprint alternatives considered. Part A(1)(g)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Vegetation. Part A(1)(g)(viii) The possible mitigation measures that could be applied and the level of risk. 	Desirable
How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity?		
How will this development pollute and/or degrade the biophysical environment?	Due to the small scale and nature of the prospecting activities the pollution potential is of low significance. The project is expected to have a negligible impact in this regard as prospecting activities will be done by drilling prospecting boreholes in phases of 6 areas consisting of a total of 100 drilling prospecting boreholes comprising an area of approximately 400 square meters per site with a total of no more than 0.4 ha disturbed at any given time. Prior to moving to the next drill block these sites will have to be fully rehabilitated as per the mitigation measures set out in this document as well as in consultation with the landowner / landowners., thereby keeping the impact on the receiving environment as low as possible.	

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES

How will this development impact on the ecological integrity of the area?

Question	Response	Level of Desirability
What waste will be generated by this development?	The general waste generated by the prospecting activities mainly consist of items such as food wrappers of the drilling operators. This is kept within the site vehicles and daily removed from site. As mentioned earlier, hazardous waste is mainly the result of accidental spillages/breakdowns. Such contaminated areas are immediately (within first hour of the occurrence) cleaned and the contaminated soil is contained in a designated hazardous waste container that is daily (when applicable) removed, from where it is disposed of as hazardous waste at the nearest hazardous waste disposal site. The chemical toilet will be serviced by an accredited contractor. No waste is/will be disposed of or treated on site.	Highly Desirable
How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage?	<p>As per the screening report, the area has a low heritage impact but has a very high palaeontology sensitivity and according to the SAHRA Paleontological sensitivity map the study area is of moderate sensitivity and a desktop study is required for this aspect.</p> <p>The Heritage Impact Assessment (Appendix K3) states that due to the geographical size of the exploration application and the fact that no intrusive activities will occur at this point of the application, it was deemed not feasible to conduct fieldwork at this point. Several large-scale heritage surveys were conducted for renewable energy and mining projects in the area and the archaeological character of the area is now well described. This provides the opportunity to establish potential heritage resources that could be affected in the area. It is clear from the studies conducted that the general area has a wealth of heritage sites and a cultural layering dating back to the Stone Age with scatters and sites dating to the ESA, MSA and LSA. Sites and artefacts dating to these periods are scattered over the landscape with MSA and LSA sites centred on rocky outcrops, pans and watercourses and similar sites are expected to occur in the project area.</p> <p>No intrusive activities will occur at this point of the application and the potential impact on heritage resources is expected to be very low.</p>	Could not be determined

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES

How will this development impact on the ecological integrity of the area?

Question	Response	Level of Desirability
	However, once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, which should be conducted prior to the commencement of prospecting activities. A paleontological desktop study should be conducted once the impact areas are confirmed The Applicant will implement a chance-find protocol on site for the duration of the site establishment, operational- and decommissioning phase. Should sensitive areas be identified the boreholes will move accordingly.	
How will this development use and/or impact on non-renewable natural resources?	As per the prospecting work programme (PWP), There are two main groups of minerals from the Kalahari manganese field: the first is associated with the ore and often consists of microscopically identifiable minerals; the second group consists of minerals found in cracks, fissures, and pockets. A large portion of the minerals are calcium-manganese silicates with varying amounts of sulphides, carbonates, and borates. Minerals such as sphalerite (ZnS), galena (PbS), etc. are some of the are common components of the sulphides. In addition, there are known mines and reported mineral occurrences of the minerals being applied for in the vicinity of the proposed area.	Could not be determined
How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part?	The prospecting activities does not make use of electricity and water will be sought from a commercial source.	Highly Desirable
How were a risk-averse and cautious approach applied in terms of ecological impacts?	If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that ecological impacts should be fully mitigated.	Desirable
How will the ecological impacts result from this development impact on people's environmental right?	Should the prospecting activities be approved the potential visual-, dust-, and noise impacts associated with the proposed activity will be of very low significance. If the proposed mitigation measures and monitoring programs, as proposed in this	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
<u>How will this development impact on the ecological integrity of the area?</u>		
Question	Response	Level of Desirability
	document, is implemented, it is believed that no environmental rights of the surrounding residents/public will be affected by the ecological impacts associated with the proposed activity.	
Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development’s ecological impacts will result in socio-economic impacts.	If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that the prospecting activities will not affect the physical, psychological, cultural or social needs of the community in a negative manner, nor will it impact negatively on the socio-economic status of the area.	Desirable
Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?		
Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified, resulted in the selection of the “best practicable environmental option” in terms of ecological considerations		
2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT		

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES

How will this development impact on the ecological integrity of the area?

Question	Response	Level of Desirability
<u>What is the socio-economic context of the area?</u>		
Question	Response	Level of Desirability
What is the socio-economic context of the area?	Please refer to Heading 2(h)(iv)(1)(a) Socio-economic Environment.	Highly Desirable
Considering the socio-economic context, what will the socio-economic impacts be of the development, and specifically also on the socio-economic objectives of the area?	As mentioned earlier, should this prospecting right be approved the applicant will be able to, <ul style="list-style-type: none"> • Prospect for any possible Iron; Zinc; Lithium; Lead; Nickel; and Copper resource; • Determine the available mineral resource as well as provide employment opportunities to local employees. • It will also diversify the income of the property as well as potential employees and clients. 	Highly Desirable
How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?	If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that the prospecting activities will not affect the physical, psychological, cultural or social needs of the community in a negative manner, nor will it impact negatively on the socio-economic status of the area.	Highly Desirable
Will the development result in equitable impact distribution, in the short- and long-term?	The prospecting activities proposes to operate in a socially and economically sustainable manner during both the short- and long term.	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES

How will this development impact on the ecological integrity of the area?

Question	Response	Level of Desirability
In terms of location, describe how the placement of the proposed development will contribute to the area.	<p>As per the prospecting work programme (PWP),</p> <ul style="list-style-type: none"> • The mineral deposits being applied for are confined to the Hotazel Formation of the Griqualand West Supergroup of the middle Proterzoic age. The base of the Hotazel Formation consists of a bright-red banded iron-formation bed (varying from massive to fine-grained specularite and/or euhedral magnetite crystals) overlying volcanic glass breccias and lavas of the Ongeluk Formation. • There are two main groups of minerals from the Kalahari manganese field: the first is associated with the ore and often consists of microscopically identifiable minerals; the second group consists of minerals found in cracks, fissures and pockets. A large portion of the minerals are calcium-manganese silicates with varying amounts of sulphides, carbonates, and borates. Minerals such as sphalerite (ZnS), galena (PbS), etc. are some of the are common components of the sulphides. In addition, there are known mines and reported mineral occurrences of the minerals being applied for in the vicinity of the proposed area. <p>Availability of the mineral resource will only be determined should prospecting be granted and drilling can take place.</p>	Highly Desirable
How were a risk-averse and cautious approach applied in terms of socio-economic impacts?	No negative socio-economic impacts could, at this stage, be identified that cannot be managed through the implementation of mitigation measures.	Highly Desirable
How will the socio-economic impacts result from this development impact on people's environmental right?	As mentioned in Heading 3(j)(1) <i>Impact on the socio-economic condition of any directly affected person</i> , the activity may have an impact on the visual characteristics of the surrounding environment and may potentially affect air quality and possibly the noise ambiance of the study area. However, should the prospecting activities be approved the potential visual-, dust-, and noise impacts associated with the proposed activity will be of very low significance. If the proposed mitigation measures and	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
<u>How will this development impact on the ecological integrity of the area?</u>		
Question	Response	Level of Desirability
	monitoring programs, as proposed in this document, is implemented, it is believed that no environmental rights of the surrounding residents/public will be affected by the socio-economic impacts associated with the proposed activity.	
Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts?	As mentioned above should the prospecting activities be approved the potential visual-, dust-, and noise impacts associated with the proposed activity will be of very low significance. If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that no environmental rights of the surrounding residents/public will be affected by the socio-economic impacts associated with the proposed activity.	Highly Desirable
What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?	Please refer to: <ul style="list-style-type: none"> • Part A(1)(g)(vii) The positive and negative impacts that the proposed activity and alternatives will have on the environmental and the community that may be affected. 	Highly Desirable
What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons?		

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES

How will this development impact on the ecological integrity of the area?

Question	Response	Level of Desirability
<p>What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?</p>	<p>The prospecting site will (if approved) operate in accordance with, amongst others, the following:</p> <ul style="list-style-type: none"> • CARA, 1983 – to ensure agriculture related compliance; • Financial Provision Regulations, 2015 – to ensure compliance in terms of rehabilitation; • Mine Health and Safety Act, 1996 (as amended) – to ensure employee safety; • MPRDA, 2002 (as amended) – to ensure prospecting related compliance; • NEM:AQA, 2004 – to ensure air quality related compliance; • NEM:BA, 2004 – to ensure biodiversity related compliance; • NEM:WA, 2008 – to ensure waste related compliance; and • NEMA, 1998 (as amended) – to ensure environmental related compliance; 	Highly Desirable
<p>What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?</p>		
<p>Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community that is consistent with the priority needs of the local area.</p>	<p>The proposed prospecting will also contribute to the diversification of activities on the property, extending it from grazing and agriculture to small scale prospecting. The need is to find iron ore, lead, zinc ore, nickel ore, and copper ore</p>	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES

How will this development impact on the ecological integrity of the area?

Question	Response	Level of Desirability
<p>What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected.</p>	<p>The prospecting right activities will be in accordance with the specifications of the Mine Health and Safety Act, 1996. Site management will have daily discussions with the drill rig operators regarding the work to be performed and the environment in which the work will take place. Grievances/concerns can be lodged during the daily site meetings.</p>	<p>Highly Desirable</p>
<p>Describe how the development will impact on job creation in terms of, amongst other aspects?</p>	<p>As mentioned earlier, should this prospecting right be approved, the applicant will be able to,</p> <ul style="list-style-type: none"> • Prospect for the applied mineral resources. • Determine the available mineral resources as well as provide employment opportunities to local employees. • It will also diversify the income of the property as well as potential employees and clients. 	<p>Highly Desirable</p>
<p>What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage.</p>	<p>Should the prospecting right be approved the activities will operate under a valid prospecting right issued by the DMRE. Compliance of the prospecting right with the approval conditions can be reported on as per the departmental specifications and be managed in accordance with all the prospecting right and environmental related legislations.</p>	<p>Highly Desirable</p>

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES

How will this development impact on the ecological integrity of the area?

Question	Response	Level of Desirability
Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left.	It is believed that the mitigation measures proposed in this document is realistic and can be implemented (when needed) by the proposed activities. If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, the residual impact on the environment is of low significance.	Highly Desirable
What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution environmental damage or adverse health effects will be paid for by those responsible for harming the environment.	In terms of Section 41 of the MPRDA, 2002 a prospecting right holder must submit a financial provision to the DMRE that is sufficient to rehabilitate or manage the negative environmental impacts related to the prospecting activity.	Highly Desirable
Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified, resulted in the selection of the best practicable environmental option in terms of socio-economic considerations	<p>Please refer to:</p> <ul style="list-style-type: none"> ∞ Part A(1)(g)(i) Details of the development footprint alternatives considered; ∞ Part A(1)(g)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Socio-Economic Environment; ∞ Part A(1)(g)(vii) The positive and negative impacts that the proposed activity and alternatives will have on the environmental and the community that may be affected. 	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES

How will this development impact on the ecological integrity of the area?

Question	Response	Level of Desirability
Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area.	If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that the prospecting activities will not cause a cumulative socio-economic impact should the prospecting right application be approved, seeing that there are no other rated activities in the vicinity.	Highly Desirable

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

The proposed prospecting footprint is 15 065.81 ha over Portion 6 and 7 of the Farm Gams 367 for Iron; Zinc; Lithium; Lead; Nickel; and Copper in Magisterial District of Gordonia Local Municipality, Northern Cape Province, and will involve the following invasive activities.

- **Drilling/Trenching:**

Drilling will be carried out to provide sample material from intersections of the targeted strata or geological features. A small excavator or tractor-loader-backhoe will be used for trenching of a 1 m x 1 m water reticulation sump during drilling. On the other hand, the preferred method to employ for drilling is Reverse Circulation (RC) and/or diamond drill techniques. The objective of drilling programme is to assess the presence of potentially economic mineralisation. The number of drill holes to be dug and their depths to the top will depend on the results of Phase 1 and initial act2. Once favourable geological or geomorphological features such as channel lag gravel is encountered, then a detailed drilling grid will be prepared to focus on establishing the extent (and/or potential available volume) of the gravel deposit. Due to the small scale and nature of the prospecting activities the pollution potential is of low significance. The project is expected to have a negligible impact in this regard as prospecting activities will be done by drilling prospecting boreholes in phases of 6 areas consisting of a total of 100 drilling prospecting boreholes comprising an area of approximately 400 square meters per site with a total of no more than 0.4 ha disturbed at any given time. Prior to moving to the next drill block these sites will have to be fully rehabilitated as per the mitigation measures set out in this document as well as in consultation with the landowner / landowners., thereby keeping the impact on the receiving environment as low as possible.

At this stage of the project, it is impossible to define the exact locations of drill sites or number of drillholes to be dug. However, the detailed drilling spacing will be planned to allow the defining of an Inferred Mineral Resources as per the SAMREC code.

The aim of the exploration activity is to verify the geology, historical data and any and all site data for the project, as well as to produce a most up-to-date current surface geological and geotechnical map of the mineralised zone.

Land access and site visit will be communicated prior to commencement of activities.

The Environmental Impact Assessment process assessed the feasibility of the proposed site alternative to identify fatal flaws that are deemed as severe as to prevent the activity continuing

or warrant another site or project alternative. The outcome of the assessment showed that should the mitigation measures and monitoring programmes proposed in this document be implemented, no fatal flaws could be identified that prevents the activity continuing. In light of the above, the prospecting proposal was updated to incorporate the project related mitigation measures and monitoring programmes identified during the assessment process. The preferred development footprint was subsequently finalized and is depicted on the attached prospecting site activities plan (Appendix C). It is important to note that prospecting sites can be moved away from/to various areas depending on sensitivity and accessibility.

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

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

i) Details of the development footprint alternatives considered.

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

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

The proposed prospecting footprint applied for is 15 065.81 ha on portion 6 and 7 of the Farm Gams 367 for Iron; Zinc; Lithium; Lead; Nickel; and Copper in Magisterial District of Gordonia Local Municipality, Northern Cape Province.

The proposed activity will make use of non-invasive as well as invasive prospecting activities that will include borehole drilling to retrieve geological core samples. No bulk sampling will be done. Prospecting sites will be moved to various area depending on sensitivity and accessibility.

Non-Invasive Activities will consist of the following:

Historical and newly acquired data:

- Will be subjected to detailed geological, facies and sedimentological interpretations by integration into a three-dimensional software package (typically DataMine™).
- Advanced studies may follow on from the initial phases of prospecting depending on
- the results obtained and could include metallurgical and rock mechanics studies,
- resource estimations, environmental impact assessments, socio-economic studies,
- culminating in a pre-feasibility study if successful.

Geochemical Survey:

- Geochemical surveys will entail studies of soil samples and may be extended to samples taken selectively from the material historically derived. All samples will be sent to a suitable laboratory for comprehensive analyses.

Geophysical Survey:

- Geophysical surveys would include radiometric and other appropriate surveys.
- Analysis will be assigned to a competent and well-established firm of specialist geophysicists.

Other methods:

- Electronic data capture of all information into a GIS (ArcView™) system with three dimensional modelling in DataMine™. Aerial photographs and satellite imagery are available from which useful spatial and topographical data may be obtained in respect of mapping prospective sites.
- If warranted the more costly techniques of aerial magnetometry and/or seismology may be considered, although the nature of the terrain will make the latter difficult to mount.

Invasive Activities will consist of the following:

- Drilling: Reverse Circulation drilling is the most cost-effective method for the testing and assessing the deposit with Percussion techniques being offered as an alternative should circumstances so require. Initially 10 such boreholes are proposed. Up to 20 diamond drill holes are suggested to recover core samples in support of laboratory analysis. Laboratory will proceed concurrently with drilling. All drilling shall be undertaken to a maximum depth of 500 meters.
- There won't be any excavation, and pitting.
- No extensive trenching will be done, only for the water reticulation and sump during drilling (no more than 1m X 1m area per drilling site) water will be brought to site from a commercial resource and not from the farm property(ies).

The proposed prospecting area is a natural area. The planned activity for the proposed site's is detailed below.

All activities will be contained within the boundaries of the site.

Site Alternative 1 (S1) (Preferred and Only Site Alternative): Site Alternative 1 entails the prospecting area for Iron; Zinc; Lithium; Lead; Nickel; and Copper within the GPS coordinates as listed in the table below. Refer to figure 1

Table 6: GPS Coordinates of Site Alternative 1 (preferred and only site alternative)

Name	DEC DEGREES	
	LAT	LONG
A	-28.064612	20.991008
B	-28.062907	21.028319
C	-28.041620	21.130234
D	-28.118121	21.106681
E	-28.190596	21.103276
F	-28.191853	21.029594
A	-28.064612	20.991008

Layout Alternative

During the EIA phase, the potential impact of the proposed activities on the receiving environmental were assessed by, amongst others, the wetland, ecologist specialists. The specialists considered the initial layout based on the drilling plan (see Figure 3 or refer to Appendix C1) and accordingly submitted their respective recommendations. Following receipt of the specialist reports, the initial layout of the project was refined to accommodate their findings. Prospecting sites will be moved away from/to various area depending on sensitivity and accessibility.

No-go Alternative: The no-go alternative entails no change to the status quo and is therefore a real alternative that must be considered.

- The applicant will not be able to prospect for any possible Iron; Zinc; Lithium; Lead; Nickel; and Copper resources;
- The application, if approved, would allow the applicant to determine the available minerals as well as provide employment opportunities to local employees.

- Should the no-go alternative be followed, these opportunities will be lost to the applicant, potential employees; and the applicant will not be able to diversify the income of the property.

Not proceeding with the proposed operation will entail that a mineral which if found will contribute towards the local and provincial social and economic structures of the area, will not be prospected, and that this opportunity will be lost.

In light of this, the no-go alternative was not deemed to be the preferred alternative.

ii) Details of the Public Participation Process Followed

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

During this public participation process the relevant stakeholders and I&APs were informed of the project by means of an advertisement in the Gemsbok Newspaper on 21 July 2023. Site notices were placed in Afrikaans and English at the Dawid Kruiper Public Library in Upington and at the farm boundary fence of Portion 6, Road marker R360-1 36, 0N and another at Portion 7 on the R360 approximately 1.35km from the Kalahari guest farm.

A notification letter inviting comments on the DBAR over a 30-days commenting period (24 July to 23 August 2023) were sent to the landowners, neighbouring landowners, stakeholders, and other I&APS that may be interested in the project. The comments received on the DBAR were incorporated into the Final Basic Assessment Report (FBAR) to be submitted to the DMRE for consideration. The following I&APs and stakeholders were informed of the project:

Table 7: List of the I&AP's and stakeholders that were notified of the proposed prospecting right project.

SURROUNDING LANDOWNERS & INTERESTED AND AFFECTED PARTIES	STAKEHOLDERS
<ul style="list-style-type: none"> • Ghams Boerdery & Beleggings Pty Ltd – Portion 7, Gams Farm • Joey de wit - Portion 6 Gams Farm • Jacob Casper Kruger De witt- Portion 6 Gams Farm • John William Spencer Longland- Portion 2 Rooiputs 366 • Mooiplaats Trust- Portion 8 Rooiputs 366 • Jaco van den Heever - Portion 6 Rooiputs 366 • Areachap plase Pty ltd – Portion 0 Areachap 426 	<ul style="list-style-type: none"> • Department of Agriculture, Environment Affairs Rural Development and Land Reform - Kimberley • Department of Agriculture, Environmental Affairs Rural Development and Land Reform - Springbok • Department of Economic Development and Tourism - Kbl • (DEDAT) Department of Economic Development and Tourism - UPINGTON • Department of Roads and Public Works - Upington • Department of Roads and Public Works – Springbok • Department of Roads and Public Works - Kimberley

SURROUNDING LANDOWNERS & INTERESTED AND AFFECTED PARTIES	STAKEHOLDERS
<ul style="list-style-type: none"> • Lra 1812 Pty Ltd – Portion 0 Christiana 425 • Vreede Communal Property Association – Portion 0 Vreede 368 • Vreede Communal Property Association – Portion 4 Vreede 368 • PJ Boerdery cc – Portion 0, Uitzicht 313 Owner of Kalahari guest house & farm stall 	<ul style="list-style-type: none"> • Department of Water and Sanitation (DWS)- Kimberley • Department of Water and Sanitation - Upington • Department of Labour Northern Cape Provincial Office • ZF Mq̄cawu DM • Dawid Kruiper LM • Dawid Kruiper LM Ward 11 • Sanral • National Department of Agriculture, Land Reform and Rural Development • Eskom • South African Heritage Resources Agency

In accordance with the timeframes stipulated in the EIA Regulations of December 2014 (as amended) the Draft Basic Assessment Report (DBAR) was compiled and distributed for comments and perusal to the I&AP's and stakeholders listed above. A 30-day commenting period, that ended 23 August 2023, were allowed for perusal of the documentation and submission of comments. The comments received on the Draft Basic Assessment Report (DBAR), as part of this process, were incorporated into the Final Basic Assessment Report (FBAR), the FBAR will be submitted to the competent authority for final decision making. Proof of such consultation, which proof includes personal information of Interested & Affected Party ("participants"), will be limited to departmental documentation only, which information shall not be distributed as part of the public documentation in terms of the Prospecting Right application process. The above is implemented to ensure the protection of personal information of participants, in line with the Protection of Personal Information Act 4 of 2013 ("POPIA"), including the lawful processing of said personal information by Greenmined Environmental (Pty) Ltd ("Greenmined"), to which processing of personal information all participants consented to upon registration as participant. Participants that would like to inquire regarding specific information can do so by contacting Greenmined and by providing the necessary consent that authorises such an individual to obtain said specific information.

iii) Summary of issues raised by I&APs

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

Tables 8: Summary of issues raised by IAPs

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted	Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
AFFECTED PARTIES	X			
Landowner/s				
<ul style="list-style-type: none"> Ghams Boerdery & Beleggings Pty Ltd – Landowner of Portion 7, Ghams 367 	X	The landowners were informed of the prospecting right application. No written comments were received on the Draft BAR.		
<ul style="list-style-type: none"> Joey De Wit Landowner of Portion 6 Of Ghams 367 	X			
<ul style="list-style-type: none"> Jacob Casper Kruger De Witt - Landowner of Portion 6, Ghams 367 	X			
Landowners or lawful occupiers on adjacent properties	X			
<ul style="list-style-type: none"> John William Spencer Longland- Portion 2 Rooiputs 366 	X	No comments received on the Draft Bar.		
<ul style="list-style-type: none"> Mooiplaats Trust- Portion 8 Rooiputs 366 	X	No comments received on the Draft Bar.		
<ul style="list-style-type: none"> Jaco van den Heever - Portion 6 Rooiputs 366 	X	No comments received on the Draft Bar.		
<ul style="list-style-type: none"> Areachap plase Pty ltd – Portion 0 Areachap 426 	X	No comments received on the Draft Bar.		
<ul style="list-style-type: none"> Lra 1812 Pty Ltd – Portion 0 Christiana 425 	X	Response received from Van der Spuy and Partners, refer to below.		

Interested and Affected Parties		Date	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
List the name of persons consulted in this column, and		Comments Received			
Mark with an X where those who must be consulted were in fact consulted					
<ul style="list-style-type: none"> Van der spuy and Partners on behalf of Lra 1812 Pty Ltd – Portion 0 Christiana 425 	X	24 July 2023	<p>Request for map received from Mr. Ritz de la Bat (Van der Spuy and Partners) on behalf of LRA 1812 (Pty) Ltd</p> <p>Namens LRA 1812 (Pty) Ltd versoek ons dat u ons voorsien van 'n diagram (kaart) wat presies die 15 hektaar aantoon waar u wil prospekter.</p> <p>Ons verneem graag van u.</p> <p>Vriendelike groete</p> <p>Translation for review purpose: On behal of LRA 1812 (Pty) Ltd please provide a diagram map showing the 15hectares where propsecting will take place.</p>	<p>Greenmined response on 24 July 2023:</p> <p>Hiermee vind asb aangeeg die Regulasie 2.2 kaart waar die prospekter area van 15 065.81 hektaar vir gedeeltes 6 en 7 aangedui word vir die plaas Gams 367, Gordononia, Noordkaap.</p> <p>Vir u gerief sluit ek ook die onderstaande uitknipsel aan.</p> <p>Translation for review purpose: The requested map was sent to Mr. Ritz de la Bat on the 24 July 2023.</p>	Comments and Response Report – Appendix E (for distribution to DMRE only)
<ul style="list-style-type: none"> Vreede Communal Property Association – Portion 0 Vreede 368 	X	No comments received on the Draft Bar.			
<ul style="list-style-type: none"> Vreede Communal Property Association – Portion 4 Vreede 368 	X	No comments received on the Draft Bar.			
<ul style="list-style-type: none"> PJ Boerdery cc – Portion 0, Uitzicht 313 Owner of Kalahari guest house & farm stall 	X	3 August 2023	<p>Comment received from owner of Kalahari guesthouse & farm stall Paul & Riana Loots</p> <p>Ek is die eienaar van die Plaas Uitzicht wat grens aan die Gams Farm gedeelte wat julle wil ontgin. Ek wil kapsie maak teen die myn proses:</p> <p>Ek is die eienaar van Kalahari Guesthouse and Farmstall wat gereeld gaste ontvang by die padstal, sowel as kampering en gastehuis. Ek glo myn aktiwiteite sal inbreek maak op my gaste se privaatheid. Niemand</p>	<p>Greenmined response on 4 August 2023</p> <p>Baie dankie vir u kommentaar u word geregistreer as n “Interested and Affected Party (I&AP)”.</p> <p>Neem asb kennis hierdie aansoek is vir n prospekter reg en nie n myn reg nie. Water gaan aangekoop word vanaf n kommersiële hulpbron en vervoer word na die plaas.</p>	Comments and Response Report – Appendix E (for distribution to DMRE only)

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted	Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
		<p>hou van 'n geraas asook voertuie en mense in die omgewing waar hulle kamp of oornag nie. Die idee is reeds om die stilte van die Kalahari te kom geniet, sonder enige steurnis. Die myn aktieiteite gaan ook 'n rol speel in ons ondergrondse water bed. Ons is bekend as 'n baie droe gebied met swak reeval en kan nie bekostig dat ons ondergrondse water misbruik word en dan het ons geen water meer vir boerdery aktiwiteite nie. Ons is heeltemal afhanklik van ondergrondse water vir ons diere om te suip aangesien hier geen ander opsie van damme/riviere in ons omliggende omgewing is nie.</p> <p>In ons omgesing is baie vleie en dit is die hoofbron om die ondergrondse water tafel te voed. Die vleie is ook goeie weiding vir ons diere en baie voelsoorte lewe in die vleie en deur myn aktiwiteite sal dit skade lei. Met al hierdie feite in ag geneem maak ons ten sterkste kopsie teen die ontginning van enige soort minerale in ons omgewing</p> <p>Translation for review purpose:</p> <p>I am the owner of the farm Plaas Uitzicht neighbouring the Gams Farm. I do not support the process. I am also the owner of the Kalahari Guesthouse and farmstall and camping. I believe mining activities will cause a nuisance and will impose on the privacy of our clients. No one likes noise and vehicles where they would like to spend a night. The reason for people visiting our Guesthouse is for the peace and quiet. The mining activities will also play a role in the underground water. Our area is known as a dry area with very low rainfall and we cannot afford a mining activity</p>	<p>U kommentaar word ingesluit in die finale verslag wat aan DMRE gestuur word.</p> <p>Translation for review purpose: Greenmined acknowledged receipt and confirmed that their comments will be included in the FBAR. They were also informed that the application is for a Prospecting right and not a Mining right and that water will be sourced from a commercial source.</p>	

Interested and Affected Parties		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
List the name of persons consulted in this column, and					
Mark with an X where those who must be consulted were in fact consulted					
			that will misuse the groundwater. We are dependent on groundwater for our animals seeing that we are left with very few options like rivers or dams. The swamp areas are used for the animals for grazing and birdlife that will be negatively affected by mining. With all the above facts mentioned we do not support the mining in the area.		
Municipal councillor					
Dawid Kruiper LM – Ward 11	X	No comments received on the Draft Bar.			
Municipality					
ZF Mqacawu DM	X	No comments received on the Draft Bar.			
Dawid Kruiper LM	X	No comments received on the Draft Bar.			
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e					
Department of Transport and Public Works - Upington	X	No comments received on the Draft Bar.			
Department of Transport and Public Works - Kimberley	X	No comments received on the Draft Bar.			

Interested and Affected Parties		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
List the name of persons consulted in this column, and					
Mark with an X where those who must be consulted were in fact consulted					
Department of Transport and Public Works - Springbok	X	No comments received on the Draft Bar			
Eskom	X	No comments received on the Draft Bar.			
SANRAL	X	No comments received on the Draft Bar.			
Communities	N/A	No community were identified within the study area.			
Dept. Land Affairs					
Department of Agriculture, Environmental Affairs Rural Development and Land Reform - Kimberley	X	No comments received on the Draft Bar.			
Traditional Leaders	N/A	No community were identified within the study area.			
Dept. Environmental Affairs					
Department of Agriculture Environmental Affairs and Rural Development and Land Reform		No comments received on the Draft Bar.			
Other Competent Authorities affected					

Interested and Affected Parties		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
List the name of persons consulted in this column, and					
Mark with an X where those who must be consulted were in fact consulted					
Department of Labour – Northern cape Provincial	X	No comments received on the Draft Bar.			
Department of Water and Sanitation - Upington	X	No comments received on the Draft Bar.			
Department of Water and Sanitation - Kimberley	X	No comments received on the Draft Bar.			
South African Heritage Resources Agency	X	No comments received on the Draft Bar.			
Department of Economic Development and Tourism; Kimberley	X	No comments received on the Draft Bar.			
Department of Economic Development and Tourism; Upington		No comments received on the Draft Bar.			
National Department of Agriculture, Land Reform and Rural Development	<u>X</u>	28 July 2023	<p>Response received from Mr Kgotso Moeketsi</p> <p>1. PURPOSE 1.1 The purpose of this letter is to provide comments, as per request received from Greenmined Environmental (Pty) Ltd dated 24 July 2023 regarding the above-mentioned matter.</p> <p>2. COMMENTS 2.1 The department scrutinized the correspondence and have no objection to the draft Basic Assessment Report (DBAR) and Environmental Management Programme Report (EMPR) for the proposed prospecting of the Fe (IRON ORE), Pb (LEAD), Zn (ZINC ORE), Ni (NICKEL ORE), Cu (COPPER</p>	<p>Greenmined response on 31 July 2023</p> <p>Thank you for taking part in the Public Participation Process of the prospecting right application applied for by African Exploration Mining and Finance Corporation SOC Ltd under reference number DBAR Gordonia NC30/5/1/2/2/13382PR.</p> <p>We take note of your comments dated 31 July 2023 and will incorporate it into the Final Basic Assessment Report for consideration by the Department of Mineral Resources and Energy (DMRE).</p>	<p>Comments and Response Report – Appendix E (for distribution to DMRE only)</p>

<p>Interested and Affected Parties</p> <p>List the name of persons consulted in this column, and</p> <p>Mark with an X where those who must be consulted were in fact consulted</p>	<p>Date Comments Received</p>	<p>Issues raised</p>	<p>EAPs response to issues as mandated by the applicant</p>	<p>Section and paragraph reference in this report where the issues and or response were incorporated.</p>
		<p>ORE) subject to section 16 of the Minerals and Petroleum Resources Development Act, 2002 (Act No 28 of 2002) and the National Environmental Management Act, 1998 (Act 107 of 1998) as amended – ("NEMA") with the Environmental Impact Assessment Regulations 2014 ("EIA Regulations – Chapter 6") as amended, April 2017); requirements to be adhere to.</p> <p>3. LOCATION OF THE PROPERTIES FOR THE DBAR AND EMPr</p> <p>3.1 The properties described as portion 6 and 7 of the Gams Farm 367 in extent of approximately 15 065.81 hectares in the Magisterial District of Gordonia, Northern Cape Province and are depicted in the map below as Figure 1. There are no Departmental projects located in the vicinity of the properties. However, there are farms (Kurrees, Rooiport and Vrede) adjacent to Portion 7 of Gams Farm 367 under land restitution claims.</p> <p>4. THE SPATIAL PLANNING AND LAND USE MANAGEMENT ACT (SPLUMA)/ MUNICIPAL SDF AND LAND USE SCHEME</p> <p>4.1 The applicant must comply with the approved Dawid Kruiper Local Municipality Land Use Scheme, which is aligned with the Spatial Planning and Land Use Management Act (Act 16 of 2013) and the Department of Mineral Resources and Energy requirements for a detailed Environmental Impact Assessment.</p> <p>4.2 In terms of Chapter 5 of the SPLUMA section 26 (4) a permitted land use may, despite any other law to the contrary, be</p>		

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted	Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
		changed with the approval by the Dawid Kruiper Municipal Planning Tribunal (MPT). All land development applications will also be determined within the context of the Land Use Scheme and decided upon in accordance with the Dawid Kruiper Local Municipality Spatial Development Framework (SDF-2022/2023).		
OTHER AFFECTED PARTIES				
N/A	No comments received on the Draft Bar.			
INTERESTED PARTIES				
N/A	No comments received on the Draft Bar.			

iv) The Environmental attributes associated with the alternatives.

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

(1) Baseline Environment

(a) Type of environment affected by the proposed activity.

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

This section describes the biophysical, cultural and socio-economic environment that may be affected and the baseline conditions, which are likely to be affected by the proposed prospecting activity.

PHYSICAL ENVIRONMENT

CLIMATE

According to the meteoblue website, Upington area normally receives about 219 mm of rain per year, with most rainfall occurring mainly during summer. The chart below shows the average rainfall values for Upington area per month. It receives the lowest rainfall in July / August and the in February / March. The monthly distribution of average daily maximum temperatures shows that the average midday temperatures for Upington area range from >10.0°C in July to > 35°C in February. The region is the coldest during July when the mercury drops to -5°C on average during the night. Consult the chart below for an indication of the monthly variation of average minimum daily temperatures.

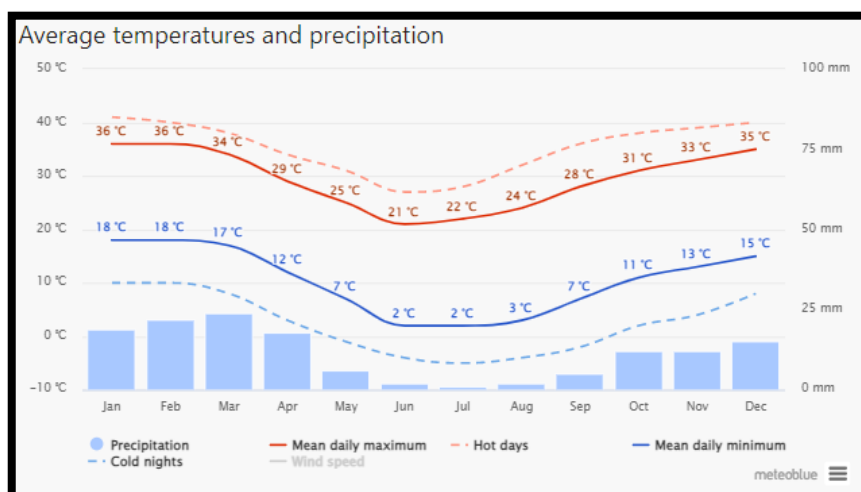


Figure 4: Statistical representation of the average rainfall, maximum temperatures, and wind speed for the Upington region (Chart obtained from meteoblue).

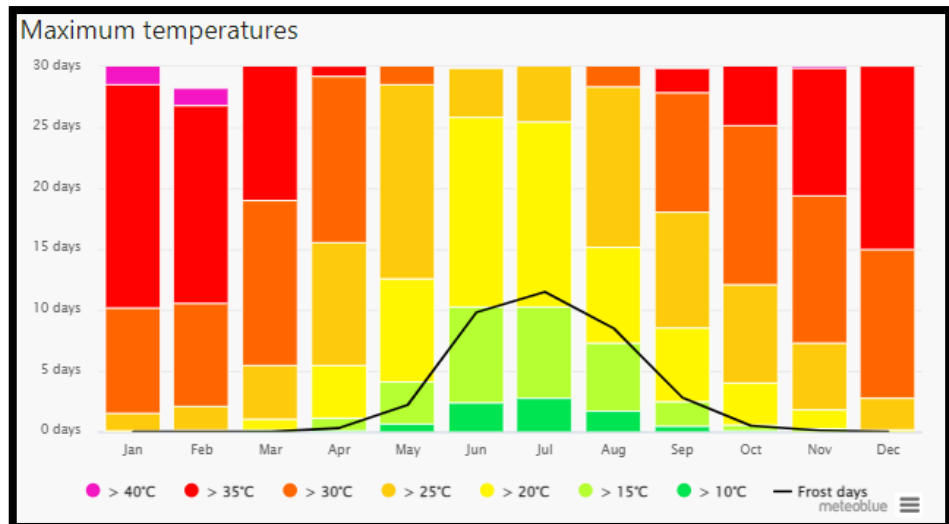


Figure 5: Statistical representation of the average rainfall, maximum temperatures, and wind speed for the Upington region (Chart obtained from meteoblue).

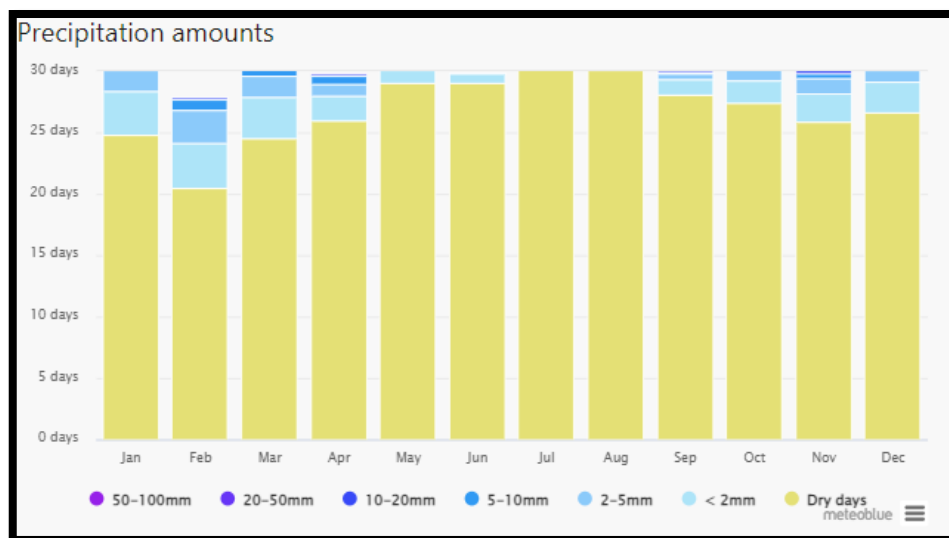


Figure 6: Statistical representation of the average rainfall, maximum temperatures, and wind speed for the Upington region (Chart obtained from meteoblue).

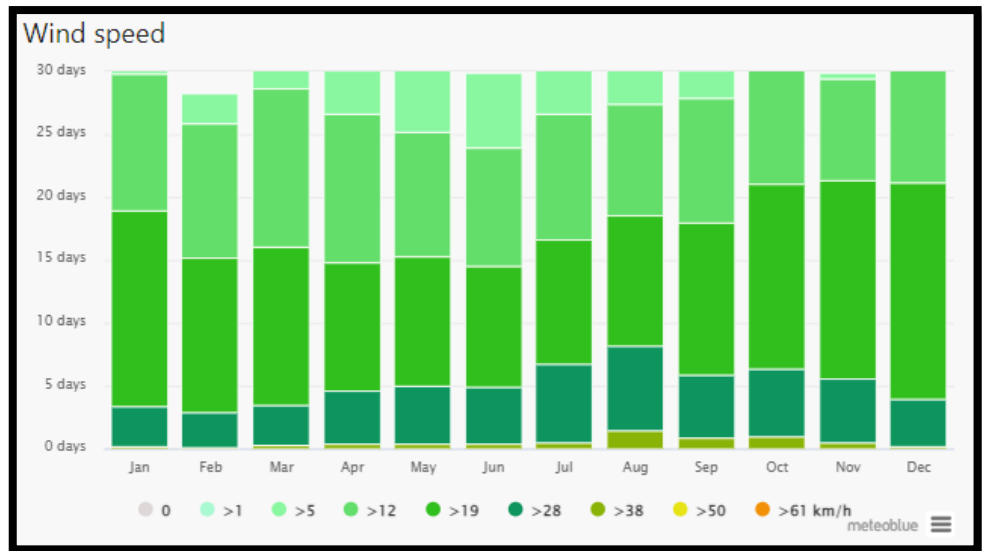


Figure 7: Statistical representation of the average rainfall, maximum temperatures, and wind speed for the Upington region (Chart obtained from meteoblue).

The dominant wind direction of Upington is constant ranging from south-west to a southerly direction. The figure below presents the wind direction distribution in % for the greater Upington area.

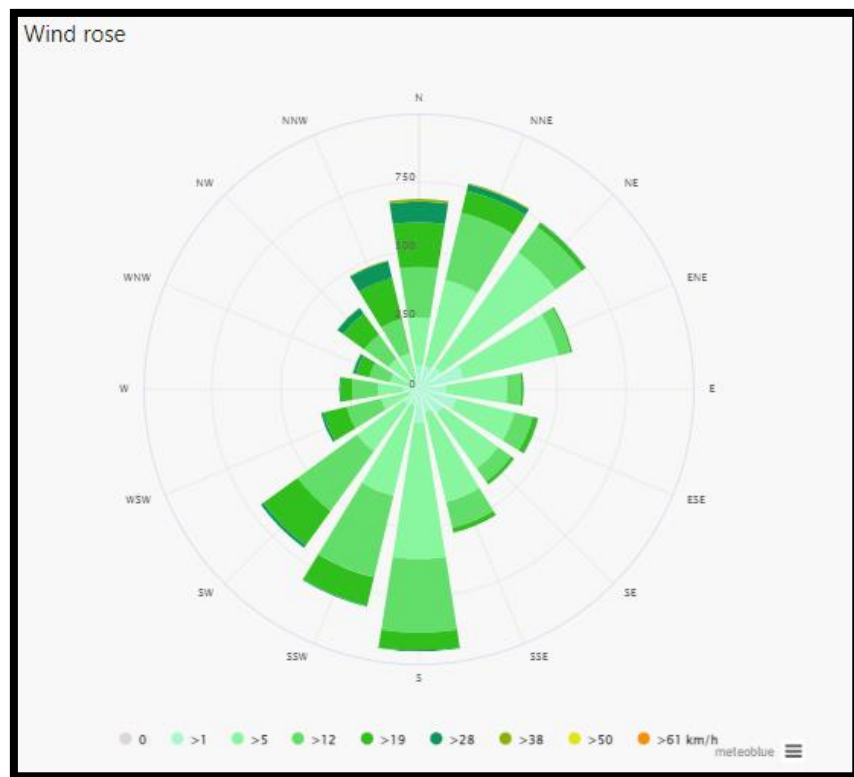


Figure 8: Annual wind direction distribution in % for the Upington area, (Image obtained from www.meteoblue.com)

TOPOGRAPHY

The topography of the study area varies between parallel dunes about 3–8 m above the plains and flat, gravel plains. This topography consists of open shrublands with ridges of grassland dominated by *Stipagrostis amabilis* on the dune crests and *Acacia haematoxylon* on the dune slopes, also with *A. mellifera* on lower slopes and *Rhigozum trichotomum* in the interdune straiten. On the flat plains, the area consists of low karroid shrublands. Karoo-related elements (shrubs) meet here with northern floristic elements, indicating a transition to the Kalahari region and sandy soils. The altitude varies between 814 - 914m.

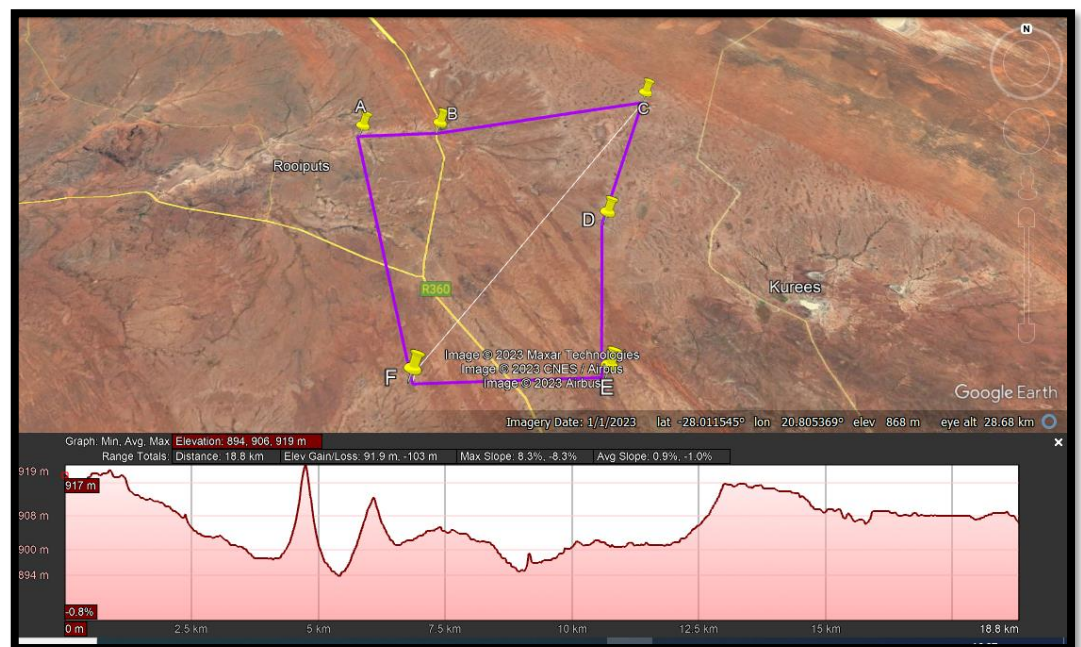


Figure 9: Elevation profile of the proposed prospecting footprint (Image obtained from Google Earth).

VISUAL CHARACTERISTICS

The viewshed analysis showed that the visual impact of the proposed prospecting operation will be of low significance. The small scale of the proposed operation contributes to the low visual significance. Should the Applicant successfully rehabilitate the prospecting areas (upon closure), no residual visual impact is expected upon closure of the prospecting activities.

AIR AND NOISE QUALITY

The air quality of the study area is generally very good given the area's predominant agricultural use and rural character. Likewise, the noise ambiance is very low (classified as ambient rural / pastoral) with noise levels mainly affected by traffic along roads in the vicinity, and the farming equipment operational in the area.

GEOLOGY AND SOIL

The proposed prospecting area consists of Cenozoic Kalahari Group sands and small patches also on calcrete outcrops and scree on scarps of intermittent rivers (mekgacha). In places Dwyka Group tillites outcrop. The soils are deep (>300 mm), red-yellow, apedal, freely drained, with a high base status, typical of Ae land type. The area also consists of Aeolian sand underlain by superficial silcretes and calcretes of the Cenozoic Kalahari Group. Fixed parallel sand dunes, with Af land type almost exclusively.

HYDROLOGY

The proposed site falls within three Quaternary Catchments. The greater part of the study area lies within Catchment D42E which includes the Doringdam Spruit. This spruit has a part of its source area in the project area and then passes on down to the Molopo River. It is NFEPA listed as being an Orange River tributary.

In the south-eastern corner of the study area is Catchment D73E. This area includes the headwaters of an unnamed watercourse which flows southwards to enter the Orange River near Upington. The catchment is small and is probably of very low significance. Finally, the north-eastern corner of the study area just reaches into Catchment D42D. This catchment flows around the northern side of Catchment D42E and enters the Molopo River.

While Catchments D42E and D73E have clear evidence of channels with erosion features, Catchment D42D appears to have no clear drainage line. Its surface topography tends to have very low gradients and it consists primarily of dune fields and plains with numerous depressions (pans). Therefore, any rainfall into its area is likely to be held and then to either evaporate away, or else to percolate down into the soil. An implication of this is that it may

contribute some ground water to the other two catchments. Please refer to Part A(1)(h)(iv)(c) for more specific information of the area.

Table 9: Aquatic characteristics of the greater study area

Water Management Area	Lower Orange
Quaternary Catchment	D42D, D42E and D73E.
NEFPA wetlands	NFEPA Wetland Map 4 and SAIIE Wetland Map 5

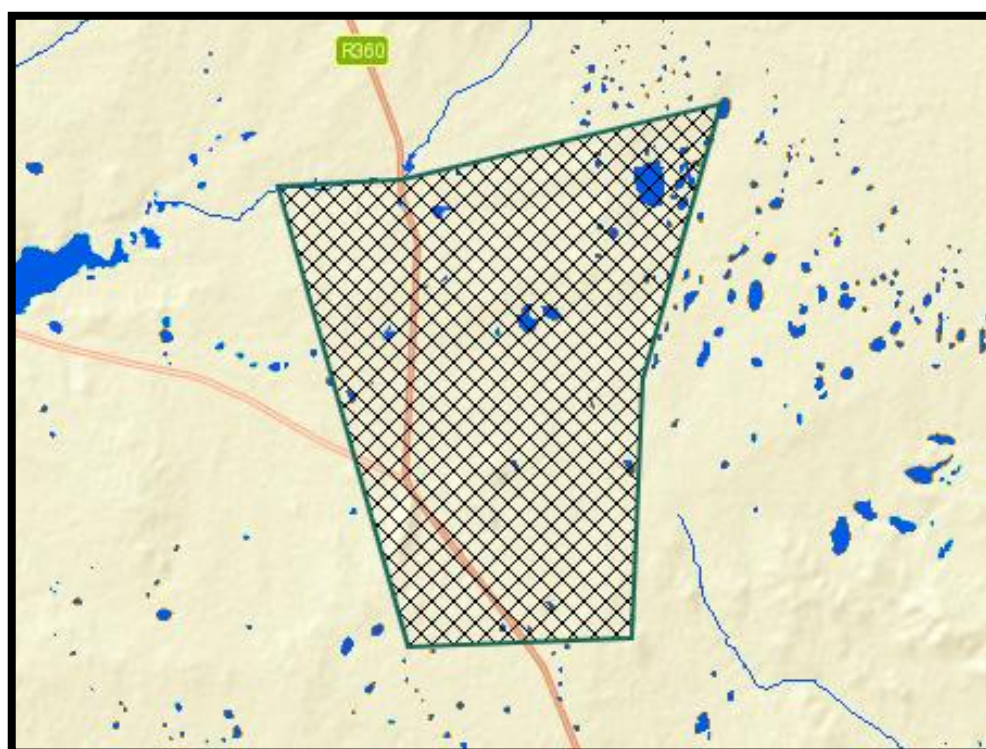


Figure 10: Map showing the proposed prospecting footprint (green polygon) and wetlands. (Image obtained from BGIS)

BIOLOGICAL ENVIRONMENT

MINING AND BIODIVERSITY

(Information extracted from the Mining and Biodiversity Guideline: Mainstreaming Biodiversity into the Mining Sector, Department of Environmental Affairs, Department of Mineral Resources, Chamber of Mines, 2013)

The Mining and Biodiversity Guideline, compiled by the South African Mining and Biodiversity Forum (SAMBF) provides the mining sector with a practical, user-friendly manual for integrating biodiversity considerations into planning

processes and managing biodiversity during the developmental and operational phases of a mine, from exploration through to closure.

When the prospecting footprint is layered over the Mining and Biodiversity Map, as shown in the figure below, it does not fall over an area of biodiversity importance (light brown area) with a corresponding rating of highest risk for mining (dark brown area). The Mining and Biodiversity Guideline's describes areas of highest biodiversity importance as: "*these areas are viewed as necessary to ensure protection of biodiversity, environmental sustainability, and human well-being.*" The guideline notes that environmental screening, the EIA and specialists should focus on confirming the presence and significance of biodiversity features and provide a site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making.

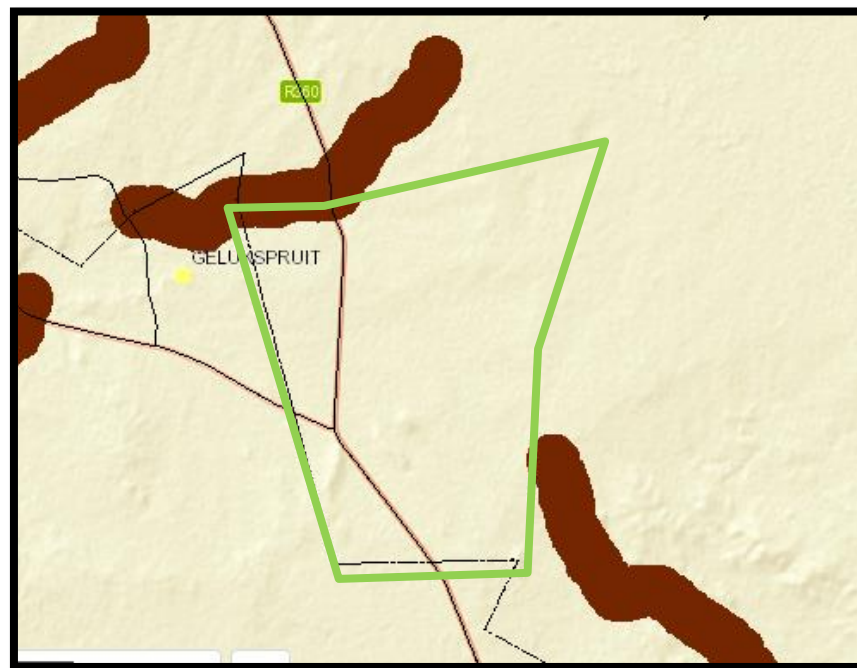


Figure 11: The Mining and Biodiversity importance map with the proposed mining footprint indicated by the blue dot. Light brown – moderate biodiversity importance, moderate risk for mining, light brown – moderate biodiversity Importance, moderate risk for mining (image obtained from the BGIS Map Viewer – Mining Guidelines).

BIODIVERSITY CONSERVATION AREAS

According to the 2016 Northern Cape Critical Biodiversity Areas (CBAs), sections of the proposed site falls within an Ecological Support Area. Due to the nature of the prospecting activities, these areas will be excluded from being disturbed.

GROUNDCOVER

According to Mucina & Rutherford (2006) the majority of the area consists of Kalahari Karroid Shrubland (NKb 5) while the middle area to south-east area of the site consists of Gordonia Duneveld (SVkd 1). Both of these vegetation types are regarded as being Least Threatened. (LT) Kalahari Karroid Shrubland has very little statutorily conserved in Augrabies Falls National Park. Although only a small area has been transformed many of the belts of this type were preferred routes for early roads, thus promoting the introduction of alien plants (about a quarter of the unit has scattered Prosopis species). Erosion is very low (94%). Gordonia Duneveld has very little transformed and generally low erosion, but some areas with spectacular destabilisation of normally vegetated dunes (through local overstocking). Please refer to Part A(1)(h)(iv)(c) for more specific information of the area.

FAUNA

Various small mammals and reptiles occur are likely to on the property. The fauna at the site will not be impacted by the proposed prospecting activity as they will be able to move away or through the site, without being harmed. Workers should be educated and managed to ensure that no fauna at the site is harmed. The project is expected to have a negligible impact in this regard as prospecting activities will be done by drilling prospecting boreholes in phases of 3 areas consisting of 20 -100 drilling prospecting boreholes comprising an area of less than 40 square meters per site with a total of less than 0.4 ha disturbed at any given time. These sites will have to be fully rehabilitated as per the mitigation measures set out in this document as well as in consultation with the landowner / landowners. Should this prospecting right be granted farm owners will be consulted prior to commencement of any activities to ensure that safety of animals and workers. Please refer to Part A(1)(h)(iv)(c) for more specific information of the area.

HUMAN ENVIRONMENT:

CULTURAL AND HERITAGE ENVIRONMENT

As per the screening report, the area has a low heritage impact but has a moderate palaeontology sensitivity which only requires a desktop study.

However, the Applicant will implement a chance-find protocol on site for the duration of the site establishment, operational- and decommissioning phase.

The South African Heritage Resources Agency (SAHRA) compiled the Palaeontological (fossil) Sensitivity Map (PSM) to guide developers, heritage officers and practitioners in screening paleontologically sensitive areas at the onset of a project. When the footprint of the earmarked prospecting area is placed on the PSM, it shows the study area to extend over an area of moderate sensitivity (green) concern as presented in the figure below. Please refer to Part A(1)(h)(iv)(c) for more specific information of the area.

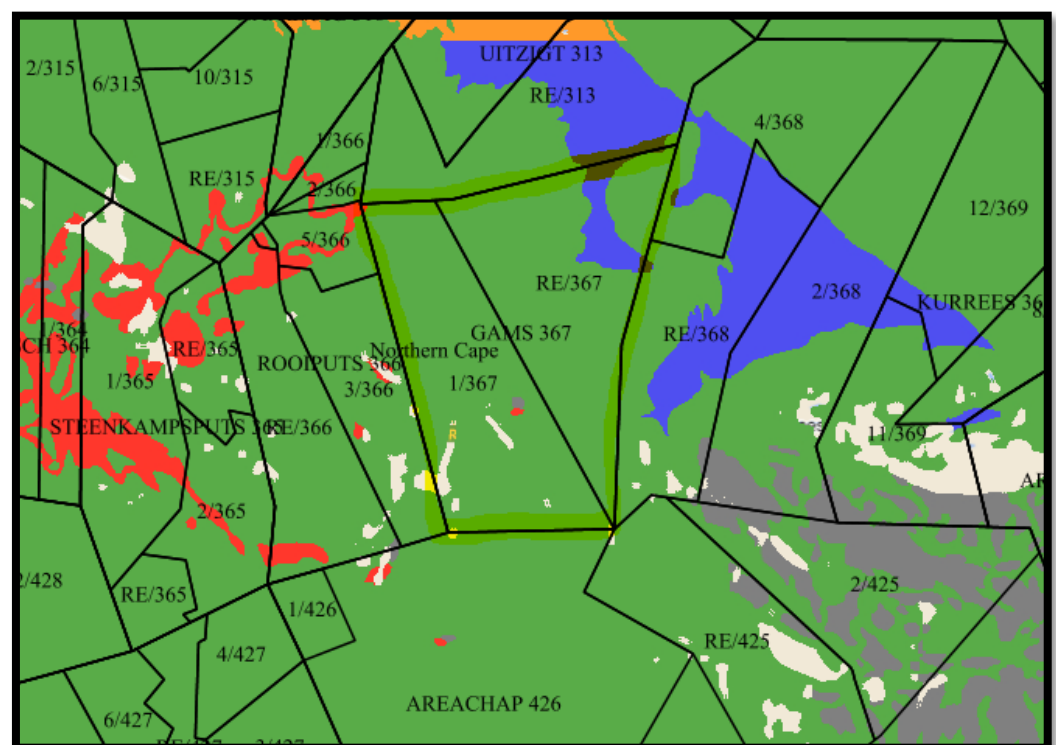


Figure 12: Screenshot from the SAHRIS palaeo-sensitivity map showing the location of the proposed prospecting area (yellow polygon) straddling an area of moderate (green) palaeontological sensitivity (Source: <https://sahris.sahra.org.za/map/palaeo>).

SOCIO-ECONOMIC ENVIRONMENT

(Information extracted from the Final FINAL of Dawid Kruijer Integrated Development Plan 2022/27)

The Local Government: Municipal Systems Act, 2000 (Act No. 32 of 2000) (MSA) mandates South African municipalities to formulate a five-year Integrated Development Plan (IDP) plan to inform the municipal budget and guide all development within the municipal area. The IDP is considered the municipality's principal strategic plan that deals with the most critical

development needs of the municipal area as well as the most critical governance needs of the organization.

The Dawid Kruiper Local Municipality is a Category B municipality that forms part of the ZF Mgcawu District in the Northern Cape. It borders with the Kgalagadi Transfrontier Park in the north, Botswana in the north-east, and Namibia in the west. It is the largest of five municipalities in the district, making up almost half its geographical area.

It was established by the amalgamation of the Mier and //Khara Hais Local Municipalities in August 2016. It consists of small towns and the! Khomani San community within its jurisdiction. Rietfontein, which is one of the main towns, is situated approximately 280km north-west from the nearest big town of Upington.

The proposed prospecting area is located within ward 16 of the Dawid Kruiper Local Municipality. The seventeen ward profiles; include a profile of the ward that is based on the strengths, weaknesses, opportunities, and threats facing the community. It also highlights the priorities for the ward(s). Since the ward profiles will be reviewed and updated it will reflect an implementation plan; and the capital budget available for the relevant wards, including the small capital budget.

Population and Gender Profile

The former //Khara Hais Local Municipality has a total population of 93 494, making it the most populous municipality in ZF Mgcawu District Municipality. The coloured population is in the majority, followed by Africans and then by the white population. The most spoken language is Afrikaans, spoken by 85% of the residents.

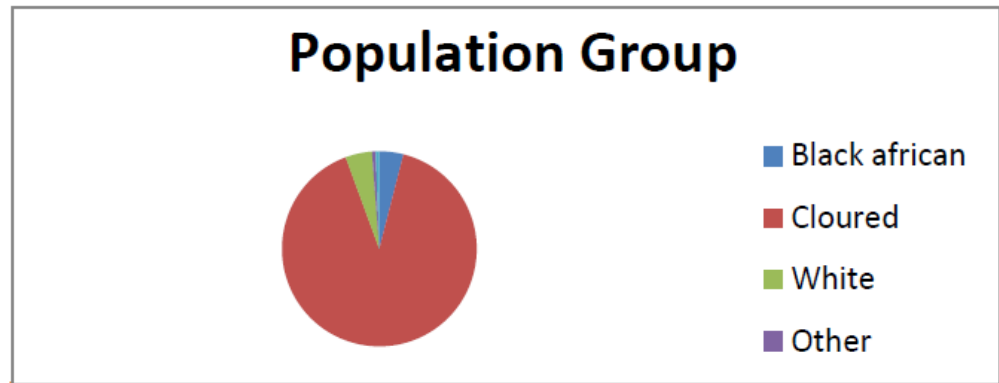


Figure 13: Population Chart – (extracted from the Final FINAL of Dawid Kruiper Integrated Development Plan 2022/27)

The former Mier Local Municipality is situated adjacent to one of the world’s largest conservation areas, namely the Kgalagadi Transfrontier Park, and comprises an area bigger than the Free State province. Rietfontein, which is the main town, is situated approximately 280km north-west from Upington. The Mier area borders with Namibia in the west, the Kgalagadi Transfrontier Park in the north, and Botswana in the north-east. Mier consists of nine small towns, namely Rietfontein, Philandersbron, Loubos, Klein Mier, Groot Mier, Welkom, Askham, Noenieput and the Khomani San community within its jurisdiction.

Table 10: Population percentage of each ethnic group – (extracted from the Final FINAL of Dawid Kruiper Integrated Development Plan 2022/27)

Group	Percentage
Black African	4%
Coloured	90,3%
Indian/Asian	0,6%
White	4,4%
Other	0,6%

The table above indicates that the Khara Hais area, population was 100 497 in 2011. This reflects an overall population growth of 1.82% between 2001 and 2011. Dawid Kruiper Local Municipality is the most populous municipality in ZF Mcgawu District. The graph below indicates that there is currently 6 879 people within the Mier area which in terms of the demographic spread are scattered compared to the 100 282 within the former Khara Hais/Upington area, which brings the total population to 107 162 within the Dawid Kruiper jurisdiction.

Sex ration and gender

The sex ratio is one of the key measures of sex composition. It gives the number of males for every 100 females. If it is above 100, it shows the

predominance of males over females; conversely when it is lower than 100, the reverse is true. Generally, sex ratios at birth are high and decrease gradually as age increases. Overall, data suggest that the population is predominantly of female population. On average, the population consists of 49.9% of male population and 51.1 % of female population. On average, Dawid Kruiper had a sex ratio of 97 (97 male per 100 females) which is an increase of 1.5 since the 2001 Census. There is an almost fifty percent split between males and females.

Unemployment rate and education

The unemployment rate decreases significantly from 34% in 2001 to 22.1% in 2011. There was a huge decline in the youth unemployment rate too from 42.3% in 2001 to 29% in 2011 but the youth unemployment rate is still very high in comparison with the overall unemployment rate of the municipality. Although about 44.7% of the Dawid Kruiper population are between 14 and 35 years old, youths remain relatively marginalised.

An increase of 5.1% (20.9% in 2001 to 26% in 2011) of people living in Dawid Kruiper over the age of twenty years have completed the 12th grade while there was a significant decline of 6.5% (13.6 in 2001 to 7.1% in 2011) in people that had no schooling at all. Higher education increases from 20.9% in 2001 to 26% in 2011.

Table 11: Educational level – (extracted from the Final FINAL of Dawid Kruiper Integrated Development Plan 2022/27)

Education (aged 20 +)		
No schooling	4.5%	7.1%
Matric	31.8%	24.9%
Higher education	6.4%	7.3%

Households

There were 28 704 households in the Dawid Kruiper Municipal area in 2016, which is a significant increase since 2011 when there were only 25 029 households. This creates a larger demand for household-based services such as housing, water, electricity and sewerage.

Household dynamics

Female headed households increases from 34.1% in 2001 to 40.5% in 2011. Which is worrying because families headed by single parents (usually women), and households headed by women are more likely to be poor than male-

headed households. Programs that empower women should be implemented across all spheres of government to assist the vulnerable.

Formal dwellings decrease from 81.2% in 2001 to 75.2% in 2011. This could be contributed to establish of more informal settlements and the slow delivery of subsidised houses.

Table 12: Household dynamics – (extracted from the Final FINAL of Dawid Kruiper Integrated Development Plan 2022/27)

Household Dynamics		
Households	28 704	25 028
Average household size	3.7	3.8
Female headed households	40.2%	39.7%
Formal dwellings	69.7%	76.3%
Housing owned	73.7%	54.3%

Household services

All municipal services except sewerage increased since 2001 with electricity for lighting increased with to 94.% within the Khara Hais/Upington area and up to 64 % in 2016 within the Mier area respectively. The percentage of household whose refuse is removed by local authority weekly, increased consistently from 79.3% in Census 2001 to 87.2% in Census 2011. The proportion of households that have flush toilets connected to the sewage system decrease slightly from to 68.3% to in 2011 to 73.7% within the Khara Hais/Upington area and to 53.8 within the Mier area. Access to piped water in the dwelling or yard has increased significantly since 2001 when only 38.7% of households reported access compared to 56% in 2011, and further increased to 94.1% within the Khara Hais/Upington area and to 97.3 % within the Mier area.

Table 13: Household services – (extracted from the Final FINAL of Dawid Kruiper Integrated Development Plan 2022/27)

Household Services		
Flush toilet connected to sewerage	64.5%	66.3%
Weekly refuse removal	80.9%	84.6%
Piped water inside dwelling	50.4%	54.4%
Electricity for lighting	88.0%	89.9%

Languages

The table below shows that Afrikaans is the most dominant language in Dawid Kruiper with 85.2% of the population indicating that this was the language most

often spoken in the home. This is followed by IsiXhosa at 5% and Setswana at 3.5%.

Table 14: Language percentages – (extracted from the Final FINAL of Dawid Kruiper Integrated Development Plan 2022/27)

LANGUAGE	PERCENTAGE	LANGUAGE	PERCENTAGE
Afrikaans	85,2%	Setswana	3,5%
English	1,9%	Sign Language	0,3%
IsiNdebele	0,2%	SiSwati	0%
IsiXhosa	5%	Tshivenda	0,1%
IsiZulu	0,3%	Xitsonga	0%
Sepedi	0,2%	Other	0,8%
Sesotho	0,9%	Not Applicable	1,5%

(b) Description of the current land uses

The properties which make up the study area are only used for crop production on a very limited and localised scale but are extensively used for livestock grazing.

Table 15: Land uses and/or prominent features that occur within 500m radius of S1

LAND USE CHARACTER	YES	NO	DESCRIPTION
Natural area	YES	-	The study area is surrounded by natural areas used for agricultural purposes.
Low density residential	-	NO	
Medium density residential	-	NO	
High density residential	-	NO	
Informal residential	-	NO	
Retail commercial & warehousing	-	NO	
Light industrial	-	NO	
Medium industrial	-	NO	
Heavy industrial	-	NO	
Power station	-	NO	
High voltage power line	-	NO	
Office/consulting room	-	NO	
Military or police base / station / compound	-	NO	
Spoil heap or slimes dam	-	NO	
Quarry, sand or borrow pit	-	NO	
Dam or reservoir	-	NO	
Hospital/medical centre	-	NO	
School/ crèche	-	NO	
Tertiary education facility	-	NO	
Church	-	NO	
Old age home	-	NO	
Sewage treatment plant	-	NO	
Train station or shunting yard	-	NO	
Railway line	-	NO	
Major road (4 lanes or more)	-	NO	
Airport	-	NO	

LAND USE CHARACTER	YES	NO	DESCRIPTION
Harbour	-	NO	
Sport facilities	-	NO	
Golf course	-	NO	
Polo fields	-	NO	
Filling station	-	NO	
Landfill or waste treatment site	-	NO	
Plantation	-	NO	
Agriculture	YES	-	The proposed footprint forms part of areas used for agricultural purposes and livestock grazing.
River, stream or wetland		NO	
Nature conservation area	-	NO	
Mountain, hill or ridge	-	NO	
Museum	-	NO	
Historical building	-	NO	
Protected Area	-	NO	
Graveyard	-	NO	
Archaeological site	-	NO	
Other land uses (describe)	-	NO	

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

SPECIFIC ENVIRONMENTAL FEATURES

SITE SPECIFIC TOPOGRAPHY

The topography of the study area varies between parallel dunes about 3–8 m above the plains and flat, gravel plains. This topography consists of open shrublands with ridges of grassland dominated by *Stipagrostis amabilis* on the dune crests and *Acacia haematoxylon* on the dune slopes, also with *A. mellifera* on lower slopes and *Rhigozum trichotomum* in the interdune straiten. On the flat plains, the area consists of low karroid shrublands. Karoo-related elements (shrubs) meet here with northern floristic elements, indicating a transition to the Kalahari region and sandy soils. The altitude varies between 814 - 914m.

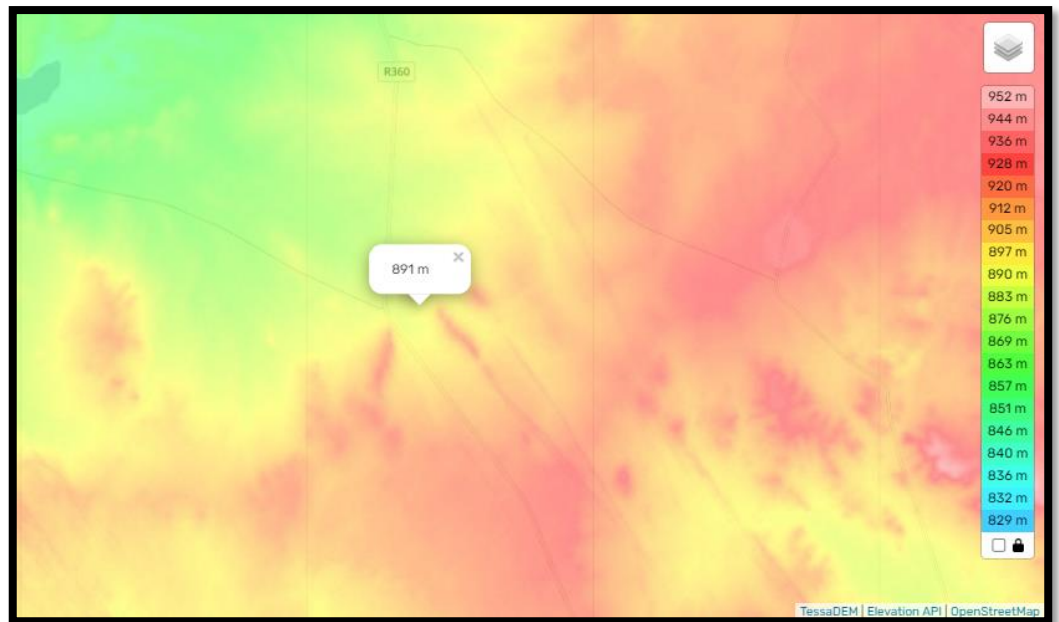


Figure 14: Map showing the topography of the prospecting area (image obtained from www.en-za.topographic-map.com/maps/gwpq/South-Africa/).

SITE SPECIFIC VISUAL CHARACTERISTICS

The figure below shows the viewshed analysis for the footprint within a ± 10 km radius. The green shaded areas show the positions from where the prospecting area will be visible. From this analysis it is proposed that the visual impact of the proposed prospecting right operation will be of low significance, especially as no permanent structures. Should the Applicant successfully rehabilitate the prospecting areas (upon closure), no residual visual impact is expected upon closure of the prospecting activities.

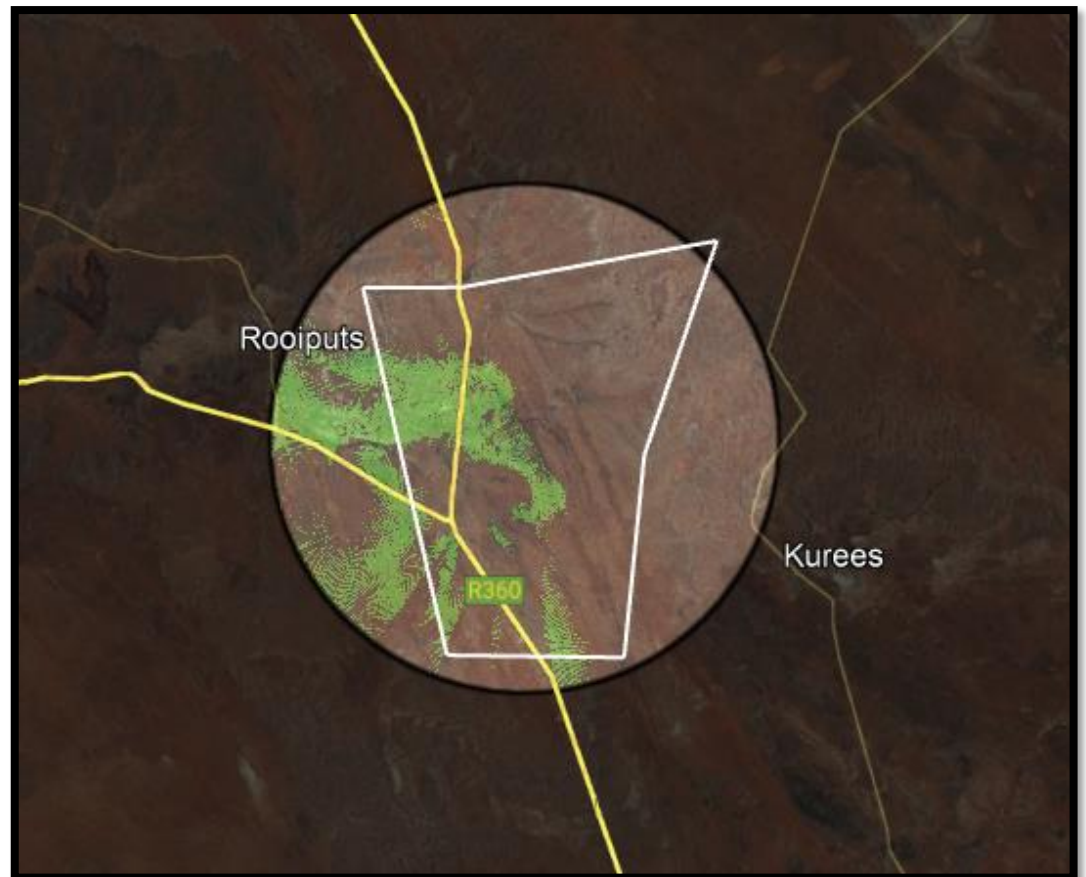


Figure 15.1-2: Viewshed of the proposed prospecting footprint where the green shaded areas show the positions from where the prospecting area (white polygon) will be visible. (Image obtained from Google Earth).

SITE SPECIFIC AIR AND NOISE QUALITY

The proposed activity will contribute the emissions of drilling equipment and field vehicles the receiving environment for the duration of the operational phase. Should the prospecting right holder implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use. The potential impact on the noise ambiance of the receiving environment is expected to be of low significance and representative of the machinery already operational at the property.

Emission into the atmosphere is controlled by the National Environmental Management: Air Quality Act, 2004. The proposed prospecting activity does not trigger an application in terms of the said act. Should the prospecting right holder implement the mitigation measures proposed in this document and the

EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use.

SITE SPECIFIC GEOLOGY AND SOIL

(Information extracted from the Prospecting Work Programme (PWP) for the proposed prospecting right)

The mineral deposits being applied for are confined to the Hotazel Formation of the Griqualand West Supergroup of the middle Proterzoic age. The base of the Hotazel Formation consists of a bright-red banded iron-formation bed (varying from massive to fine-grained specularite and/or euhedral magnetite crystals) overlying volcanic glass breccias and lavas of the Ongeluk Formation.

There are two main groups of minerals from the Kalahari manganese field: the first is associated with the ore and often consists of microscopically identifiable minerals; the second group consists of minerals found in cracks, fissures and pockets. A large portion of the minerals are calcium-manganese silicates with varying amounts of sulphides, carbonates and borates. Minerals such as sphalerite (ZnS), galena (PbS), etc. are some of the are common components of the sulphides. In addition, there are known mines and reported mineral occurrences of the minerals being applied for in the vicinity of the proposed area,

SITE SPECIFIC HYDROLOGY

The proposed site falls within three Quaternary Catchments. The greater part of the study area lies within Catchment D42E which includes the Doringdam Spruit. This spruit has a part of its source area in the project area and then passes on down to the Molopo River. It is NFEPA listed as being an Orange River tributary.

In the south-eastern corner of the study area is Catchment D73E. This area includes the headwaters of an unnamed watercourse which flows southwards to enter the Orange River near Upington. The catchment is small and is probably of very low significance. Finally, the north-eastern corner of the study area just reaches into Catchment D42D. This catchment flows around the northern side of Catchment D42E and enters the Molopo River.

While Catchments D42E and D73E have clear evidence of channels with erosion features, Catchment D42D appears to have no clear drainage line. Its

surface topography tends to have very low gradients and it consists primarily of dune fields and plains with numerous depressions (pans). Therefore, any rainfall into its area is likely to be held and then to either evaporate away, or else to percolate down into the soil. An implication of this is that it may contribute some ground water to the other two catchments.

The extents of the study area wetlands mapped in the NFEPA Map 4 and SAIIE Wetland Map 5 datasets are shown in Appendix K1 in Figure 7 and Figure 8. It is apparent that there is a high degree of commonality between the two systems. There is a strong correlation between the various wetlands and watercourses in terms of the features identified and the descriptors used by each are shown in below Table.

Table 16: Listed and specified activities triggered by the associated prospecting activities.

System Type	NFEPA Wetland Map 4	SAIIE Wetland Map 5
Fluvial Systems	River	River
River PES Category	C. Moderately Modified	Unspecified
Lentic2 Systems	Depression	Depression
Region	Nama Karoo Bushmanland	Bushmanland Bioregion

The hydrology of the area is based largely on rainwater being collected in the endorheic pans in the east and then percolating into the soil where it can enter subterranean aquifers which transport the water westwards. Discussion with the landowners suggests that such aquifers, which are sufficiently developed to be tapped for agricultural purposes, are very limited in extent. While it is unlikely that only the six boreholes indicated will have any effect on the aquifers, it is possible that a larger number of boreholes, or other survey procedures, could have an impact on the hydrology and hence on agriculture and biodiversity in the area.

The applicant is in the process of applying for a water uses authorisation to the Department of Water and Sanitation, in terms of the National Water Act, 1998 (Act No 36 of 1998) which will be submitted for the Section 21 (c) and (i) waters uses.

SITE SPECIFIC MINING AND BIODIVERSITY CONSERVATION AREAS

The Mining and Biodiversity Guideline, compiled by the South African Mining and Biodiversity Forum (SAMBF) provides the mining sector with a practical, user-friendly manual for integrating biodiversity considerations into planning

processes and managing biodiversity during the developmental and operational phases of a mine, from exploration through to closure.

When the prospecting footprint is layered over the Mining and Biodiversity Map, as shown in the figure below, it does not fall over an area of biodiversity importance (light brown area) with a corresponding rating of highest risk for mining (dark brown area). The Mining and Biodiversity Guideline's describes areas of highest biodiversity importance as: "these areas are viewed as necessary to ensure protection of biodiversity, environmental sustainability, and human well-being." The guideline notes that environmental screening, the EIA and specialists should focus on confirming the presence and significance of biodiversity features and provide a site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making.

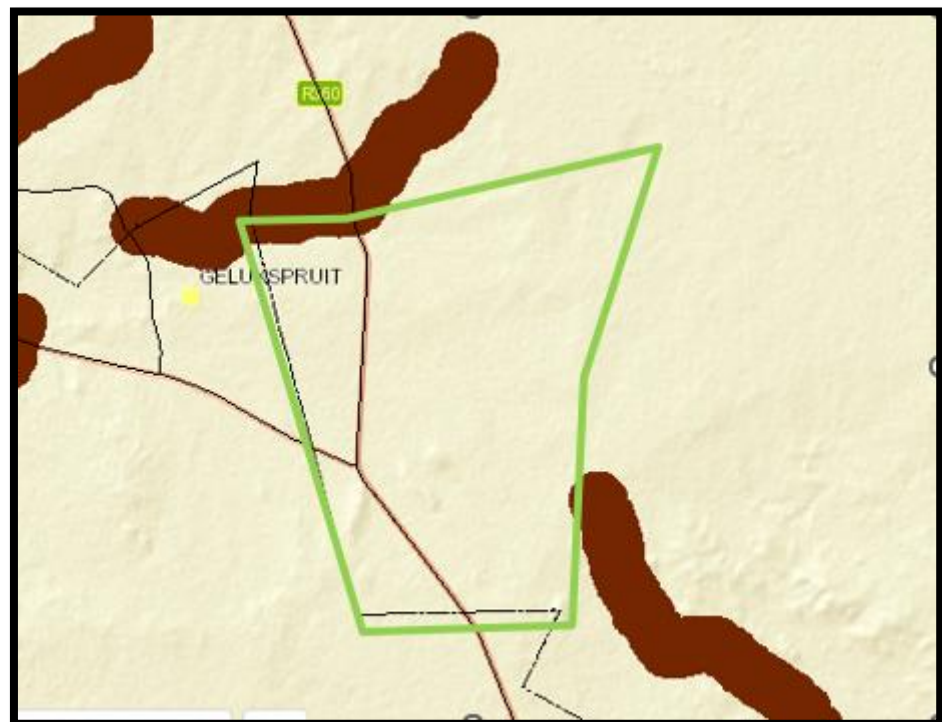


Figure 16: The Mining and Biodiversity importance map with the proposed mining footprint indicated by the blue dot. Light brown – moderate biodiversity importance, moderate risk for mining, light brown – moderate biodiversity Importance, moderate risk for mining (image obtained from the BGIS Map Viewer – Mining Guidelines)

The prospecting activities do not require the removal of any large trees or vegetation of significance. The proposed prospecting area falls in small sections of an Ecological Support area which correlates with the Aquatic sensitivity of

the area. However, it can be considered that due to the small footprint of a borehole, the drill position can be manipulated to drill between the trees to prevent any impacts. In light of this, the impact of the prospecting operation on the vegetation cover of the receiving environment is deemed to be of Low significance.

SITE SPECIFIC GROUND COVER

According to the Terrestrial Impact Assessment (Appendix K2), the vegetation is moderately diverse in its structure and consists of grasses, low bushes, some small trees, and also bare or stony ground with a few small grass tufts. There is considerable evidence of grazing by either livestock or by ungulates such as Springbok. The plant species which were seen, and which could be identified, are listed in Tables 17 to 19. Undoubtedly more species would be found during an optimal sampling season.

Table 17: Indigenous plant species identified.

Scientific Name	Common Name	Status
<i>Aptosimum spinescens</i>	Doringviooltjie	LC
<i>Asparagus cf bechuanicus</i>	Wild asparagus	LC
<i>Asparagus cooperi</i>	Wild asparagus	LC
<i>Eriocephalus spinescens</i>	Doringkapok	LC
<i>Euphorbia braunsii</i>	Vingerpol	LC
<i>Euryops asparagoides</i>	Bultdraaibos	LC
<i>Podaxis pistillaris</i>	False Ink Cap	LC
<i>Galenia cf sarcophylla</i>	Brakbossie	LC
<i>Gazania krebsiana</i>	Common gazania	LC
<i>Geigeria pectidea</i>	Riviervermeerbos	LC
<i>Hoodia cf gordonii</i>	Ghaap (not flowering)	DD
<i>Kleinia longiflora</i>	Sambokbos	LC
<i>Leucosphaera bainesii</i>	Perdebossie	LC
<i>Mesembryanthemum longipapillosum</i>	Soutslaai	LC
<i>Monechma cf divaricatum</i>	Wild lucerne	LC
<i>Monechma incanum</i>	Blouganna	LC
<i>Oropetum capense</i>	Haasgras	LC
<i>Pergulia daemia</i>	Milkweed family	LC
<i>Psilocaulon cf junceum</i>	Asbos	LC
<i>Radyera urens</i>	Karoo pumpkin	LC
<i>Rhigozum trichotomum</i>	Driedoring	LC
<i>Salsola cf tuberculata</i>	Cauliflower ganna	LC
<i>Stipagrostis amabilis</i>	Dune Bushman grass	LC
<i>Stipagrostis cf obtusa</i>	Small Bushman grass	LC
<i>Sutherlandii frutescens</i>	Kankerbos	LC
<i>Tapinanthus oleifolius</i>	Vuurhoutjies	LC
<i>Zygophyllum simplex</i>	Prostrate spekbos	LC

Table 18: Indigenous tree species identified.

Scientific Name	Common Name	Status
<i>Vachellia erioloba</i>	Camel thorn	Protected Tree
<i>Vachellia haematoxylon</i>	Grey camel thorn	Protected Tree
<i>Senegalia mellifera</i>	Black thorn	LC
<i>Boscia albitrunca</i>	Shepherd's tree	Protected Tree
<i>Boscia foetida</i>	Stinkbos	LC
<i>Parkinsonia africana</i>	Wild green-hair tree	LC
<i>Searsia lancea</i>	Karree	LC
<i>Ziziphus mucronata</i>	Buffalo-thorn	LC

Table 19: Alien weed species identified.

Scientific Name	Common Name	Status
<i>Atriplex lindeyi subs. inflata</i>	Australian saltbush	Cat. 1b
<i>Prosopis glandulosa var glandulosa</i>	Mesquite	Cat. 3
<i>Salsola kali</i>	Russian tumbleweed	Cat. 1b

The majority of the species noted are indigenous with only three species being alien and invasive. Three protected species are noted but will not be affected by the boreholes.

SITE SPECIFIC FAUNA

According to the Terrestrial Impact Assessment (Appendix K2), The field study was only able to make a limited number of actual field observations. The explanations for this are that many faunal species in the area are crepuscular or nocturnal, and so are difficult to see, or that they are migratory and so were not present at the time. The latter is particularly the case for birds as they are highly mobile and follow conditions which are optimal for either breeding or for feeding. The species seen and otherwise reported are shown in Tables 20 to 22. The data sources referenced are as follows.

- SABAP 2 Bird records: The SABAP records list 165 species for Pentads 2800-2100, 2800-2105, 2805-2055, 2805-2105. Only the Red Data listed species are shown below.
- Seen: Seen during this study.
- Museum Records: Animal Demography Unit for map sheets 2820BB, 2821AA,2821AB.
- Verbal: Reported by a local resident.

Table 20: List of mammal species

Scientific Name	Common Name	Status	Source of Observation
<i>Otocyon megalotis</i>	Bat-eared Fox	Least Concern	Seen Museum Records
<i>Cynictis penicillata</i>	Yellow Mongoose	Least Concern	Seen Museum Records
<i>Herpestes pulverulentus</i>	Cape Gray Mongoose	Least Concern	Seen Museum Records
<i>Lepus saxatilis</i>	Scrub Hare	Least Concern	Seen Museum Records
<i>Pronolagus crassicaudatus</i>	Natal Red Rock Hare	Least Concern	Museum Records
<i>Gerbilliscus sp.</i>	Gerbils	Least Concern	Seen Museum Records
<i>Procavia capensis capensis</i>	Cape Rock Hyrax	Least Concern	Museum Records
<i>Xerus inauris</i>	South African Ground Squirrel	Least Concern	Seen Museum Records
<i>Proteles cristata</i>	Aardwolf	Least Concern	Verbal Museum Records
<i>Oreotragus oreotragus</i>	Klipspringer	Least Concern	Museum Records
<i>Antidorcas marsupialis</i>	Springbok	Least Concern	Seen Museum Records
<i>Oryx gazella</i>	Gemsbok	Least Concern	Seen Museum Records
<i>Felis nigripes</i>	Black-footed Cat	Vulnerable	Verbal Museum Records
<i>Smutsia temminckii</i>	Pangolin	Vulnerable	Verbal
<i>Elephantulus rupestris</i>	Western Rock Elephant Shrew	Least Concern	Museum Records
<i>Aethomys namaquensis</i>	Namaqua Rock Mouse	Least Concern	Museum Records
<i>Mastomys coucha</i>	Southern African Mastomys	Least Concern	Museum Records
<i>Mus musculus musculus</i>	Unlisted Mouse	Least Concern	Museum Records
<i>Parotomys brantsii</i>	Brants's Whistling Rat	Least Concern	Museum Records
<i>Parotomys littledalei</i>	Littledale's Whistling Rat	Least Concern	Museum Records
<i>Rhabdomys pumilio</i>	Xeric Four-striped Grass Rat	Least Concern	Museum Records
<i>Saccostomus campestris</i>	Southern African Pouched Mouse	Least Concern	Museum Records

Table 21: Red Data listed bird species

Scientific Name	Common Name	Status	Source of Observation
<i>Ardeotis kori</i>	Kori Bustard	Near Threatened	Seen Museum Records
<i>Neotis ludwigii</i>	Ludwig's Bustard	Endangered	Museum Records
<i>Aquila verreauxii</i>	Verreaux's eagle	Vulnerable	Museum Records
<i>Aquila rapax</i>	Tawny Eagle	Endangered	Museum Records
<i>Polemaetus bellicosus</i>	Martial Eagle	Endangered	Museum Records
<i>Falco biarmicus</i>	Lanner Falcon	Vulnerable	Seen Museum Records
<i>Eupodotis vigorsii</i>	Karoo Korhaan	Near Threatened	Museum Records
<i>Gyps africanus</i>	White-backed Vulture	Critically Endangered	Museum Records

Table 22: List of reptile species

Scientific Name	Common Name	Status	Source of Observation
<i>Agama aculeata</i>	Common Ground Agama	Least Concern	Museum Records
<i>Agama anchietae</i>	Anchieta's Agama	Least Concern	Museum Records
<i>Agama atra</i>	Southern Rock Agama	Least Concern	Museum Records
<i>Agama knobeli</i>	Knobel's Rock Agama	Least Concern	Museum Records
<i>Chondrodactylus angulifer</i>	Giant Ground Gecko	Least Concern	Museum Records
<i>Chondrodactylus bibronii</i>	Bibron's Gecko	Least Concern	Museum Records
<i>Lygodactylus bradfieldi</i>	Bradfield's Dwarf Gecko	Least Concern	Museum Records
<i>Cordylus subtaeniatus</i>	Dwarf Plated Lizard	Least Concern	Museum Records

SITE SPECIFIC CULTURAL, HERITAGE AND PALAEOLOGICAL ENVIRONMENT

The Heritage Impact Assessment (Appendix K3) states that due to the geographical size of the exploration application and the fact that no intrusive activities will occur at this point of the application, it was deemed not feasible to conduct fieldwork at this point. Several large-scale heritage surveys were conducted for renewable energy and mining projects in the area and the archaeological character of the area is now well described. This provides the opportunity to establish potential heritage resources that could be affected in the area. It is clear from the studies conducted that the general area has a wealth of heritage sites and a cultural layering dating back to the Stone Age with scatters and sites dating to the ESA, MSA and LSA. Sites and artefacts

dating to these periods are scattered over the landscape with MSA and LSA sites centred on rocky outcrops, pans and watercourses and similar sites are expected to occur in the project area.

No intrusive activities will occur at this point of the application and the potential impact on heritage resources is expected to be very low.

However, once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, which should be conducted prior to the commencement of prospecting activities. The Applicant will implement a chance-find protocol on site for the duration of the site establishment, operational- and decommissioning phase. Should sensitive areas be identified the boreholes will move accordingly.

(d) Environmental and current land use map.

(Show all environmental and current land use features)

The environmental and current land use map is attached as Appendix B.

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

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

The following potential impacts were identified of each main activity in each phase of the proposed project. The significance rating was determined using the methodology as explained under *vi) Methodology Used in Determining and Ranking the Significance*. The impact rating listed below was determined for each impact **prior** to bringing the proposed mitigation measures into consideration. The degree of mitigation indicates the possibility of partial, full or no mitigation of the identified impact.

PLANNING AND SURFACE SAMPLING PHASE

Visual intrusion as a result of surface sampling phase

							Significance				
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Low	Low-Medium	Medium	Medium-High	High
							1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low			Site Alternative 1 & Layout Alternative			Degree of Mitigation: None					
2	3	1	2	2	2	2	4				

Potential hydrocarbon contamination from leaks or spills

			Consequence			Likelihood	Significance				
Severity	Duration	Extent					Probability	Frequency	Low	Low-Medium	Medium
							1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Medium			Site Alternative 1 & Layout Alternative			Degree of Mitigation: None - full					
5	3	2	3.3	3	4	3.5	11.55				

Potential impact on fauna within the footprint area

			Consequence			Likelihood	Significance				
Severity	Duration	Extent					Probability	Frequency	Low	Low-Medium	Medium
							1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Medium			Site Alternative 1 & Layout Alternative			Degree of Mitigation: None					
5	3	2	3.3	4	3	3.5	11.55				

Dust nuisance as a result of surface sampling

			Consequence			Likelihood	Significance				
Severity	Duration	Extent					Probability	Frequency	Low	Low-Medium	Medium
							1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low			Site Alternative 1 & Layout Alternative			Degree of Mitigation: None					
1	1	1	1	1	5	3	3				

Noise nuisance as a result of surface sampling

			Consequence			Likelihood	Significance				
Severity	Duration	Extent					Probability	Frequency	Low	Low-Medium	Medium
							1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low			Site Alternative 1 & Layout Alternative			Degree of Mitigation: None- Partial					
1	1	1	1	1	5	3	3				

Potential impact on the Safety of the area due to increased human concentration.

			Consequence			Likelihood	Significance				
Severity	Duration	Extent					Probability	Frequency	Low	Low-Medium	Medium
							1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low			Site Alternative 1 & Layout Alternative			Degree of Mitigation: None					
2	3	1	2	2	2	2	4				

Impact of the natural vegetation of the footprint.

			Consequence			Likelihood	Significance				
Severity	Duration	Extent					Probability	Frequency	Low	Low-Medium	Medium
							1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low - Medium			Site Alternative 1 & Layout Alternative			Degree of Mitigation: None					
3	4	1	2.6	3	2	2.5	6.5				

Deterioration of the access road to the prospecting area

			Consequence			Likelihood	Significance				
Severity	Duration	Extent		Probability	Frequency		Low	Low-Medium	Medium	Medium-High	High
						1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25	
Rating: Low - Medium			Site Alternative 1 & Layout Alternative			Degree of Mitigation: None					
2	4	2	2.6	3	2	2.5	6.5				

Impact on FEPA area of biodiversity concern and/or drainage lines

			Consequence			Likelihood	Significance				
Severity	Duration	Extent		Probability	Frequency		Low	Low-Medium	Medium	Medium-High	High
						1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25	
Rating: Low - Medium			Site Alternative 1 & Layout Alternative			Degree of Mitigation: None					
2	4	2	2.6	3	2	2.5	6.5				

Potential impact on areas/infrastructure of heritage or cultural concern.

			Consequence			Likelihood	Significance				
Severity	Duration	Extent		Probability	Frequency		Low	Low-Medium	Medium	Medium-High	High
						1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25	
Rating: Low - Medium			Site Alternative 1 & Layout Alternative			Degree of Mitigation: None					
3	4	1	2.6	3	2	2	5.2				

CLOSING OF DRILL HOLES AND LANDSCAPING UPON CLOSURE OF THE PROSPECTING AREA

Uncapped boreholes left by the contractor.

			Consequence			Likelihood	Significance				
Severity	Duration	Extent		Probability	Frequency		Low	Low-Medium	Medium	Medium-High	High
						1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25	
Rating: Low - Medium			Site Alternative 1 & Layout Alternative			Degree of Mitigation: None					
3	5	1	3	3	1	2	6				

Erosion after rehabilitation

			Consequence			Likelihood	Significance				
Severity	Duration	Extent		Probability	Frequency		Low	Low-Medium	Medium	Medium-High	High
						1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25	
Rating: Low Medium			Site Alternative 1 & Layout Alternative			Degree of Mitigation: None					
2	3	1	2	2	2	2	4				

Impact of the natural vegetation of the footprint during decommissioning phase

			Consequence			Likelihood	Significance				
Severity	Duration	Extent		Probability	Frequency		Low	Low-Medium	Medium	Medium-High	High
						1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25	
Rating: Low Medium			Site Alternative 1 & Layout Alternative			Degree of Mitigation: None					
2	5	1	2.6	2	2	2	5.2				

Potential impact associated with litter/hydrocarbon spills left due to decommissioning activities.

			Consequence			Likelihood	Significance				
Severity	Duration	Extent		Probability	Frequency		Low	Low-Medium	Medium	Medium-High	High
						1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25	
Rating: Low Medium			Site Alternative 1 & Layout Alternative			Degree of Mitigation: None					
3	4	1	2.6	3	2	2.5	6.5				

Return of the prospecting area to agricultural use upon closure (**Positive Impact**)

			Consequence			Likelihood	Significance				
Severity	Duration	Extent		Probability	Frequency		Low	Low-Medium	Medium	Medium-High	High
						1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25	
Rating: Medium-high			Site Alternative 1 & Layout Alternative			Degree of Mitigation: None					
1	5	5	3.7	5	5	5	18.5				

vi) 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.)

Methodology for the assessment of the potential environmental, social and cultural impacts

DEFINITIONS AND CONCEPTS:

Environmental significance:

The concept of significance is at the core of impact identification, evaluation and decision-making. The concept remains largely undefined and there is no international consensus on a single definition. The following common elements are recognised from the various interpretations:

- Environmental significance is a value judgement.
- The degree of environmental significance depends on the nature of the impact.
- The importance is rated in terms of both biophysical and socio-economic values.
- Determining significance involves the amount of change to the environment perceived to be acceptable to affected communities.

Significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of acceptability) (DEAT (2002) Impact Significance, Integrated Environmental Management, Information Series 5).

The concept of risk has two dimensions, namely the consequence of an event or set of circumstances, and the likelihood of particular consequences being realised (Environment Australia (1999) Environmental Risk Management).

Impact

The positive or negative effects on human well-being and / or the environment.

Consequence

The intermediate or final outcome of an event or situation OR it is the result, on the environment, of an event.

Likelihood

A qualitative term covering both probability and frequency.

Frequency

The number of occurrences of a defined event in a given time or rate.

Probability

The likelihood of a specific outcome measured by the ratio of a specific outcome to the total number of possible outcomes.

Environment

Surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans and their interrelation (ISO 14004, 1996).

Methodology that will be used

The environmental significance assessment methodology is based on the following determination:

$$\text{Environmental Significance} = \text{Overall Consequence} \times \text{Overall Likelihood}$$

Determination of Overall Consequence

Consequence analysis is a mixture of quantitative and qualitative information, and the outcome can be positive or negative. Several factors can be used to determine consequence. For the purpose of determining the environmental significance in terms of consequence, the following factors were chosen: **Severity/Intensity, Duration and Extent/Spatial Scale**. Each factor is assigned a rating of 1 to 5, as described in the tables below.

Determination of Severity / Intensity

Severity relates to the nature of the event, aspect or impact to the environment and describes how severe the aspects impact on the biophysical and socio-economic environment.

The table below will be used to obtain an overall rating for severity, taking into consideration the various criteria.

Table 23 23: Table to be used to obtain an overall rating of severity, taking into consideration the various criteria.

Type of criteria	Rating				
	1	2	3	4	5
Quantitative	0-20%	21-40%	41-60%	61-80%	81-100%
Qualitative	Insignificant / Non-harmful	Small / Potentially harmful	Significant/ Harmful	Great/ Very harmful	Disastrous Extremely harmful
Social/ Community response	Acceptable / I&AP satisfied	Slightly tolerable / Possible objections	Intolerable/ Sporadic complaints	Unacceptable / Widespread complaints	Totally unacceptable / Possible legal action
Irreversibility	Very low cost to mitigate/ High potential to mitigate impacts to level of insignificance/ Easily reversible	Low cost to mitigate	Substantial cost to mitigate/ Potential to mitigate impacts/ Potential to reverse impact	High cost to mitigate	Prohibitive cost to mitigate/ Little or no mechanism to mitigate impact Irreversible
Biophysical (Air quality, water quantity and quality, waste production, fauna and flora)	Insignificant change / deterioration or disturbance	Moderate change / deterioration or disturbance	Significant change / deterioration or disturbance	Very significant change / deterioration or disturbance	Disastrous change / deterioration or disturbance

Determination of Duration

Duration refers to the amount of time that the environment will be affected by the event, risk or impact, if no intervention e.g., remedial action takes place.

Table 24: Criteria for the rating of duration.

Rating	Description
1	Up to ONE MONTH
2	ONE MONTH to THREE MONTHS (QUARTER)
3	THREE MONTHS to ONE YEAR
4	ONE to TEN YEARS
5	Beyond TEN YEARS

Determination of Extent/Spatial Scale

Extent or spatial scale is the area affected by the event, aspect or impact.

Table 25: Criteria for the rating of extent / spatial scale.

Rating	Description
1	Immediate, fully contained area
2	Surrounding area
3	Within Business Unit area of responsibility
4	Within the farm/neighbouring farm area
5	Regional, National, International

Determination of Overall Consequence

Overall consequence is determined by adding the factors determined above and summarized below, and then dividing the sum by 3.

Table 26: Example of calculating overall consequence.

Consequence	Rating
Severity	Example 4
Duration	Example 2
Extent	Example 4
SUBTOTAL	10
TOTAL CONSEQUENCE: (Subtotal divided by 3)	3.3

Determination of Likelihood:

The determination of likelihood is a combination of Frequency and Probability. Each factor is assigned a rating of 1 to 5, as described below and in tables 6 and 7.

Determination of Frequency

Frequency refers to how often the specific activity, related to the event, aspect or impact, is undertaken.

Table 27: Criteria for the rating of frequency.

Rating	Description
1	Once a year or once/more during operation
2	Once/more in 6 Months
3	Once/more a Month
4	Once/more a Week
5	Daily

Determination of Probability

Probability refers to how often the activity or aspect has an impact on the environment.

Table 28: Criteria for the rating of probability.

Rating	Description
1	Almost never / almost impossible
2	Very seldom / highly unlikely
3	Infrequent / unlikely / seldom
4	Often / regularly / likely / possible
5	Daily / highly likely / definitely

Overall Likelihood

Overall likelihood is calculated by adding the factors determined above and summarised below, and then dividing the sum by 2.

Table 29: Example of calculating overall likelihood.

Consequence	Rating
Frequency	Example 4
Probability	Example 2
SUBTOTAL	6
TOTAL LIKELIHOOD (Subtotal divided by 2)	3

Determination of Overall Environmental Significance:

The multiplication of overall consequence with overall likelihood will provide the environmental significance, which is a number that will then fall into a range of **LOW**, **LOW-MEDIUM**, **MEDIUM**, **MEDIUM-HIGH** or **HIGH**, as shown in the table below.

Table 30: Determination of overall environmental significance.

Significance or Risk	Low	Low-Medium	Medium	Medium-High	High
Overall Consequence X Overall Likelihood	1 – 4.9	5 – 9.9	10 – 14.9	15 – 19.9	20 – 25

Qualitative description or magnitude of Environmental Significance

This description is qualitative and is an indication of the nature or magnitude of the Environmental Significance. It also guides the prioritisations and decision making process associated with this event, aspect or impact.

Table 31: Description of environmental significance and related action required.

Significance	Low	Low-Medium	Medium	Medium-High	High
Impact Magnitude	Impact is of very low order and therefore likely to have very little real effect. Acceptable.	Impact is of low order and therefore likely to have little real effect. Acceptable.	Impact is real, and potentially substantial in relation to other impacts. Can pose a risk to company	Impact is real and substantial in relation to other impacts. Pose a risk to the company. Unacceptable	Impact is of the highest order possible. Unacceptable. Fatal flaw.
Action Required	Maintain current management measures. Where possible improve.	Maintain current management measures. Implement monitoring and evaluate to determine potential increase in risk. Where possible improve	Implement monitoring. Investigate mitigation measures and improve management measures to reduce risk, where possible.	Improve management measures to reduce risk.	Implement significant mitigation measures or implement alternatives.

Based on the above, the significance rating scale has been determined as follows:

High	Of the highest order possible within the bounds of impacts which could occur. In the case of negative impacts, there would be no possible mitigation and / or remedial activity to offset the impact at the spatial or time scale for which it was predicted. In the case of positive impacts, there is no real alternative to achieving the benefit.
Medium-High	Impacts of a substantial order. In the case of negative impacts, mitigation and / or remedial activity would be feasible but difficult, expensive, time-consuming or some combination of these. In the case of positive impacts, other means of achieving this benefit would be feasible, but these would be more difficult, expensive, time-consuming or some combination of these.
Medium	Impact would be real but not substantial within the bounds of those, which could occur. In the case of negative impacts, mitigation and / or remedial activity would be both feasible and fairly easily possible, In case of positive impacts; other means of achieving these benefits would be about equal in time, cost and effort.
Low-Medium	Impact would be of a low order and with little real effect. In the case of negative impacts, mitigation and / or remedial activity would be either easily achieved or little would be required, or both. In case of positive impacts alternative means for achieving this benefit would likely be easier, cheaper, more effective, less time-consuming, or some combination of these.
Low	Impact would be negligible. In the case of negative impacts, almost no mitigation and or remedial activity would be needed, and any minor steps, which might be needed, would be easy, cheap and simple. In the case of positive impacts, alternative means would almost all likely be better, in one or a number of ways, than this means of achieving the benefit.
Insignificant	There would be a no impact at all – not even a very low impact on the system or any of its parts.

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

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

The prospecting area in which drilling sites can be moved to various positions in consultation with the landowners depending on sensitivity. However, the proposed

prospecting area was identified as the preferred and only viable site alternative. In light of this, S1 was identified during the assessment phase of the environmental impact assessment, by the Applicant and project team due to the following:

- The mineral deposits being applied for are confined to the Hotazel Formation of the Griqualand West Supergroup of the middle Proterzoic age. The base of the Hotazel Formation consists of a bright-red banded iron-formation bed (varying from massive to fine-grained specularite and/or euhedral magnetite crystals) overlying volcanic glass breccias and lavas of the Ongeluk Formation.
- There are two main groups of minerals from the Kalahari manganese field: the first is associated with the ore and often consists of microscopically identifiable minerals; the second group consists of minerals found in cracks, fissures and pockets.
- A large portion of the minerals are calcium-manganese silicates with varying amounts of sulphides, carbonates and borates. Minerals such as sphalerite (ZnS), galena (PbS), etc. are some of the are common components of the sulphides. In addition, there are known mines and reported mineral occurrences of the minerals being applied for in the vicinity of the proposed area.

PROJECT ASSOCIATED POSITIVE IMPACTS:

- Work opportunities to local residents should prospecting be successful contributing to the socio-economic status of the area;
- Easy movement of equipment as processing progress
- Complete removal of equipment at closure of the prospecting area.
- Return of the prospecting area to landscape feature upon closure ; and
- Diversification of the land use of the property.

POTENTIAL NEGATIVE IMPACTS:

PLANNING AND SURFACE SAMPLING PHASE

- Visual intrusion as a result of planning and surface sampling phase;
- Potential hydrocarbon contamination from leaks or spills ;
- Potential impact on fauna within the footprint area;
- Dust nuisance as a result of the surface sampling;
- Noise nuisance as a result of surface sampling;

- Potential impact on the Safety of the area due to increased human concentration;
- Impact of the natural vegetation of the footprint;
- Deterioration of the access road to the prospecting area;
- Impact on FEPA area of biodiversity concern and/or drainage lines; and
- Potential impact on areas/infrastructure of heritage or cultural concern.

CLOSING OF DRILL HOLES AND LANDSCAPING UPON CLOSURE OF THE PROSPECTING AREA.

- Uncapped boreholes left by the contractor;
- Erosion after rehabilitation;
- Impact of the natural vegetation of the footprint during decommissioning phase; and
- Potential impact associated with litter/hydrocarbon spills left at the decommissioning activities.

viii) 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 mitigation 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 mitigation measures are proposed to address/minimize the impact of the proposed activity on the surrounding environment:

VISUAL CHARACTERISTICS

Visual Mitigation:

The risk of the proposed prospecting activities having a negative impact on the aesthetic quality of the surrounding environment can be reduced a lower risk through the implementation of the mitigation measures listed below.

- The applicant should however ensure that housekeeping is managed to standard, as this will mitigate the visual impacts during the operational phase of the prospecting activities.
- Upon closure the site will be rehabilitated to ensure that the visual impact on the aesthetic value of the area is kept to a minimum.
- The site will have a neat appearance and be kept in good condition at all times.

AIR AND NOISE QUALITY

Fugitive Dust Emission Mitigation:

The risk of dust, generated from the proposed prospecting activities, having a negative impact on the surrounding environment can be reduced to a lower risk through the implementation of the following mitigation measures:

- The liberation of dust into the surrounding environment must be effectively controlled by the use of, inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products).
- The site manager must ensure continuous assessment of the dust suppression equipment to confirm its effectiveness in addressing dust suppression.
- Speed on the access road must be limited to 40 km/h to prevent the generation of excess dust.
- Areas devoid of vegetation, which could act as a dust source, must be minimized.
- Weather conditions must be taken into consideration upon commencement of daily operations. Limiting operations during very windy periods would reduce airborne dust and resulting impacts.
- All dust generating activities shall comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA (Act 39 of 2004) and ASTM D1739 (SANS 1137:2012).
- Best practice measures shall be implemented during the stripping of topsoil (if required), drilling, and decommissioning and landscaping to minimize potential dust impacts.

Noise Handling:

The risk of noise, generated as a result of the proposed prospecting activity, having a negative impact on the surrounding environment can be reduced to being low through the implementation of the mitigation measures listed below:

- The prospecting right holder must ensure that employees and staff conduct themselves in an acceptable manner while on site.
- No loud music may be permitted at the prospecting area.
- All prospecting vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996).

- Best practice measures shall be implemented in order to minimize potential noise impacts.
- Noise generated on-site from all the proposed activities must comply with the Northern Cape Noise Control Regulations Provincial Notice 200/2013.

MINING AND BIODIVERSITY & GROUNDCOVER

Management of Invasive Plant Species:

The risk of weeds or invader plants invading the disturbed area can be reduced to being Low through the implementation of the mitigation measures listed below:

- An invasive plant species management plan (Appendix J) must be implemented at the site to ensure the management and control of all species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto). Weed/alien clearing must be done on an ongoing basis throughout the life of the prospecting activities.
- The project footprint and surroundings should be monitored during the initial construction period for alien invasive species, and annually for the lifetime of the fence and road and managed according to each species during the operational phase.
- Care should be taken to remove any biological material from equipment, personnel clothing,
- and gear before entering and when leaving the work site to prevent the spread and establishment of alien invasive species.
- Topsoil must be monitored bi-weekly by the designated Environmental Officer on site to detect the emergence of any alien invasive species.
- All topsoil stockpiles (if applicable) must be kept free of invasive plant species.
- Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used:
 - The plants can be uprooted, felled, or cut off and can be destroyed completely.

FAUNA

Protection of Fauna:

The risk resulting from the proposed prospecting activity on terrestrial fauna of the footprint area as well as the surrounding environment, can be reduced to Low through the implementation of the mitigation measures listed below:

- The site manager must ensure no fauna is caught, killed, harmed, sold or played with.
- Workers must be instructed to report any animals that may be trapped in the working area.
- No snares may be set, or nests raided for eggs or young.
- All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limit (40 km/h), to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings and erosion is limited.
- It is not known for how long the drilling rig will remain at each site, but it is recommended that an ECO should visit each at least twice during its operation. Ideally one such visit will be done when the site is first being established since that will also allow opportunity for the person to also check on the site which has just been left.

HYDROLOGY

- Ideally no drilling should be undertaken at times when rain has fallen, and the pans are holding water. This measure is recommended to both minimise the possibility of contamination of the surface and ground water, and to minimise disturbance of the important bird populations around the pans.
- The access to the site must be planned together with the relevant landowner and be approved by the land owner.
- The landowner may stop operations at any site if the conditions of the approval are ignored or otherwise bypassed.
- Access roads and tracks must make use as far as is possible of existing farm roads and tracks. Ideally, the routes will be approved and documented by an Environmental Control Officer (ECO).
- To the greatest possible extent, the access roads and tracks must avoid passing through watercourses or pans or other environmentally sensitive

areas. Such areas could include known home ranges of species of especial biodiversity conservation concern.

- Preparation of the drilling site must avoid damage to the vegetation as far as is possible.
- The size of the drilling sites must be restricted to a practical minimum and must be approved by the landowner and ECO. An extent of 20 m x 25 m is suggested but may be changed after discussion between the drilling contractor and the landowner. Once decided, the boundary of the site must be demarcated with a temporary fence which may consist of poles and hazard tape, plastic mesh, or shadecloth.
- If needed, a lay-down area for pipes may be established close by the drilling site but its boundary must also be demarcated.
- Since the drill operators may live on the site while working there, provision must be made for ablution and toilet facilities. Grey water may be disposed of onsite but chemical toilets must be provided and be properly serviced. Pit latrines may not be used.
- Any roads or tracks that were prepared or used for access to the site must be returned to their prior state and their condition must be approved by the landowner.

GENERAL

Waste Management:

The risk of uncontrolled waste generation having a negative impact on the surrounding environment can be reduced to being Low through the implementation of the mitigation measures listed below:

- Provision must be made for proper retention of all garbage, domestic wastes, and drilling wastes. Bins with lids or skips must be provided and these must be emptied at an approved disposal site. No refuse of any sort may be buried or burned at the site.
- Fuels and oils must be held in leak-free containers and must be kept on drip trays when not in use.
- Waste oils and the like, including items such as used oil filters and oil-soaked paper or rags, must be retained in sealed containers and be kept on drip trays.
- Vehicles and machines must be refuelled or serviced over drip trays. Any soil contaminated by fuel or oil spills must be collected and be held in a suitable

sealed contained prior to removal to an approved disposal site. A hazmat kit of appropriate capacity must be kept on the site at all times.

- On completion of drilling operations at each site, all materials, including wastes or litter, must be removed for re-use at another site or for disposal as may be relevant. The site must be cleaned and tidied and its condition must be approved by the landowner before the contractor may leave the site.
- When needed the maintenance/service of the drill rig will be performed on site within the 400 square metre drilling area and in line with approved impact management measures (i.e., hydrocarbon spill management, etc.).
- Ablution facilities must be provided in the form of a chemical toilet. The chemical toilet must be placed outside the 1:100 year floodline of any open water source, and must be serviced at least once every two weeks for the duration of the prospecting activities.
- The use of any temporary, chemical toilet facilities may not cause any pollution to water sources or pose a health hazard. In addition, no form of secondary pollution should arise from the disposal of refuse or sewage from the temporary, chemical toilets. Any pollution problems arising from the above are to be addressed immediately by the prospecting right holder.
- Site management must ensure drip trays are cleaned after each use. No dirty drip trays may be used on site.
- A spill kit must be available on-site which can be operated by trained employees for the *ad hoc* remediation of minor chemical and hydrocarbon spillages.
- Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility.
- Should spillage occur, such as oil or diesel leaking from a burst pipe, the contaminated soil must, within the first hour of occurrence, be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. Proof must be filed.
- No waste may be buried or burned on the site.
- No chemicals or hazardous materials may be stored at the prospecting area.
- It is important that any significant spillage of chemicals, fuels etc. during the lifespan of the prospecting activities is reported to the Department of Water and Sanitation and other relevant authorities.
- All machinery must be parked at the stockpile area with drip trays placed underneath stationary vehicles.

Management of heritage/paleontological finds

- Once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, this should be conducted prior to the commencement of prospecting activities;
- Drill sites must be kept as close as possible to existing roads in order to minimise the impact on the landscape;
- Focal points on the landscape like rocky outcrops or pans must be avoided as far as possible as these areas could be sensitive from a heritage point of view;
- A paleontological desktop study should be conducted once the impact areas are confirmed;
- Monitoring of the project area by the ECO during the exploration phase for heritage chance finds, and if chance finds are encountered to implement the Chance Find Procedure for the project.

Management of Health and Safety Risks:

The following mitigation measures are proposed to minimise the potential health and safety impacts:

- Adequate ablution facilities and water for human consumption must daily be available on site.
- Workers must have access to the correct personal protection equipment (PPE) as required by law.
- All operations must comply with the Mine Health and Safety Act, 1996 (Act No 29 of 1996).
- No trespassing on private property outside the approved area will be allowed.

ix) Motivation where no alternative sites were considered.

The proposed prospecting footprint was identified as the preferred and only viable site alternative as it was identified over a vast area to be examined for the sought minerals. However, the Final Layout Alternative (FLA) (Preferred Layout) was assessed during the EIA phase, for the potential impact of the proposed activities on the receiving environmental by, amongst others, the wetland, ecologist, agricultural and heritage specialist. The specialists considered the initial layout and accordingly submitted their respective recommendations. Following receipt of the specialist reports, the initial layout of the project was refined to accommodate their findings. Prospecting sites will be moved to various area depending on sensitivity and accessibility and as mentioned

previously, the drilling sites can be moved to various positions in consultation with the landowners depending on sensitivity and accessibility within the prospecting area.

- The mineral deposits being applied for are confined to the Hotazel Formation of the Griqualand West Supergroup of the middle Proterzoic age. The base of the Hotazel Formation consists of a bright-red banded iron-formation bed (varying from massive to fine-grained specularite and/or euhedral magnetite crystals) overlying volcanic glass breccias and lavas of the Ongeluk Formation.
- There are two main groups of minerals from the Kalahari manganese field: the first is associated with the ore and often consists of microscopically identifiable minerals; the second group consists of minerals found in cracks, fissures and pockets. A large portion of the minerals are calcium-manganese silicates with varying amounts of sulphides, carbonates and borates. Minerals such as sphalerite (ZnS), galena (PbS), etc. are some of the are common components of the sulphides. In addition, there are known mines and reported mineral occurrences of the minerals being applied for in the vicinity of the proposed area.

x) Statement motivating the alternative development location within the overall site.

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

Site Alternative 1 was identified during the assessment phase of the environmental impact assessment as the preferred and only site alternative. Prospecting sites will be moved away from/to various area depending on sensitivity and accessibility. The following matters contributed to the identification of the preferred development footprint:

1. **Topography** – The prospecting activities will not affect the topography of the receiving environmental, nor will prospecting have any residual affects should all areas be rehabilitated.
2. **Visual Characteristics** – The viewshed analysis showed that the visual impact of the proposed prospecting operation will be of low significance. The small scale of the proposed operation contributes to the low visual significance. Should the Applicant successfully rehabilitate the prospecting areas (upon closure), no residual visual impact is expected upon closure of the prospecting activities.
3. **Air and Noise Quality** – The proposed activity will contribute the emissions of drilling rigs and a field vehicle to the receiving environment for the duration of the operational phase. Should the prospecting holder implement the mitigation

measures proposed in the BAR and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use. The potential impact on the noise ambience of the receiving environment is expected to be of low significance.

4. **Geology and Soil** – The prospecting activities will entail core samples and testing, no bulk sampling will be done.
5. **Hydrology** – The proposed site falls within three Quaternary Catchments. The greater part of the study area lies within Catchment D42E which includes the Doringdam Spruit. This spruit has a part of its source area in the project area and then passes on down to the Molopo River. It is NFEPA listed as being an Orange River tributary. In the south-eastern corner of the study area is Catchment D73E. This area includes the headwaters of an unnamed watercourse which flows southwards to enter the Orange River near Upington. The catchment is small and is probably of very low significance. Finally, the north-eastern corner of the study area just reaches into Catchment D42D. This catchment flows around the northern side of Catchment D42E and enters the Molopo River. While Catchments D42E and D73E have clear evidence of channels with erosion features, Catchment D42D appears to have no clear drainage line. Its surface topography tends to have very low gradients and it consists primarily of dune fields and plains with numerous depressions (pans). Therefore, any rainfall into its area is likely to be held and then to either evaporate away, or else to percolate down into the soil. An implication of this is that it may contribute some ground water to the other two catchments.

The applicant is in the process of applying for a water uses authorisation to the Department of Water and Sanitation, in terms of the National Water Act, 1998 (Act No 36 of 1998) which will be submitted for the Section 21 (c) and (i) waters uses.

6. **Mining, Biodiversity and Groundcover** – The prospecting activities does not require the removal of any large trees or vegetation of significance. Due to the small footprint of a borehole, the drill position can be manipulated to drill between the trees. In light of this, the impact of the prospecting operation on the vegetation cover of the receiving environment is deemed to be of Low significance. It is proposed that should the Applicant implement the mitigation measures proposed in the EMPR the impact of the proposed activity on the vegetation and groundcover in general is deemed to be of low significance.

7. **Fauna** - Various small mammals and reptiles occur on the property. The fauna at the site will not be impacted by the proposed prospecting activity as they will be able to move away or through the site, without being harmed. Workers should be educated and managed to ensure that no fauna at the site is harmed. As per the screening report, a few species had been identified with a high to medium sensitivity. According to the Terrestrial Impact Assessment (Appendix K2), the Ludwig's Bustard (*Neotis ludwigii*) has indeed been listed as being of High and medium sensitivity which is recorded from the area as it is listed in the SABAP observation lists. It was not seen during the course of the site visit while the Northern Black Korhaan (*Afrotis afraoides*) was commonly seen. Since the major threat to the species is documented as collisions with power and telephone lines, the proposed drilling of six boreholes is unlikely to pose any new level of threat in the project area other than for some temporary disturbance from the drilling sites.

Furthermore, the fauna of the area will be disturbed by the human presence and drilling activity. While this will not be of relevance to the more common species such as Springbok, other species and especially smaller burrowing species which will not move very freely due to either specialised habitat requirements or to territorial restrictions, could be affected. Activity near pans during the wet season could have significant impacts on the birds which utilise them.

With this said, the drilling sites will have to be fully rehabilitated as per the mitigation measures set out in this document as well as in consultation with the landowner / landowners. Should this prospecting right be granted farm owners will be consulted prior to commencement of any activities to ensure that safety of animals and workers.

8. **Cultural and Heritage Environment** -As per the screening report, the area has a low heritage impact but has a very high palaeontology sensitivity and according to the SAHRA Paleontological sensitivity map the study area is of moderate sensitivity and a desktop study is required for this aspect.

The Heritage Impact Assessment (Appendix K3) states that due to the geographical size of the exploration application and the fact that no intrusive activities will occur at this point of the application, it was deemed not feasible to conduct fieldwork at this point. Several large-scale heritage surveys were conducted for renewable energy and mining projects in the area and the archaeological character of the area is now well described. This provides the

opportunity to establish potential heritage resources that could be affected in the area. It is clear from the studies conducted that the general area has a wealth of heritage sites and a cultural layering dating back to the Stone Age with scatters and sites dating to the ESA, MSA and LSA. Sites and artefacts dating to these periods are scattered over the landscape with MSA and LSA sites centred on rocky outcrops, pans and watercourses and similar sites are expected to occur in the project area. No intrusive activities will occur at this point of the application and the potential impact on heritage resources is expected to be very low.

However, once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, which should be conducted prior to the commencement of prospecting activities. A paleontological desktop study should be conducted once the impact areas are confirmed. The Applicant will implement a chance-find protocol on site for the duration of the site establishment, operational- and decommissioning phase. Should sensitive areas be identified, the boreholes will move accordingly.

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

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

During the impact assessment process, the following potential impacts were identified of each main activity in each phase. An initial significance rating (listed under *v) Impacts and Risks Identified*) was determined for each potential impact should the mitigation measures proposed in this document not be implemented on-site. The impact assessment process then continued in identifying mitigation measures to address the impact that the proposed prospecting activity may have on the surrounding environment.

The significance rating was again determined for each impact using the methodology as explained under *vi) Methodology Used in Determining and Ranking the Significance*. The impact ratings listed below was determined for each impact **after** bringing the proposed mitigation measures into consideration and therefore represents the final layout/activity proposal.

PLANNING AND SURFACE SAMPLING PHASE

Visual intrusion as a result of surface sampling phase

						Significance					
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Low	Low-Medium	Medium	Medium-High	High
							1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low			Site Alternative 1 & Layout Alternative			Degree of Mitigation: None					
2	3	1	2	2	2	2	4				

Potential hydrocarbon contamination from leaks or spills

						Significance					
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Low	Low-Medium	Medium	Medium-High	High
							1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low			Site Alternative 1 & Layout Alternative			Degree of Mitigation: Full					
2	2	1	1.6	2	3	2.5	4				

Potential impact on fauna within the footprint area

						Significance					
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Low	Low-Medium	Medium	Medium-High	High
							1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low			Site Alternative 1 & Layout Alternative			Degree of Mitigation: Full					
2	2	1	1.6	2	3	2.5	4				

Dust nuisance as a result of surface sampling

						Significance					
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Low	Low-Medium	Medium	Medium-High	High
							1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low			Site Alternative 1 & Layout Alternative			Degree of Mitigation: Full					
1	1	1	1	1	2	1.5	1.5				

Noise nuisance as a result of surface sampling

						Significance					
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Low	Low-Medium	Medium	Medium-High	High
							1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low			Site Alternative 1 & Layout Alternative			Degree of Mitigation: Partial					
1	3	1	1.6	1	2	1.5	2.4				

Potential impact on the Safety of the area due to increased human concentration.

			Consequence			Likelihood	Significance				
Severity	Duration	Extent					Low	Low-Medium	Medium	Medium-High	High
				Probability	Frequency		1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low			Site Alternative 1 & Layout Alternative			Degree of Mitigation: Full					
2	3	1	2	2	2	2	4				

Impact of the natural vegetation of the footprint.

			Consequence			Likelihood	Significance				
Severity	Duration	Extent					Low	Low-Medium	Medium	Medium-High	High
				Probability	Frequency		1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low - Medium			Site Alternative 1 & Layout Alternative			Degree of Mitigation: Full					
1	3	1	1.6	1	2	1.5	2.4				

Deterioration of the access road to the prospecting area

			Consequence			Likelihood	Significance				
Severity	Duration	Extent					Low	Low-Medium	Medium	Medium-High	High
				Probability	Frequency		1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low			Site Alternative 1 & Layout Alternative			Degree of Mitigation: Full					
2	3	1	2	2	2	2	4				

Impact on FEPA area of biodiversity concern and/or drainage lines

			Consequence			Likelihood	Significance				
Severity	Duration	Extent					Low	Low-Medium	Medium	Medium-High	High
				Probability	Frequency		1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low			Site Alternative 1 & Layout Alternative			Degree of Mitigation: Full					
2	3	1	2	2	2	2	4				

Potential impact on areas/infrastructure of heritage or cultural concern.

			Consequence			Likelihood	Significance				
Severity	Duration	Extent					Low	Low-Medium	Medium	Medium-High	High
				Probability	Frequency		1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low			Site Alternative 1 & Layout Alternative			Degree of Mitigation: Full					
2	4	1	2.3	3	2	2	4.6				

CLOSING OF DRILL HOLES AND LANDSCAPING UPON CLOSURE OF THE PROSPECTING AREA

Uncapped boreholes left by the contractor.

			Consequence			Likelihood	Significance				
Severity	Duration	Extent					Probability	Frequency	Low	Low-Medium	Medium
							1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low			Site Alternative 1 & Layout Alternative			Degree of Mitigation: Full					
1	4	1	2	2	1	1.5	3				

Erosion after rehabilitation

			Consequence			Likelihood	Significance				
Severity	Duration	Extent					Probability	Frequency	Low	Low-Medium	Medium
							1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low			Site Alternative 1 & Layout Alternative			Degree of Mitigation: Full					
1	3	1	1.6	1	2	1.5	2.4				

Impact of the natural vegetation of the footprint during decommissioning phase

			Consequence			Likelihood	Significance				
Severity	Duration	Extent					Probability	Frequency	Low	Low-Medium	Medium
							1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low			Site Alternative 1 & Layout Alternative			Degree of Mitigation: Full					
1	4	1	2	2	1	1.5	3				

Potential impact associated with litter/hydrocarbon spills left due to decommissioning activities.

			Consequence			Likelihood	Significance				
Severity	Duration	Extent					Probability	Frequency	Low	Low-Medium	Medium
							1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low Medium			Site Alternative 1 & Layout Alternative			Degree of Mitigation: Full					
2	4	1	2.3	3	2	2	4.6				

Return of the prospecting area to agricultural use upon closure (**Positive Impact**)

			Consequence			Likelihood	Significance				
Severity	Duration	Extent					Probability	Frequency	Low	Low-Medium	Medium
							1 - 4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Medium-high			Site Alternative 1 & Layout Alternative			Degree of Mitigation: Full					
1	5	5	3.7	5	5	5	18.5				

j) 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 32: Assessment of each identified potentially significant impact and risk

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
Whether listed or not listed. (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	(E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, air pollution, etc...etc...etc.)		In which impact is anticipated. (E.g. Construction, commissioning, operational Decommissioning closure, post closure.)	If not mitigated.	(modify, remedy, control, or stop) through (e.g. noise control measures, storm water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.) E.g. Modify through alternative method Control through noise control Control through management and monitoring through rehabilitation.	If mitigated.
<ul style="list-style-type: none"> Demarcation of site with visible beacons. 	<ul style="list-style-type: none"> No impact could be identified other than the beacons being outside the boundaries of the approved prospecting area. 	N/A	Planning and surface sampling phase	N/A	Control through management and monitoring.	N/A
<ul style="list-style-type: none"> Planning and surface sampling phase Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> Visual intrusion as a result of planning and surface sampling phase Uncapped boreholes left by the contractor 	The visual impact may affect the aesthetics of the landscape.	Planning and surface sampling, Operational and Decommissioning Phase	<ul style="list-style-type: none"> Low Low Medium 	<u>Control:</u> Implementing proper housekeeping.	<ul style="list-style-type: none"> Low Low

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
<ul style="list-style-type: none"> Planning and surface sampling phase Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> Potential impact on fauna within the footprint area Impact of the natural vegetation of the footprint. Impact on FEPA area of biodiversity concern and/or drainage lines Impact of the natural vegetation of the footprint during decommissioning phase Uncapped boreholes left by the contractor 	<p>This will impact on the biodiversity of the receiving environment.</p>	<p>Operational and Planning and surface sampling, Operational and Decommissioning Phase</p>	<ul style="list-style-type: none"> Medium Low Medium Low Medium Low Medium Low Medium 	<p><u>Control:</u> Implementing good management practices.</p>	<ul style="list-style-type: none"> Low Low Low Low Low
<ul style="list-style-type: none"> Planning and surface sampling phase 	<ul style="list-style-type: none"> Dust nuisance as a result of the planning and surface sampling phase. 	<p>Increased dust generation will impact on the air quality of the receiving environment.</p>	<p>Planning and surface sampling, Operational and Decommissioning Phase</p>	<ul style="list-style-type: none"> Low 	<p><u>Control:</u> Dust suppression methods and proper housekeeping.</p>	<ul style="list-style-type: none"> Low
<ul style="list-style-type: none"> Planning and surface sampling phase 	<ul style="list-style-type: none"> Noise nuisance as a result of surface sampling; 	<p>Should noise levels become excessive it may have an impact on the noise ambiance of the receiving environment.</p>	<p>Planning and surface sampling, Operational and Decommissioning Phase</p>	<ul style="list-style-type: none"> Low 	<p><u>Control:</u> Noise suppression methods and proper housekeeping.</p>	<ul style="list-style-type: none"> Low

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
<ul style="list-style-type: none"> Planning and surface sampling phase Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> Potential hydrocarbon contamination from leaks or spills Potential impact associated with litter/hydrocarbon spills left at the decommissioning activities; 	Contamination of the footprint area will negatively impact the soil, surface runoff and potentially the groundwater. It will also incur additional costs to the prospecting right holder.	Planning and surface sampling, Operational and Decommissioning Phase	<ul style="list-style-type: none"> Medium Low - Medium 	<u>Control & Remedy:</u> Proper housekeeping and implementation of an emergency response plan and waste management plan.	<ul style="list-style-type: none"> Low Low
<ul style="list-style-type: none"> Planning and surface sampling phase 	<ul style="list-style-type: none"> Deterioration of the access road to the prospecting area. 	Collapse of the road infrastructure will affect the landowner.	Operational and Decommissioning Phase	<ul style="list-style-type: none"> Low Medium 	<u>Control & Remedy:</u> Maintaining the access road for the duration of the operational phase, as well as leaving it in a representative or better condition than prior to prospecting.	<ul style="list-style-type: none"> Low
<ul style="list-style-type: none"> Planning and surface sampling phase 	<ul style="list-style-type: none"> Potential impact on the Safety of the area due to increased human concentration 	Trespassing will negatively affect the landowner due to possible loss of fauna.	Planning and surface sampling, Operational and Decommissioning Phase	<ul style="list-style-type: none"> Low Medium 	<u>Control:</u> Proper site management.	<ul style="list-style-type: none"> Low
<ul style="list-style-type: none"> Planning and surface sampling phase 	<ul style="list-style-type: none"> Potential impact on areas/infrastructure of heritage or cultural concern 	This could impact on the cultural and heritage legacy of the receiving environment.	Operational /Drilling Phase	<ul style="list-style-type: none"> Low - Medium 	<u>Control & Stop:</u> Implementing good management practices	<ul style="list-style-type: none"> Low
<ul style="list-style-type: none"> Closing of drill holes and landscaping upon closure of the prospecting area. 	<ul style="list-style-type: none"> Erosion after rehabilitation 	Erosion will have an impact on aquatic systems in the area as well as borrowing fauna.	Operational and Decommissioning Phase	<ul style="list-style-type: none"> Low 	<u>Control & Remedy:</u> Proper housekeeping.	<ul style="list-style-type: none"> Low

The supporting Impact Assessment conducted by the EAP must be attached as an appendix, marked Appendix F

k) 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):

Table 33: Summary of specialist reports

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
<p>The screening report identified the following list of specialist assessment for inclusion in the assessment report:</p> <ul style="list-style-type: none"> • Agricultural Impact Assessment; • Archaeological and Cultural Heritage Impact Assessment; • Paleontology Impact Assessment; • Terrestrial Biodiversity Impact Assessment; • Aquatic Biodiversity Impact Assessment; • Hydrology Assessment; • Noise Impact Assessment; • Radioactivity Impact Assessment; • Traffic Impact Assessment; • Geotechnical Assessment; • Socio-economic Assessment; • Plant Species Assessment; and • Animal Species Assessment. 			

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	<ul style="list-style-type: none"> • Agricultural Impact Assessment (AIA): <p>An agricultural impact is a temporary or permanent change to the future agricultural production potential of land. The significance of the agricultural impact is directly proportional to the extent of the change in production potential, which is a function of:</p> <ol style="list-style-type: none"> 1. the length of time for which the change in production potential lasts 2. the total footprint of land whose production potential will be changed 3. the baseline production potential (particularly cropping potential) of that land <p>The temporary loss of small, widely distributed patches of grazing land, of which there is no scarcity in the country, represents very minimal loss of agricultural production potential, both for the affected farmer and in terms of national food security. Due to the fact that all three significance factors are low, the agricultural impact of the proposed prospecting is assessed here as being of low significance.</p> <p>Although the prospecting will impact land that is currently zoned for agriculture, it will lead to minimal loss of both current production and of future agricultural production potential. The agricultural impact of the proposed development is assessed as being of low significance and as acceptable. From an agricultural impact point of view, it is recommended that the proposed prospecting be approved. The conclusion of this assessment on the acceptability of the proposed development and the recommendation for its approval is not subject to any conditions, other than recommended mitigation.</p>		

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
<ul style="list-style-type: none"> Archaeological and Cultural Heritage Impact Assessment (HIA) & Paleontology Impact Assessment (PIA): <p>As per the screening report, the area has a low heritage impact but has a very high palaeontology sensitivity and according to the SAHRA Paleontological sensitivity map the study area is of moderate sensitivity and a desktop study is required for this aspect.</p> <p>The Heritage Impact Assessment (Appendix K3) states that due to the geographical size of the exploration application and the fact that no intrusive activities will occur at this point of the application, it was deemed not feasible to conduct fieldwork at this point. Several large-scale heritage surveys were conducted for renewable energy and mining projects in the area and the archaeological character of the area is now well described. This provides the opportunity to establish potential heritage resources that could be affected in the area. It is clear from the studies conducted that the general area has a wealth of heritage sites and a cultural layering dating back to the Stone Age with scatters and sites dating to the ESA, MSA and LSA. Sites and artefacts dating to these periods are scattered over the landscape with MSA and LSA sites centred on rocky outcrops, pans and watercourses and similar sites are expected to occur in the project area.</p> <p>No intrusive activities will occur at this point of the application and the potential impact on heritage resources is expected to be very low.</p> <p>However, once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, which should be conducted prior to the commencement of prospecting activities. A paleontological desktop study should be conducted once the impact areas are confirmed The Applicant will implement a chance-find protocol on site for the duration of the site establishment, operational- and decommissioning phase. Should sensitive areas be identified the boreholes will move accordingly.</p>			

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
			<p>• Terrestrial Biodiversity Impact Assessment (TBIA) & Plant Species Assessment (PSA) & Animal Species Assessment (ASA):</p> <p>As per the screening report, the Terrestrial Biodiversity and Animal Species theme has a high to very high sensitivity. According to the Terrestrial Impact Assessment (Appendix K2), the Ludwig’s Bustard (<i>Neotis ludwigii</i>) has indeed been listed as being of High and medium sensitivity which is recorded from the area as it is listed in the SABAP observation lists. It was not seen during the course of the site visit while the Northern Black Korhaan (<i>Afrotis afraoides</i>) was commonly seen. Since the major threat to the species is documented as collisions with power and telephone lines, the proposed drilling of six boreholes is unlikely to pose any new level of threat in the project area other than for some temporary disturbance from the drilling sites.</p> <p>Furthermore, the fauna of the area will be disturbed by the human presence and drilling activity. While this will not be of relevance to the more common species such as Springbok, other species and especially smaller burrowing species which will not move very freely due to either specialized habitat requirements or to territorial restrictions, could be affected. Activity near pans during the wet season could have significant impacts on the birds which utilize them.</p> <p>The area indicated as Ecological Support Area matches that of the Aquatic Biodiversity Theme. This correlation is considered to be realistic since the areas which may contain water would be the most important in that arid landscape. The pans were the only place where animals such as Springbok were seen and it was also noticed that they contain numerous Ground Squirrel as well as a smaller number of Bat-eared Fox burrows. Should the mitigation measures and monitoring programmes proposed in this document be implemented, no fatal flaws could be identified that prevents the activity continuing.</p> <p>With this said, the drilling sites will have to be fully rehabilitated as per the mitigation measures set out in this document as well as in consultation with the landowner / landowners. Should this prospecting right be granted farm owners will be consulted prior to commencement of any activities to ensure that safety of animals and workers.</p>

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	<ul style="list-style-type: none"> <li data-bbox="107 459 1182 491">Aquatic Biodiversity Impact Assessment (ABIA) & Hydrology Assessment (HA): <p data-bbox="107 539 2136 675">The proposed site falls within three Quaternary Catchments. The greater part of the study area lies within Catchment D42E which includes the Doringdam Spruit. This spruit has a part of its source area in the project area and then passes on down to the Molopo River. It is NFEPA listed as being an Orange River tributary.</p> <p data-bbox="107 691 2136 826">In the south-eastern corner of the study area is Catchment D73E. This area includes the headwaters of an unnamed watercourse which flows southwards to enter the Orange River near Upington. The catchment is small and is probably of very low significance. Finally, the north-eastern corner of the study area just reaches into Catchment D42D. This catchment flows around the northern side of Catchment D42E and enters the Molopo River.</p> <p data-bbox="107 874 2136 1058">While Catchments D42E and D73E have clear evidence of channels with erosion features, Catchment D42D appears to have no clear drainage line. Its surface topography tends to have very low gradients and it consists primarily of dune fields and plains with numerous depressions (pans). Therefore, any rainfall into its area is likely to be held and then to either evaporate away, or else to percolate down into the soil. An implication of this is that it may contribute some ground water to the other two catchments.</p> <p data-bbox="107 1114 2136 1201">The applicant is in the process of applying for a water uses authorisation to the Department of Water and Sanitation, in terms of the National Water Act, 1998 (Act No 36 of 1998) which will be submitted for the Section 21 (c) and (i) waters uses.</p>		<ul style="list-style-type: none"> <li data-bbox="107 1249 577 1281">Noise Impact Assessment (NIA):

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	<p>The potential impact on the noise ambiance of the receiving environment is expected to be of low significance and representative of the vehicles already operational at the property. Due to the small scale of the operation a NIA is not deemed applicable.</p> <ul style="list-style-type: none"> Radioactivity Impact Assessment <p>A Radioactivity Impact assessment is not deemed necessary for the proposed prospecting operation that will not store any chemicals on site, perform activities of radioactive nature or generate hazardous waste of radioactive nature.</p> <ul style="list-style-type: none"> Traffic Impact Assessment (TIA): <p>The Applicant will use the existing road to access the prospecting area. No upgrading of the road is needed prior to commencement. In light of the small scale of the proposed operation a TIA is not deemed necessary, should the Applicant implement the mitigation measures to be proposed in the EMPr.</p> <ul style="list-style-type: none"> Geotechnical Assessment: <p>No reason for a geotechnical assessment could be identified as no permanent infrastructure will be established at the proposed prospecting area.</p> <ul style="list-style-type: none"> Socio-economic Assessment (SEA): <p>The application is for a prospecting right as the aim of the exploration activity is to verify the geology, historical data and any and all site data for the project, as well as to produce a most up-to-date current surface geological and geotechnical map of the mineralised zone. Results of this will determine of future mining activities will be feasible. In light of this a SEA is not deemed applicable to this project.</p>		

I) Environmental impact statement

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

The key findings of the environmental impact assessment entail the following:

Project Description

The proposed prospecting footprint applied for is 15 065.81 ha on portion 6 and 7 of the Farm Gams 367 for Iron; Zinc; Lithium; Lead; Nickel; and Copper in Magisterial District of Gordonia Local Municipality, Northern Cape Province.

The proposed activity will make use of non-invasive as well as invasive prospecting activities that will include borehole drilling to retrieve geological core samples. No bulk sampling will be done.

Non-Invasive Activities will consist of the following:

Historical and newly acquired data:

- Will be subjected to detailed geological, facies and sedimentological interpretations by integration into a three-dimensional software package (typically DataMine™).
- Advanced studies may follow on from the initial phases of prospecting depending on the results obtained and could include metallurgical and rock mechanics studies, resource estimations, environmental impact assessments, socio-economic studies, culminating in a pre-feasibility study if successful.

Geochemical Survey:

- Geochemical surveys will entail studies of soil samples and may be extended to samples taken selectively from the material historically derived. All samples will be sent to a suitable laboratory for comprehensive analyses.

Geophysical Survey:

- Geophysical surveys would include radiometric and other appropriate surveys.
- Analysis will be assigned to a competent and well-established firm of specialist geophysicists.

Other methods:

- Electronic data capture of all information into a GIS (ArcView™) system with three-dimensional modelling in DataMine™. Aerial photographs and satellite imagery are available from which useful spatial and topographical data may be obtained in respect of mapping prospective sites.
- If warranted the more costly techniques of aerial magnetometry and/or seismology may be considered, although the nature of the terrain will make the latter difficult to mount.

Invasive Activities will consist of the following:

- Drilling: Reverse Circulation drilling is the most cost-effective method for the testing and assessing the deposit with Percussion techniques being offered as an alternative should circumstances so require. Initially 10 such boreholes are proposed. Up to 20 diamond drill holes are suggested to recover core samples in support of laboratory analysis. Laboratory will proceed concurrently with drilling. All drilling shall be undertaken to a maximum depth of 500 meters.
- There won't be any excavation, and pitting.
- No extensive trenching will be done, only for the water reticulation and sump during drilling (no more than 1m X 1m area per drilling site) water will be brought to site from a commercial source and not from the farm property(ies).

Topography:

The topography of the study area varies between parallel dunes about 3–8 m above the plains and flat, gravel plains. This topography consists of open shrublands with ridges of grassland dominated by *Stipagrostis amabilis* on the dune crests and *Acacia haematoxylon* on the dune slopes, also with *A. mellifera* on lower slopes and *Rhigozum trichotomum* in the interdune straiten. On the flat plains, the area consists of low karroid shrublands. Karoo-related elements (shrubs) meet here with northern floristic elements, indicating a transition to the Kalahari region and sandy soils. The altitude varies between 814 - 914m.

Visual Characteristics:

The viewshed analysis showed that the visual impact of the proposed prospecting operation will be of low significance. The small scale of the proposed operation

contributes to the low visual significance. Should the Applicant successfully rehabilitate the prospecting areas (upon closure), no residual visual impact is expected upon closure of the prospecting activities.

Air and Noise Quality:

The proposed activity will contribute the emissions of a drilling rig and a field vehicle to the receiving environment for the duration of the operational phase. Should the prospecting holder implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use. The potential impact on the noise ambiance of the receiving environment is expected to be of low significance and representative of the machinery already operational at the property.

Geology and Soil:

The proposed prospecting area consists of Cenozoic Kalahari Group sands and small patches also on calcrete outcrops and screes on scarps of intermittent rivers (mekgacha). In places Dwyka Group tillites outcrop. The soils are deep (>300 mm), red-yellow, apedal, freely drained, with a high base status, typical of Ae land type. The area also consists of Aeolian sand underlain by superficial silcretes and calcretes of the Cenozoic Kalahari Group. Fixed parallel sand dunes, with Af land type almost exclusively.

Hydrology:

The proposed site falls within three Quaternary Catchments. The greater part of the study area lies within Catchment D42E which includes the Doringdam Spruit. This spruit has a part of its source area in the project area and then passes on down to the Molopo River. It is NFEPA listed as being an Orange River tributary.

In the south-eastern corner of the study area is Catchment D73E. This area includes the headwaters of an unnamed watercourse which flows southwards to enter the Orange River near Upington. The catchment is small and is probably of very low significance. Finally, the north-eastern corner of the study area just reaches into Catchment D42D. This catchment flows around the northern side of Catchment D42E and enters the Molopo River.

While Catchments D42E and D73E have clear evidence of channels with erosion features, Catchment D42D appears to have no clear drainage line. Its surface topography tends to have very low gradients and it consists primarily of dune fields

and plains with numerous depressions (pans). See Figure 10. Therefore, any rainfall into its area is likely to be held and then to either evaporate away, or else to percolate down into the soil. An implication of this is that it may contribute some ground water to the other two catchments.

Mining, Biodiversity and Groundcover:

The prospecting activities does not require the removal of any large trees or vegetation of significance. Due to the small footprint of a borehole, the drill position can be manipulated to drill between the trees. In light of this, the impact of the prospecting operation on the vegetation cover of the receiving environment is deemed to be of Low significance.

Fauna:

Various mammals and reptiles are likely to occur on the property. The fauna at the site will not be impacted by the proposed prospecting activity as they will be able to move away or through the site, without being harmed. Workers should be educated and managed to ensure that no fauna at the site is harmed. As access to the site was denied at this stage no resident protected or red data faunal species could be identified within the earmarked footprint, and the project is expected to have a negligible impact in this regard as prospecting activities will be done by drilling prospecting boreholes in phases of 6 areas consisting of a total of 100 drilling prospecting boreholes over the duration of the prospecting period, each borehole drilling site comprising an area of approximately 400 square meters per site with a total of no more than 0.4 ha disturbed at any given time. Prior to moving to the next drill block these sites will have to be fully rehabilitated as per the mitigation measures set out in this document as well as in consultation with the landowner / landowners. The study area falls over properties that is noted to be operational game farms, should this prospecting right be granted farm owners will be consulted prior to commencement of any activities to ensure that safety of animals and workers.

Cultural, Heritage and Palaeontological Environment:

As per the screening report, the area has a low heritage impact but has a very high palaeontology sensitivity and according to the SAHRA Paleontological sensitivity map the study area is of moderate sensitivity and a desktop study is required for this aspect. The Heritage Impact Assessment (Appendix K3) states that due to the geographical size of the exploration application and the fact that no intrusive activities will occur at

this point of the application, it was deemed not feasible to conduct fieldwork at this point. Several large-scale heritage surveys were conducted for renewable energy and mining projects in the area and the archaeological character of the area is now well described. This provides the opportunity to establish potential heritage resources that could be affected in the area. It is clear from the studies conducted that the general area has a wealth of heritage sites and a cultural layering dating back to the Stone Age with scatters and sites dating to the ESA, MSA and LSA. Sites and artefacts dating to these periods are scattered over the landscape with MSA and LSA sites centred on rocky outcrops, pans and watercourses and similar sites are expected to occur in the project area.

No intrusive activities will occur at this point of the application and the potential impact on heritage resources is expected to be very low.

However, once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, which should be conducted prior to the commencement of prospecting activities. A paleontological desktop study should be conducted once the impact areas are confirmed. The Applicant will implement a chance-find protocol on site for the duration of the site establishment, operational- and decommissioning phase. Should sensitive areas be identified the boreholes will move accordingly.

i) Final Site Map

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

See the map indicating prospecting site activities attached as Appendix C.

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

PROJECT ASSOCIATED POSITIVE IMPACTS:

- Work opportunities to local residents should prospecting be successful contributing to the socio-economic status of the area;
- Easy movement of infrastructure as processing progress;
- Complete removal of infrastructure at closure of the prospecting activity;
- Return of the prospecting area to agricultural use upon closure of the project; and
- Diversification of the land use of the property.

POTENTIAL NEGATIVE IMPACTS:**PROJECT ASSOCIATED POSITIVE IMPACTS:**

- Work opportunities to local residents should prospecting be successful contributing to the socio-economic status of the area;
- Easy movement of equipment as processing progress;
- Complete removal of equipment at closure of the prospecting area;
- Return of the prospecting area to landscape feature upon closure ; and
- Diversification of the land use of the property.

POTENTIAL NEGATIVE IMPACTS:***PLANNING AND SURFACE SAMPLING PHASE***

- Visual intrusion as a result of planning and surface sampling phase;
- Potential hydrocarbon contamination from leaks or spills ;
- Potential impact on fauna within the footprint area;
- Dust nuisance as a result of the surface sampling;
- Noise nuisance as a result of surface sampling;
- Potential impact on the Safety of the area due to increased human concentration;
- Impact of the natural vegetation of the footprint;
- Deterioration of the access road to the prospecting area;
- Impact on FEPA area of biodiversity concern and/or drainage lines; and
- Potential impact on areas/infrastructure of heritage or cultural concern.

CLOSING OF DRILL HOLES AND LANDSCAPING UPON CLOSURE OF THE PROSPECTING AREA.

- Uncapped boreholes left by the contractor;
- Erosion after rehabilitation;
- Impact of the natural vegetation of the footprint during decommissioning phase; and
- Potential impact associated with litter/hydrocarbon spills left at the decommissioning activities;

The negative impacts associated with the project that was deemed to have a Low-Medium or higher significance includes:

No negative impacts, after mitigations measures, were identified to have a Low-Medium or higher significance.

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

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

Table 34: Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
<p>VISUAL CHARACTERISTICS</p> <p>Mitigating the visual impact.</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPr.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> • Contain prospecting to the boundaries of the authorised area. • Ensure that the site have a neat appearance and is kept in good condition at all times. • Limit vegetation removal, and only strip topsoil immediately prior to the use of a specific area. • Rehabilitate and landscape every borehole site to address any residual impact. 	<ul style="list-style-type: none"> • Minimise the impact of the proposed project on the visual characteristics of the receiving environment during the operational phase, and ensure no residual impact remains after closure.
<p>AIR QUALITY</p> <p>Dust management</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPr.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> • Control the liberation of dust into the surrounding environment by the use of; inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products). • Ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression. • Limit speed on the access roads to 40 km/h to prevent the generation of excess dust. • Minimise areas devoid of vegetation. • Take weather conditions into consideration upon commencement of daily operations. Limit operations during very windy periods to reduce airborne dust and resulting impacts. • Ensure dust generating activities comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA, 2004 and ASTM D1739 (SANS 1137:2012). 	<ul style="list-style-type: none"> • Dust prevention measures are applied to minimise the generation of dust.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		<ul style="list-style-type: none"> Implement best practice measures during the operation to minimize potential dust impacts. 	
<p>NOISE AMBIANCE</p> <p>Noise mitigation.</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPr.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> Ensure that employees and staff conduct themselves in an acceptable manner while on site. No loud music may be permitted at the prospecting area. Ensure that all project related vehicles are equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996. Implement best practice measures to minimise potential noise impacts. Noise generated on-site from all the proposed activities must comply with the Northern Cape Noise Control Regulations Provincial Notice 200/2013 	<ul style="list-style-type: none"> Prevent unnecessary noise to the environment by ensuring that noise from development activity is mitigated.
<p>GEOLOGY AND SOIL</p> <p>Topsoil Management</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPr.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<p><u>Topsoil Management:</u></p> <p>As mentioned earlier, the applicant will not remove any topsoil due to the fast mobility of the drill rig. Prospecting will be done in 6 areas consisting of a total of 100 drilling prospecting holes. The boreholes will be capped with sand material from around the boreholes, and the area rehabilitated as they move to the next borehole. The following standard mitigation measure will be adhered to in the event of any possible removal of topsoil:</p> <ul style="list-style-type: none"> Carefully manage and conserve the topsoil throughout the prospecting and rehabilitation process. Ensure topsoil stripping, stockpiling, and re-spreading is done in a systematic way. Place topsoil heaps on a levelled area within the prospecting footprint area. Do not stockpile topsoil in undisturbed areas. Protect topsoil stockpiles against losses by water and wind erosion. Position stockpiles so as not to be vulnerable to erosion by wind and water. Establishment of plants on the stockpiles will help prevent erosion. 	<ul style="list-style-type: none"> Wastes are appropriately handled and safely disposed of at a recognised waste facility.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		<ul style="list-style-type: none"> • Spread the topsoil evenly over the rehabilitated area, to a depth of 300 mm, upon closure of the site. • Strive to re-instate topsoil at a time of the year when vegetation cover can be established as quickly as possible afterwards, to that erosion of returned topsoil is minimized. The best time of year is at the end of the rainy season. • Plant and irrigate a cover crop immediately after spreading topsoil to stabilise the soil and protect it from erosion. Fertilise the cover crop for optimum biomass production. Rehabilitation extends until the first cover crop is well established. • Monitor the rehabilitated area for erosion, and appropriately stabilize if erosion do occur, for at least 12 months after reinstatement. 	
<p>HYDROLOGY</p> <p>Storm water management.</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPr.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> • Conduct activity in terms of the Best Practice Guidelines for prospecting as developed by DWS. • No drilling should be undertaken at times when rain has fallen, and the pans are holding water. This measure is recommended to both minimise the possibility of contamination of the surface and ground water, and to minimise disturbance of the important bird populations around the pans. • The access to the site must be planned together with the relevant landowner and be approved by the landowner. • The landowner may stop operations at any site if the conditions of the approval are ignored or otherwise bypassed. • Access roads and tracks must make use as far as is possible of existing farm roads and tracks. Ideally, the routes will be approved and documented by an Environmental Control Officer (ECO). • To the greatest possible extent, the access roads and tracks must avoid passing through watercourses or pans or other environmentally sensitive areas. Such areas could 	<ul style="list-style-type: none"> • Impact to the environment caused by storm water discharge is avoided.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		<p>include known home ranges of species of especial biodiversity conservation concern.</p> <ul style="list-style-type: none"> • Preparation of the drilling site must avoid damage to the vegetation as far as is possible. • The size of the drilling sites must be restricted to a practical minimum and must be approved by the landowner and ECO. An extent of 20 m x 25 m is suggested but may be changed after discussion between the drilling contractor and the landowner. Once decided, the boundary of the site must be demarcated with a temporary fence which may consist of poles and hazard tape, plastic mesh, or shadecloth. • If needed, a lay-down area for pipes may be established close by the drilling site but its boundary must also be demarcated. • Since the drill operators may live on the site while working there, provision must be made for ablution and toilet facilities. Grey water may be disposed of onsite but chemical toilets must be provided and be properly serviced. Pit latrines may not be used. • Any roads or tracks that were prepared or used for access to the site must be returned to their prior state and their condition must be approved by the landowner. 	
<p>GROUNDCOVER</p> <p>Mitigating invader plants.</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPr.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> • Implement an invasive plant species management plan (Appendix J) to control all invasive plant species on site in terms of NEM:BA, 2004 and CARA, 1983. • Keep all topsoil (if applicable) free of invasive plant species. • Control declared invader or exotic species on the rehabilitated areas. • Construction activities, movement of personnel and vehicles must be restricted to the informal pathways, areas already transformed, and the development footprint. • Waste management mitigation measures must be strictly adhered to. 	<ul style="list-style-type: none"> • Prospecting area is kept free of invasive plant species.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
<p>FAUNA</p> <p>Mitigating the fauna component.</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> • Ensure no fauna is caught, killed, harmed, sold or played with. • Instruct workers to report any animals that may be trapped in the working area. • Ensure no snares are set or nests raided for eggs or young. • Prospecting areas should be done in consultation with the landowner in order to ensure the safety and security of animals that might occur in the prospecting areas. • All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limit (40 km/h), to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings and erosion is limited. 	<ul style="list-style-type: none"> • Disturbance to fauna is minimised.
<p>CULTURE/HERITAGE</p> <p>Mitigating cultural/heritage aspects.</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> • Confine all prospecting to the approved footprint area. • Once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, this should be conducted prior to the commencement of prospecting activities. • A paleontological desktop study should be conducted once the impact areas are confirmed. • Implement the following chance find procedure when discoveries are made on site: <ul style="list-style-type: none"> ▪ If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. 	<ul style="list-style-type: none"> • Impact to cultural/heritage resources is avoided or at least minimised.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		<ul style="list-style-type: none"> ▪ It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area. ▪ The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify SAHRA. ▪ Work may only continue once the go-ahead was issued by SAHRA. 	
<p>EXISTING INFRASTRUCTURE</p> <p>Control of access road.</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPr.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> • Divert storm water around the access road to prevent erosion. • Access roads and tracks must make use as far as is possible of existing farm roads and tracks. Ideally, the routes will be approved and documented by an Environmental Control Officer (ECO). • Repair rutting and erosion of the access road caused as a direct result of the prospecting activities. 	<ul style="list-style-type: none"> • The access road remains accessible to the road users during the operational phase, and upon closure the road is returned in a better, or at least the same state as received by the prospecting right holder.
<p>GENERAL</p> <p>Waste management</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPr.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> • Provision must be made for proper retention of all garbage, domestic wastes, and drilling wastes. Bins with lids or skips must be provided and these must be emptied at an approved disposal site. No refuse of any sort may be buried or burned at the site. • Fuels and oils must be held in leak-free containers and must be kept on drip trays when not in use. • Waste oils and the like, including items such as used oil filters and oil-soaked paper or rags, must be retained in sealed containers and be kept on drip trays. • Vehicles and machines must be refuelled or serviced over drip trays. Any soil contaminated by fuel or oil spills must be collected and be held in a suitable sealed contained prior to removal to an approved disposal site. A hazmat kit of appropriate capacity must be kept on the site at all times. 	<ul style="list-style-type: none"> • Wastes are appropriately stored, handled and safely disposed of at a recognised waste facility.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		<ul style="list-style-type: none"> • On completion of drilling operations at each site, all materials, including wastes or litter, must be removed for re-use at another site or for disposal as may be relevant. The site must be cleaned and tidied and its condition must be approved by the landowner before the contractor may leave the site. • Provide ablution facilities in the form of a chemical toilet that is placed outside the 1:100-year flood line of any open water source. Ensure the toilet is serviced at least once every two weeks for the duration of the prospecting activities. • Ensure that the use of any temporary, chemical toilet facilities does not cause any pollution to water sources or pose a health hazard. In addition, ensure that no form of secondary pollution arise from the disposal of refuse or sewage from the temporary, chemical toilets. Address any pollution problems arising from the above immediately. • Equip the diesel bowser with a drip tray if used on site. The nozzle of the bowser must rest in a sleeve to prevent dripping after refuelling. • Clean drip trays after use. Do not use dirty drip trays. • Keep a spill kit on site. • Collect any effluents containing oil, grease or other industrial substances in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Collect the contaminated soil from spillage that occurred, such as oil or diesel leaking from a burst pipe, within the first hour of occurrence, in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. File proof. • Compile a waste management plan and implement it on site. The plan must focus on the waste hierarchy of the NEM:WA. 	

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		<ul style="list-style-type: none"> • Contain general waste in marked, sealable, refuse bins placed at a designated area and remove waste from the prospecting area to a recognised general waste landfill site. • Prevent the burning or burying of waste on site. • Report any significant spillage of chemicals, fuels etc. during the lifespan of the prospecting activities to the Department of Water and Sanitation and other relevant authorities. • Park the drill machinery at the prospecting area with drip trays placed underneath stationary vehicles. 	
<p>GENERAL</p> <p>Health and safety aspects.</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> • Ensure adequate ablution facilities and water for human consumption is daily available on site. • Ensure that workers have access to the correct PPE as required by law. • No trespassing on private property outside the approved area will be allowed. • Manage all operations in compliance with the Mine Health and Safety Act, 1996 (Act No 29 of 1996). 	<ul style="list-style-type: none"> • Employees work in a healthy and safe environment.

n) Aspects for inclusion as conditions of Authorisation.

Any aspects which must be made conditions of the Environmental Authorisation

The management objectives listed in this report under *Part A(1)(m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR* above should be considered for inclusion in the environmental authorisation.

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

(Which relate to the assessment and mitigation measures proposed)

The assumptions made in this document which relate to the assessment and mitigation measures proposed, stem from site specific information gathered from site inspections, desktop studies as well as the specialist study. No uncertainty regarding the proposed project or the receiving environment could be identified.

p) Reasoned opinion as to whether the proposed activity should or should not be authorised**i) Reasons why the activity should be authorised or not.**

Should the mitigation measures and monitoring programmes proposed in this document be implemented on site, no fatal flaws could be identified that were deemed as severe as to prevent the activity continuing.

ii) Conditions that must be included in the authorisation.

The management objectives listed in this report under *Part A(1)(m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR* should be considered for inclusion in the environmental authorisation.

q) Period for which the Environmental Authorisation is required.

The Applicant requests the Environmental Authorisation to be valid for a five-year period to correspond with the validity of the prospecting right.

r) 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.

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.

s) Financial Provision

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

i) Explain how the aforesaid amount was derived.

The prospecting activities will include surface sampling, drilling over 15 065.81 ha area. The calculation of the quantum for financial provision was according to Section B of the working manual. The calculation was based on prospecting activity phases of 6 areas consisting of a total of 100 drilling prospecting boreholes comprising an area of approximately 400 square meters per site with a total of no more than 0.4 ha disturbed at any given time. Prior to moving to the next drill block these sites will have to be fully rehabilitated as per the mitigation measures set out in this document as well as in consultation with the landowner / landowners., thereby keeping the impact on the receiving environment as low as possible. If the applicant would not comply with the progressive rehabilitation procedure. In light of the above, the amount that will be necessary for the rehabilitation of damages caused by the operation, both sudden closures during the normal operation of the project and to manage and rehabilitate the environment at final, planned closure gives a sum total of R 140,953.42.

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

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

African Exploration Mining and Finance Corporation SOC Ltd will be responsible for the financial and technical aspects of the proposed prospecting project. The operating expenditure is provided for as such in the Prospecting Work Programme as presented in the PWP.

t) Specific Information required by the competent Authority**i) Compliance with the provisions of sections 24(4)(a) and (b) read with section 24 (3)(a) and (7) of the National Environmental Management Act (Act 107 of 1998). The EIA report must include the:-****(1) Impact on the socio-economic conditions of any directly affected person.**

(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)

The following potential impacts were identified that may impact on socio-economic conditions of directly affected persons:

- **Visual intrusion associated with the proposed prospecting activities:**

The viewshed analysis showed that the visual impact of the proposed prospecting operation will be of low significance. The small scale of the proposed operation contributes to the low visual significance. Should the Applicant successfully rehabilitate the prospecting areas (upon closure), no residual visual impact is expected upon closure of the prospecting activities.

- **Dust nuisance caused as a result of the proposed prospecting activities:**

The proposed activity will contribute the emissions of a drilling rig during the operational phase. Should the prospecting right holder implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use.

- **Noise nuisance as a result of prospecting activities:**

The prospecting activity will contribute the emissions of one drill rig and two site vehicles at a time for the duration of the invasive operational phase. Dust generated as result of the prospecting will also stem from the movement of these vehicles. Should the PR Holder implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use.

- **Employment opportunities and socio-economic impact:**

The proposed labour component of the activity will be five employees. The operation will contribute to the local economy in the area, both directly and through the multiplier effect that its continued presence will create.

Equipment and supplies will be purchased locally, and wages are spent at local businesses, generating both jobs and income in the area. Although the employees are not resident on the site, they will be from the surrounding community.

- **Prospecting affecting surface water or aggravating the scarcity of water:**

The prospecting activity requires $\pm 1\ 000$ l of water/day that is bought in a controlled manner from the landowners.

No prospecting should be undertaken at times when rain has fallen and the pans are holding water.

The Proposed 6 areas: Borehole 1 - 6

Borehole 1 appears to be on a dividing ridge between two watercourses. The closest such channel is approximately 45 m away from the site. It is therefore suggested that the site be moved to a location approximately 175 m north-westward to a point where it will be at least 60m from any watercourse. The new site remains within the same lithological unit.

Borehole 2 is located at the site indicated below. Since it is in a pan area it is recommended that it be moved approximately 100 m south-eastwards to where it will be away from any pan as shown below. The new site remains within the same lithological unit.

Borehole 3 is located in a flat stony plain area to the west of two small dune cordons. It is away from any pan or watercourse and so may remain where its position has been indicated.

Boreholes 4 and 5. These boreholes may remain in their present locations unless an actual site visit and inspection suggests otherwise.

Borehole 6 is located on a low ridge in a grassy area which forms the divide between two pans. It is located more than 100 m away from either pan and so may remain in the position which has been indicated.

In light of this, the potential of prospecting impact the water resources of the footprint area is deemed very low.

- **Access control and management of existing infrastructure:**

Site management will at all times be responsible for the movement of their employees. No prospecting personnel will be allowed to wander outside the approved footprint. The contractor will sign an agreement to this effect upon

appointment and will be held responsible for damages to fences or gates left ajar by prospecting personnel.

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

(Provide the results of investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No 25 of 1999) with the exception of the national estate contemplated in section 3(2)(i)(vi) and (vii) of the 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).

Due to the geographical size of the exploration application and the fact that no intrusive activities will occur at this point of the application, it was deemed not feasible to conduct fieldwork at this point. However, once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, which should be conducted prior to the commencement of prospecting activities. A paleontological desktop study should be conducted once the impact areas are confirmed. The Applicant will implement a chance-find protocol on site for the duration of the site establishment, operational- and decommissioning phase. Should sensitive areas be identified the boreholes will move accordingly. Please refer to Appendix K3 – Heritage Impact Assessment.

u) Other matters required in terms of section 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)

Site Alternative 1:

Site Alternative 1 was identified as the preferred and only viable site alternative based on the following: The Prospecting area with a footprint of approximately 15 065.81 ha on portion 6 and 7 of the Farm Gams 367, in Magisterial District of Gordonia Local Municipality, Northern Cape Province (hereafter referred to as the application property).

- The mineral deposits being applied for are confined to the Hotazel Formation of the Griqualand West Supergroup of the middle Proterzoic age. The base of the Hotazel Formation consists of a bright-red banded iron-formation bed (varying from massive to fine-grained specularite and/or euhedral magnetite crystals) overlying volcanic glass breccias and lavas of the Ongeluk Formation.
- There are two main groups of minerals from the Kalahari manganese field: the first is associated with the ore and often consists of microscopically identifiable minerals; the

second group consists of minerals found in cracks, fissures and pockets. A large portion of the minerals are calcium-manganese silicates with varying amounts of sulphides, carbonates and borates. Minerals such as sphalerite (ZnS), galena (PbS), etc. are some of the are common components of the sulphides. In addition, there are known mines and reported mineral occurrences of the minerals being applied for in the vicinity of the proposed area.

Availability of the mineral resource will only be determined should prospecting the prospecting right be granted and drilling can take place.

Layout Alternative: Site 1

Final Layout Alternative (FLA) (Preferred Layout): During the EIA phase, the potential impact of the proposed activities on the receiving environmental were assessed by, amongst others, the wetland, ecologist specialists. The specialists considered the initial layout based on the drilling plan and accordingly submitted their respective recommendations. Following receipt of the specialist reports, the initial layout of the project was refined to accommodate their findings. Prospecting sites will be moved to various area depending on sensitivity and accessibility.

No-go Alternative:

The no-go alternative was not deemed to be the preferred alternative as:

- The applicant will not be able to prospect for any possible mineral resource;
- The application, if approved, would allow the applicant to determine the available mineral as well as provide employment opportunities to local employees. Should the no-go alternative be followed, these opportunities will be lost to the applicant, potential employees and clients; and
- The applicant will not be able to diversify the income of the property.

Not proceeding with the proposed operation will entail that a mineral which if found will contribute towards the local and provincial social and economic structures of the area, will not be mined, and that this opportunity will be lost.

In light of this, the no-go alternative was no deemed to be the preferred alternative.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1. FINAL ENVIRONMENTAL MANAGEMENT PROGRAMME.

a) Details of the EAP,

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

The details and expertise of Murchellin Saal of Greenmined Environmental that acts as EAP on this project has been included in Part A Section 1(a) as well as Appendix I as required.

b) Description of the Aspects of the Activity

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

The aspects of the activity that are covered by the FINAL environmental management programme has been described and included in Part A, section (1)(h).

c) Composite Map

(Provide a map (Attached as an Appendix) 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)

As mentioned under Part A, section (1)(l)(ii) this map has been compiled and is attached as Appendix C to this document.

d) Description of impact management objectives including management statements

i) Determination of closure objectives.

(Ensure that the closure objectives are informed by the type of environment described in 2.4 herein)

The end objective is for the prospecting area to return to agricultural use. No buildings/infrastructure, other than the chemical toilet and drill rig, need to be removed and the access roads/tracks will remain intact to be used by the landowners.

The decommissioning activities will consist of the following:

- Removal of all prospecting machinery from the prospecting area;
- Removal of the chemical toilet from the prospecting area;
- Landscaping and replacing the topsoil (if removed); and
- Controlling the invasive plant species.

The Applicant will comply with the minimum closure objectives as prescribed by the DMRE and detailed below:

- **Rehabilitation of the Prospecting Area:**

Upon closure of the prospecting activities the Applicant will remove the drilling machinery from the area. The entrance into the river will remain, but should any signs of erosion occur, these will be reinstated and landscaped by the prospecting right holder.

- **Final Rehabilitation:**

Final rehabilitation of the surface area shall entail landscaping, levelling, maintenance, and clearing of invasive plant species. All equipment, plant and other items used during the prospecting period will be removed from site (section 44 of the MPRDA, 2002). Waste material of any description will be removed entirely from the prospecting area and disposed of at a recognized landfill facility. It will not be permitted to be buried or burned on the site. The management of invasive plant species will be done in a sporadic manner during the life of the prospecting activities. Species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto) will be eradicated from the site. Final rehabilitation shall be completed within a period specified by the Regional Manager.

ii) Volume and rate of water use required for the operation

The drilling operation requires $\pm 1\ 000$ l of water per day. Potable water will be brought to site daily by the employees. No extensive trenching will be done, only for the water reticulation and sump during drilling (no more than 1m X 1m area per drilling site) water will be brought to site from a commercial source and not from the farm property(ies).

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

The applicant is in the process of applying for a water uses authorisation to the Department of Water and Sanitation, in terms of the National Water Act, 1998 (Act No 36 of 1998) which will be submitted for the Section 21 (c) and (i) waters uses. A Risk Matrix Assessment is included in Appendix K1.

iv) Impacts to be mitigated in their respective phases

Table 35: Impact to be mitigated in their respective phases

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
(as listed in 2.11.1)	of operation in which activity will take place. State; Planning and design, Pre-Construction, Operational, Rehabilitation, Closure, Post closure	(volumes, tonnages and hectares or m ²)	(describe how each of the recommendations herein will remedy the cause of pollution or degradation and migration of pollutants)	(A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either – Upon cessation of the individual activity or Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.
Demarcation of site with visible beacons.	Planning and surface sampling phase / Site establishment & Operational Phase	0.04 ha	Demarcation of the site will ensure that all employees are aware of the boundaries of the prospecting area, and that work stay within the approved area.	Prospecting of coal is only allowed within the boundaries of the approved area. <ul style="list-style-type: none"> • MPRDA, 2008 • NEMA, 1998 	Beacons need to be in place throughout the life of the activity.
<ul style="list-style-type: none"> • Planning and surface sampling phase. 	Planning and surface sampling phase / Site establishment & Operational Phase	0.04 ha	<p><u>Visual Mitigation</u></p> <ul style="list-style-type: none"> • Prospecting must be contained to the boundaries of the authorised area. • Every borehole site must have a neat appearance and be kept in good condition at all times. 	Management closure of prospecting area must be in accordance with the: <ul style="list-style-type: none"> • MPRDA, 2008 • NEMA, 1998 	Throughout the Planning and surface sampling phase / Site establishment phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<ul style="list-style-type: none"> Upon closure every borehole site must be rehabilitated and landscaped to address any residual impact. The site must have a neat appearance and be kept in good condition at all times. 		
<ul style="list-style-type: none"> Planning and surface sampling phase 	Planning and surface sampling phase / Site establishment	0.04 ha	<p><u>Impact on Vegetation:</u></p> <ul style="list-style-type: none"> The prospecting boundaries must be clearly demarcated, and all operations must be contained to the approved prospecting area. The area outside the prospecting boundaries must be declared a no-go area, and all employees must be educated accordingly. Preparation of the drilling site must avoid damage to the vegetation as far as is possible. The size of the drilling sites must be restricted to a practical minimum and must be approved by the landowner and ECO. An extent of 20 m x 25 m is suggested but may be changed after discussion between the drilling contractor and the landowner. Once decided, the boundary of the site must be demarcated with a temporary fence which may consist of poles and hazard tape, plastic mesh, or shade cloth. The invasive plant species management plan attached as Appendix J must be implemented on site to control weeds and invasive plants on denuded areas, topsoil heaps and reinstated areas. 	Natural vegetated areas must be managed in accordance with the: <ul style="list-style-type: none"> NEM:BA 2004 Northern Cape Biodiversity Plan 	Throughout the Planning and surface sampling phase / Site establishment phase.
<ul style="list-style-type: none"> Planning and surface sampling phase 	Planning and surface sampling phase / Site establishment	0.04 ha	<p><u>Topsoil Management:</u></p> <p>As mentioned earlier, the applicant will not remove any topsoil due to the fast mobility of the drill rig. Prospecting will be done in 6 areas consisting of a total of 100 drilling prospecting holes. The</p>	Topsoil must be managed in accordance with the: <ul style="list-style-type: none"> CARA, 1983 NEM:BA, 2004 MPRDA, 2008 	Throughout the Planning and surface sampling phase / Site establishment -, operational, and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<ul style="list-style-type: none"> Closing of drill holes and landscaping upon closure of the prospecting area 			<p>boreholes will be capped with sand material from around the boreholes, and the area rehabilitated as they move to the next borehole. The following standard mitigation measure will be adhered to in the event of any possible removal of topsoil:</p> <ul style="list-style-type: none"> Carefully manage and conserve the topsoil throughout the prospecting and rehabilitation process. Ensure topsoil stripping, stockpiling, and re-spreading is done in a systematic way. Place topsoil heaps on a levelled area within the prospecting footprint area. Do not stockpile topsoil in undisturbed areas. Protect topsoil stockpiles against losses by water and wind erosion. Position stockpiles so as not to be vulnerable to erosion by wind and water. Establishment of plants on the stockpiles will help prevent erosion. Spread the topsoil evenly over the rehabilitated area, to a depth of 300 mm, upon closure of the site. Strive to re-instate topsoil at a time of the year when vegetation cover can be established as quickly as possible afterwards, to that erosion of returned topsoil is minimized. The best time of year is at the end of the rainy season. Plant and irrigate a cover crop immediately after spreading topsoil to stabilise the soil and protect it from erosion. Fertilise the cover crop for optimum biomass production. Rehabilitation extends until the first cover crop is well established. Monitor the rehabilitated area for erosion, and appropriately stabilize if erosion do occur, for at least 12 months after reinstatement. 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<ul style="list-style-type: none"> • Planning and surface sampling phase. • Closing of drill holes and landscaping upon closure of the prospecting area 	Planning and surface sampling phase -, Operational- and Decommissioning phase	0.04 ha	<p><u>Management of Invader Plant Species:</u></p> <ul style="list-style-type: none"> • An invasive plant species management plan (Appendix J) must be implemented at the site to ensure the management and control of all species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto). Weed/alien clearing must be done on an ongoing basis throughout the life of the prospecting activities. • All topsoil (if applicable) must be kept free of invasive plant species. • Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used: <ul style="list-style-type: none"> ▪ The plants can be uprooted, felled or cut off and can be destroyed completely. ▪ The plants can be treated chemically by a registered pest control officer (PCO) through the use of an herbicide recommended for use by the PCO in accordance with the directions for the use of such an herbicide. 	Invader plants must be managed in accordance with the: <ul style="list-style-type: none"> • CARA, 1983 • NEM:BA 2004 • Invasive Plant Species Management Plan (Appendix J) 	Throughout the planning and surface sampling phase -, operational, and decommissioning phase.
<ul style="list-style-type: none"> • Planning and surface sampling phase 	Planning and surface sampling phase / Site establishment - and Operational phase	0.04 ha	<p><u>Protection of Fauna:</u></p> <ul style="list-style-type: none"> • The site manager must ensure no fauna is caught, killed, harmed, sold or played with. • Workers must be instructed to report any animals that may be trapped in the working area. • No snares may be set, or nests raided for eggs or young. 	Fauna must be managed in accordance with the: <ul style="list-style-type: none"> • NEM:BA 2004 	Throughout the Planning and surface sampling phase / site establishment -, and operational phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<ul style="list-style-type: none"> Prospecting areas should be done in consultation with the landowner in order to insure the safety and security of animals that might occur in the prospecting areas. All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limit (40 km/h), to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings and erosion is limited. 		
<ul style="list-style-type: none"> Planning and surface sampling phase. 	Site Establishment-, Operational Phase	0.04 ha	<p><u>Fugitive Dust Emission Mitigation:</u></p> <ul style="list-style-type: none"> The liberation of dust into the surrounding environment must be effectively controlled by the use of, inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products). The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression. Speed on the access road must be limited to 40 km/h to prevent the generation of excess dust. Areas devoid of vegetation, which could act as a dust source, must be minimized and vegetation removal may only be done immediately prior to prospecting. Weather conditions must be taken into consideration upon commencement of daily operations. Limiting operations during very windy periods would reduce airborne dust and resulting impacts. 	<p>Dust generation must be managed in accordance with the:</p> <ul style="list-style-type: none"> NEM:AQA. 2004 Regulation 6(1) National Dust Control Regulations, GN No R827 ASTM D1739 (SANS 1137:2012) 	Throughout the planning and surface sampling phase -, operational, and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<ul style="list-style-type: none"> All dust generating activities shall comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA (Act 39 of 2004) and ASTM D1739 (SANS 1137:2012). 		
<ul style="list-style-type: none"> Planning and surface sampling phase 	Site Establishment-, Operational-, and Decommissioning Phase	0.04 ha	<p><u>Noise Handling:</u></p> <ul style="list-style-type: none"> The prospecting right holder must ensure that employees and staff conduct themselves in an acceptable manner while on site. No loud music may be permitted at the prospecting area. All prospecting vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996). Best practice measures shall be implemented in order to minimize potential noise impacts. Noise generated on-site from all the proposed activities must comply with the Northern Cape Noise Control Regulations Provincial Notice 200/2013. 	<p>Noise generation must be managed in accordance with the:</p> <ul style="list-style-type: none"> NEM:AQA. 2004 Regulation 6(1) NRTA, 1996 	Throughout the Planning and surface sampling phase / site establishment -, operational-, and decommissioning phase.
<ul style="list-style-type: none"> Planning and surface sampling phase. Closing of drill holes and landscaping upon closure of the prospecting area. 	Site Establishment-, Operational-, and Decommissioning Phase	0.04 ha	<p><u>Waste Management:</u></p> <ul style="list-style-type: none"> Provision must be made for proper retention of all garbage, domestic wastes, and drilling wastes. Bins with lids or skips must be provided and these must be emptied at an approved disposal site. No refuse of any sort may be buried or burned at the site. Fuels and oils must be held in leak-free containers and must be kept on drip trays when not in use. Waste oils and the like, including items such as used oil filters and oil-soaked paper or rags, 	<p>Prospecting related waste must be managed in accordance with the:</p> <ul style="list-style-type: none"> NWA, 1998 NEM:WA, 2008 NEM:WA, 2008: National norms and standards for the storage of waste (GN 926) NEMA, 1998 (Section 30) 	Throughout the Planning and surface sampling phase / site establishment -, operational-, and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>must be retained in sealed containers and be kept on drip trays.</p> <ul style="list-style-type: none"> • Vehicles and machines must be refuelled or serviced over drip trays. Any soil contaminated by fuel or oil spills must be collected and be held in a suitable sealed container prior to removal to an approved disposal site. A hazmat kit of appropriate capacity must be kept on the site at all times. • On completion of drilling operations at each site, all materials, including wastes or litter, must be removed for re-use at another site or for disposal as may be relevant. The site must be cleaned and tidied and its condition must be approved by the landowner before the contractor may leave the site. • Ablution facilities must be provided in the form of a chemical toilet. The chemical toilet must be placed outside the 1:100 year floodline of any open water source, and must be serviced at least once every two weeks for the duration of the prospecting activities. • The use of any temporary, chemical toilet facilities may not cause any pollution to water sources or pose a health hazard. In addition, no form of secondary pollution should arise from the disposal of refuse or sewage from the temporary, chemical toilets. Any pollution problems arising from the above are to be addressed immediately by the prospecting right holder. • Site management must ensure drip trays are cleaned after each use. No dirty drip trays may be used on site. 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<ul style="list-style-type: none"> • A spill kit must be available on-site which can be operated by trained employees for the adhoc remediation of minor chemical and hydrocarbon spillages. • Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Should spillage occur, such as oil or diesel leaking from a burst pipe, the contaminated soil must, within the first hour of occurrence, be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. Proof must be filed. • A waste management plan must be compiled by site management and implemented on site. The plan must focus on the waste hierarchy of the NEM:WA. • General waste must be contained in marked, sealable, refuse bins placed at a designated area, to be removed when filled to capacity to a recognised general waste landfill site. • No waste may be buried or burned on the site. • No chemicals or hazardous materials may be stored at the prospecting area. • It is important that any significant spillage of chemicals, fuels etc. during the lifespan of the prospecting activities is reported to the Department of Water and Sanitation and other relevant authorities. • To lower the risk of accidental hydrocarbon spillages all machinery must be parked at the 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>prospecting area with drip trays placed underneath stationary vehicles.</p> <ul style="list-style-type: none"> Any event resulting in the spill or leak of hydrocarbons or any other hazardous solvents into the ground and/or water resources, must be reported within the prescribed timeframes to all relevant authorities, including the Directorate: Pollution and Chemicals Management. Containment, clean-up, and remediation must commence immediately in the case of NEMA section 30 incidents, and the necessary documentation must be completed and submitted within the prescribed timeframes. 		
<ul style="list-style-type: none"> Planning and surface sampling phase 	Operational Phase	0.04 ha	<p><u>Archaeological, Heritage and Palaeontological Aspects:</u></p> <ul style="list-style-type: none"> All prospecting must be confined to the development footprint area. Once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, this should be conducted prior to the commencement of prospecting activities. A paleontological desktop study should be conducted once the impact areas are confirmed. If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate 	<p>Cultural/heritage aspects must be managed in accordance with the:</p> <ul style="list-style-type: none"> NHRA, 1999 	Throughout the operational phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>supervisor, and through their supervisor to the senior on-site manager.</p> <ul style="list-style-type: none"> • It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area. • Personnel involved in the shallow pit sampling must be instructed to be alert for the occurrence of fossil bones. Fossil bones may also be noticed weathering out in the sides of old prospecting excavations or exposed in the adjacent spoil heaps of excavated material. In the event of such discoveries the Fossil Finds Procedure. • The senior on-site Manager must inform the ECO of the chance find and its immediate impact on operations. The ECO must then contact a professional archaeologist for an assessment of the finds who must notify SAHRA. • Work may only continue once the go-ahead was issued by SAHRA. • It is recommended that fossil material extracted from the boreholes, or later separated during sample analysis, be kept and bagged for identification by a palaeontologist. For preliminary analysis, quality images of the fossil material should be forwarded by email for examination by a specialist, in order to identify specimens of importance for stratigraphic diagnosis, and specimens requiring further examination and diagnosis. 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<ul style="list-style-type: none"> • Planning and surface sampling phase • Closing of drill holes and landscaping upon closure of the prospecting area 	Planning and surface sampling phase / Site establishment -, Operational-, and Decommissioning phase	0.4ha	<p><u>Management of Health and Safety Risks:</u></p> <ul style="list-style-type: none"> • Adequate ablution facilities and water for human consumption must daily be available on site. • Workers must have access to the correct personal protection equipment (PPE) as required by law. • All operations must comply with the Mine Health and Safety Act, 1996 (Act No 29 of 1996). 	Health and safety aspects must be managed in accordance with the: <ul style="list-style-type: none"> • MHSA, 1996 • OHSAS, 1993 • OHSAS, 18001 	Throughout the Planning and surface sampling phase / site establishment -, operational and decommissioning phase.

e) Impact Management Outcomes

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

Table 36: Impact Management Outcomes

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
whether listed or not listed (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc..etc.)	(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc..)		In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure))	(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc...etc..) E.g. <ul style="list-style-type: none"> • Modify through alternative method. • Control through noise control • Control through management and monitoring Remedy through rehabilitation.	(Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
<ul style="list-style-type: none"> • Demarcation of site with visible beacons. 	<ul style="list-style-type: none"> • No impact could be identified other than the beacons being outside the boundaries of the approved prospecting area. 	N/A	Planning and surface sampling phase phase	Control through management and monitoring.	Prospecting of coal is only allowed within the boundaries of the approved area. <ul style="list-style-type: none"> • MPRDA, 2008 • NEMA, 1998
<ul style="list-style-type: none"> • Planning and surface sampling phase • Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> • Visual intrusion as a result of planning and surface sampling phase • Uncapped boreholes left by the contractor 	The visual impact may affect the aesthetics of the landscape.	Planning and surface sampling phase & Operational Phase	<u>Control:</u> Implementing proper housekeeping.	Management closure of prospecting area must be in accordance with the: <ul style="list-style-type: none"> • MPRDA, 2008 • NEMA, 1998

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
<ul style="list-style-type: none"> Planning and surface sampling phase Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> Potential impact on fauna within the footprint area Impact of the natural vegetation of the footprint. Impact on FEPA area of biodiversity concern and/or drainage lines Impact of the natural vegetation of the footprint during decommissioning phase Uncapped boreholes left by the contractor 	This will impact on the biodiversity of the receiving environment.	Planning and surface sampling phase & Operational Phase - and Decommissioning phase	<u>Control:</u> Implementing soil- and storm water management.	Invader plants must be managed in accordance with the: <ul style="list-style-type: none"> CARA, 1983 NEM:BA 2004 Invasive Plant Species Management Plan (Appendix J)
<ul style="list-style-type: none"> Planning and surface sampling phase 	<ul style="list-style-type: none"> Dust nuisance as a result of the planning and surface sampling phase. 	Increased dust generation will impact on the air quality of the receiving environment.	Planning and surface sampling phase & Operational Phase - and Decommissioning phase	<u>Control:</u> Dust suppression methods and proper housekeeping.	Dust generation must be managed in accordance with the: <ul style="list-style-type: none"> NEM:AQA. 2004 Regulation 6(1) National Dust Control Regulations, GN No R827 ASTM D1739 (SANS 1137:2012)
<ul style="list-style-type: none"> Planning and surface sampling phase 	<ul style="list-style-type: none"> Noise nuisance as a result of surface sampling. 	Should noise levels become excessive it may have an impact on the noise ambiance of the	Planning and surface sampling phase & Operational Phase - and Decommissioning phase	<u>Control:</u> Noise suppression methods and proper housekeeping.	Noise generation must be managed in accordance with the: <ul style="list-style-type: none"> NEM:AQA. 2004 Regulation 6(1) NRTA, 1996

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
		receiving environment.			
<ul style="list-style-type: none"> Planning and surface sampling phase Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> Potential hydrocarbon contamination from leaks or spills Potential impact associated with litter/hydrocarbon spills left at the decommissioning activities; 	Contamination of the footprint area will negatively impact the soil, surface runoff and potentially the groundwater. It will also incur additional costs to the prospecting right holder.	Planning and surface sampling phase & Operational Phase - and Decommissioning phase	<u>Control & Remedy:</u> Proper housekeeping and implementation of an emergency response plan and waste management plan.	Prospecting related waste must be managed in accordance with the: <ul style="list-style-type: none"> NWA, 1998 NEM:WA, 2008 NEM:WA, 2008: National norms and standards for the storage of waste (GN 926) NEMA, 1998 (Section 30)
<ul style="list-style-type: none"> Prospecting activities / drilling. 	<ul style="list-style-type: none"> Potential impact on area/infrastructure of heritage or cultural concern. 	This could impact on the cultural and heritage legacy of the receiving environment.	Operational Phase	<u>Control & Stop:</u> Implementing good management practices, as well as the chance-find protocol.	Cultural/heritage aspects must be managed in accordance with the: <ul style="list-style-type: none"> NHRA, 1999
<ul style="list-style-type: none"> Planning and surface sampling phase 	<ul style="list-style-type: none"> Potential impact on the Safety of the area due to increased human concentration 	This could impact the health a d	Operational Phase	<u>Control & Stop:</u> Implementing good management practices, as well as the chance-find protocol.	Health and safety aspects must be managed in accordance with the: <ul style="list-style-type: none"> MHSA, 1996 OHSA, 1993 OHSAS, 18001
<ul style="list-style-type: none"> Prospecting activities / drilling. 	<ul style="list-style-type: none"> Deterioration of the access road to the prospecting area. 	Collapse of the road infrastructure will affect the landowner.	Operational Phase	<u>Control & Remedy:</u> Maintaining the access road for the duration of the operational phase, as well as leaving it in a representative or better condition than prior to prospecting.	The access road must be managed in accordance with the: <ul style="list-style-type: none"> NRTA, 1996

f) Impact Management Actions

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

Table 37: Impact Management Actions

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
<p>whether listed or not listed (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc..etc.)</p>	<p>(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc..)</p>	<p>(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc... etc.)</p> <p>E.g.</p> <ul style="list-style-type: none"> • Modify through alternative method. • Control through noise control • Control through management and monitoring <p>Remedy through rehabilitation.</p>	<p>Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required.</p> <p>With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either: Upon cessation of the individual activity Or. Upon the cessation of mining bulk sampling or alluvial diamond prospecting as the case may be.</p>	<p>(A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)</p>
<ul style="list-style-type: none"> • Demarcation of site with visible beacons. 	<ul style="list-style-type: none"> • No impact could be identified other than the beacons being outside the boundaries of the approved prospecting area. 	<p>Demarcation of the site will ensure that all employees are aware of the boundaries of the prospecting area, and that work stay within the approved area.</p>	<p>Beacons need to be in place throughout the life of the activity.</p>	<p>Prospecting of the mineral resource is only allowed within the boundaries of the approved area.</p> <ul style="list-style-type: none"> • MPRDA, 2008 • NEMA, 1998

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
<ul style="list-style-type: none"> • Planning and surface sampling phase • Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> • Visual intrusion as a result of planning and surface sampling phase • Uncapped boreholes left by the contractor 	<ul style="list-style-type: none"> • Prospecting must be contained to the boundaries of the authorised area. • The site must have a neat appearance and be kept in good condition at all times. • The prospecting right holder must limit vegetation removal (if applicable) and stripping of topsoil may only be done immediately prior to the use of a specific area. • Upon closure the stockpile area must be rehabilitated and levelled to remove the visual impact on the aesthetic value of the area. 	Throughout the site establishment-, operational, and decommissioning phase.	Management closure of prospecting area must be in accordance with the: <ul style="list-style-type: none"> • MPRDA, 2008 • NEMA, 1998
<ul style="list-style-type: none"> • Closing of drill holes and landscaping upon closure of the prospecting area. 	<ul style="list-style-type: none"> • Erosion after rehabilitation 	As mentioned earlier, the applicant will not remove any topsoil due to the fast mobility of the drill rig. Prospecting will be done in 6 areas consisting of a total of 100 drilling prospecting holes. The boreholes will be capped with sand material from around the boreholes, and the area rehabilitated as they move to the next borehole. The following standard mitigation measure will be adhered to in the event of any possible removal of topsoil: <ul style="list-style-type: none"> • Carefully manage and conserve the topsoil throughout the prospecting and rehabilitation process. • Ensure topsoil stripping, stockpiling, and re-spreading is done in a systematic way. • Place topsoil heaps on a levelled area within the prospecting footprint area. Do not stockpile topsoil in undisturbed areas. • Protect topsoil stockpiles against losses by water and wind erosion. Position stockpiles so as not to be vulnerable to erosion by wind 	Throughout the operational and decommissioning phase.	Topsoil & erosion must be managed in accordance with the: <ul style="list-style-type: none"> • MPRDA, 2008 • NEM:BA 2004

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		<p>and water. Establishment of plants on the stockpiles will help prevent erosion.</p> <ul style="list-style-type: none"> • Spread the topsoil evenly over the rehabilitated area, to a depth of 300 mm, upon closure of the site. • Strive to re-instate topsoil at a time of the year when vegetation cover can be established as quickly as possible afterwards, to that erosion of returned topsoil is minimized. The best time of year is at the end of the rainy season. • Plant and irrigate a cover crop immediately after spreading topsoil to stabilise the soil and protect it from erosion. Fertilise the cover crop for optimum biomass production. Rehabilitation extends until the first cover crop is well established. • Monitor the rehabilitated area for erosion, and appropriately stabilize if erosion do occur, for at least 12 months after reinstatement. 		
<ul style="list-style-type: none"> • Planning and surface sampling phase • Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> • Impact of the natural vegetation of the footprint. • Impact on FEPA area of biodiversity concern and/or drainage lines • Impact of the natural vegetation of the footprint during decommissioning phase • Uncapped boreholes left by the contractor 	<ul style="list-style-type: none"> • The site manager must ensure no fauna is caught, killed, harmed, sold or played with. • Workers must be instructed to report any animals that may be trapped in the working area. • No snares may be set or nests raided for eggs or young. • Prospecting areas should be done in consultation with the land owner in order to insure the safety and security of animals that might occur in the prospecting areas. • All construction and maintenance motor vehicle operators should undergo an environmental induction that includes 	<p>Throughout the operational, and decommissioning phase.</p>	<p>Invader plants must be managed in accordance with the:</p> <ul style="list-style-type: none"> • CARA, 1983 • NEM:BA 2004 • Northern Cape Biodiversity Plan • Invasive Plant Species Management Plan (Appendix J)

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		<p>instruction on the need to comply with speed limit (40 km/h), to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings and erosion is limited.</p> <ul style="list-style-type: none"> • The prospecting boundaries must be clearly demarcated and all operations must be contained to the approved prospecting area. • The area outside the prospecting boundaries must be declared a no-go area, and all employees must be educated accordingly. • Preparation of the drilling site must avoid damage to the vegetation as far as is possible. • The size of the drilling sites must be restricted to a practical minimum and must be approved by the land owner and ECO. An extent of 20 m x 25 m is suggested but may be changed after discussion between the drilling contractor and the land owner. Once decided, the boundary of the site must be demarcated with a temporary fence which may consist of poles and • An invasive plant species management plan (Appendix J) must be implemented at the site to ensure the management and control of all species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto). Weed/alien clearing must be done on an ongoing basis throughout the life of the prospecting activities. • All stockpiles (topsoil) must be kept free of invasive plant species. 		

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		<ul style="list-style-type: none"> • Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used: • The plants can be uprooted, felled or cut off and can be destroyed completely. • The plants can be treated chemically by a registered pest control officer (PCO) through the use of an herbicide recommended for use by the PCO in accordance with the directions for the use of such an herbicide. 		
<ul style="list-style-type: none"> • Planning and surface sampling phase 	<ul style="list-style-type: none"> • Potential impact on fauna within the footprint area 	<ul style="list-style-type: none"> • The site manager must ensure no fauna is caught, killed, harmed, sold or played with. • Workers must be instructed to report any animals that may be trapped in the working area. • No snares may be set, or nests raided for eggs or young. • Prospecting areas should be done in consultation with the landowner in order to insure the safety and security of animals that might occur in the prospecting areas. • Search and Rescue operation should occur before the construction works begin to ensure that any slow moving or burrowing species (such as moles, chameleons, snakes or tortoises) would be moved to adjacent suitable habitats by a qualified Faunal Specialist. Should any protected species need to be translocated, a permit must be obtained from the relevant authority. • All construction and maintenance motor vehicle operators should undergo an environmental induction that includes 	Throughout the site establishment-, operational-, and decommissioning phase.	Fauna must be managed in accordance with the: <ul style="list-style-type: none"> • NEM:BA 2004

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		<p>instruction on the need to comply with speed limit (40 km/h), to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings and erosion is limited.</p>		
<ul style="list-style-type: none"> • Planning and surface sampling phase 	<ul style="list-style-type: none"> • Dust nuisance as a result of the planning and surface sampling phase. 	<ul style="list-style-type: none"> • The liberation of dust into the surrounding environment must be effectively controlled by the use of, inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products). • The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression. • Speed on the access road must be limited to 40 km/h to prevent the generation of excess dust. • Areas devoid of vegetation, which could act as a dust source, must be minimized and vegetation removal may only be done immediately prior to prospecting. • Weather conditions must be taken into consideration upon commencement of daily operations. Limiting operations during very windy periods would reduce airborne dust and resulting impacts. • All dust generating activities shall comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA (Act 39 of 2004) and ASTM D1739 (SANS 1137:2012). 	<p>Throughout the site establishment-, operational-, and decommissioning phase.</p>	<p>Dust generation must be managed in accordance with the:</p> <ul style="list-style-type: none"> • NEM:AQA. 2004 Regulation 6(1) • National Dust Control Regulations, GN No R827 • ASTM D1739 (SANS 1137:2012)
<ul style="list-style-type: none"> • Planning and surface sampling phase 	<ul style="list-style-type: none"> • Noise nuisance as a result of surface sampling. 	<ul style="list-style-type: none"> • The prospecting right holder must ensure that employees and staff conduct 	<p>Throughout the site establishment-, operational and decommissioning phase.</p>	<p>Noise generation must be managed in accordance with the:</p>

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		<p>themselves in an acceptable manner while on site.</p> <ul style="list-style-type: none"> • No loud music may be permitted at the prospecting area. • All prospecting vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996). • Best practice measures shall be implemented in order to minimize potential noise impacts. • Noise generated on-site from all the proposed activities must comply with the Northern Cape Noise Control Regulations Provincial Notice 200/2013. 		<ul style="list-style-type: none"> • NEM:AQA. 2004 Regulation 6(1) • NRTA, 1996 • Northern Cape Noise Control Regulations Provincial Notice 200/2013.
<ul style="list-style-type: none"> • Planning and surface sampling phase • Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> • Potential hydrocarbon contamination from leaks or spills • Potential impact associated with litter/hydrocarbon spills left at the decommissioning activities; 	<ul style="list-style-type: none"> • Provision must be made for proper retention of all garbage, domestic wastes, and drilling wastes. Bins with lids or skips must be provided and these must be emptied at an approved disposal site. No refuse of any sort may be buried or burned at the site. • Fuels and oils must be held in leak-free containers and must be kept on drip trays when not in use. • Waste oils and the like, including items such as used oil filters and oil-soaked paper or rags, must be retained in sealed containers and be kept on drip trays. • Vehicles and machines must be refuelled or serviced over drip trays. Any soil contaminated by fuel or oil spills must be collected and be held in a suitable sealed container prior to removal to an approved disposal site. A hazmat kit of appropriate capacity must be kept on the site at all times. 	<p>Throughout the site establishment-, operational and decommissioning phase.</p>	<p>Prospecting related waste must be managed in accordance with the:</p> <ul style="list-style-type: none"> • NWA, 1998 • NEM:WA, 2008 • NEM:WA, 2008: National norms and standards for the storage of waste (GN 926) • NEMA, 1998 (Section 30)

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		<ul style="list-style-type: none"> • On completion of drilling operations at each site, all materials, including wastes or litter, must be removed for re-use at another site or for disposal as may be relevant. The site must be cleaned and tidied and its condition must be approved by the land owner before the contractor may leave the site. • Ablution facilities must be provided in the form of a chemical toilet. The chemical toilet must be placed outside the 1:100 year floodline of any open water source, and must be serviced at least once every two weeks for the duration of the prospecting activities. • The use of any temporary, chemical toilet facilities may not cause any pollution to water sources or pose a health hazard. In addition, no form of secondary pollution should arise from the disposal of refuse or sewage from the temporary, chemical toilets. Any pollution problems arising from the above are to be addressed immediately by the prospecting right holder. • Site management must ensure drip trays are cleaned after each use. No dirty drip trays may be used on site. • A spill kit must be available on-site which can be operated by trained employees for the adhoc remediation of minor chemical and hydrocarbon spillages. • Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Should spillage occur, such as oil or diesel leaking from a burst pipe, the contaminated 		

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		<p>soil must, within the first hour of occurrence, be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. Proof must be filed.</p> <ul style="list-style-type: none"> • A waste management plan must be compiled by site management and implemented on site. The plan must focus on the waste hierarchy of the NEM:WA. • General waste must be contained in marked, sealable, refuse bins placed at a designated area, to be removed when filled to capacity to a recognised general waste landfill site. • No waste may be buried or burned on the site. • No chemicals or hazardous materials may be stored at the prospecting area. • It is important that any significant spillage of chemicals, fuels etc. during the lifespan of the prospecting activities is reported to the Department of Water and Sanitation and other relevant authorities. • To lower the risk of accidental hydrocarbon spillages all machinery must be parked at the prospecting area with drip trays placed underneath stationary vehicles. • Any event resulting in the spill or leak of hydrocarbons or any other hazardous solvents into the ground and/or water resources, must be reported within the prescribed timeframes to all relevant authorities, including the Directorate: Pollution and Chemicals Management. Containment, clean-up and remediation must commence immediately in the case of NEMA section 30 incidents, and the 		

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		<p>necessary documentation must be completed and submitted within the prescribed timeframes.</p>		
<ul style="list-style-type: none"> • Planning and surface sampling phase 	<ul style="list-style-type: none"> • Potential impact on areas/infrastructure of heritage or cultural concern. 	<ul style="list-style-type: none"> • All prospecting must be confined to the development footprint area. • Once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, this should be conducted prior to the commencement of prospecting activities. • A paleontological desktop study should be conducted once the impact areas are confirmed • If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. • It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area. • Personnel involved in the shallow pit sampling must be instructed to be alert for the occurrence of fossil bones. Fossil bones may also be noticed weathering out in the sides of old prospecting excavations, or exposed in the adjacent spoil heaps of 	<p>Throughout the operational phase.</p>	<p>Cultural/heritage aspects must be managed in accordance with the:</p> <ul style="list-style-type: none"> • NHRA, 1999

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		<p>excavated material. In the event of such discoveries the Fossil Finds Procedure.</p> <ul style="list-style-type: none"> The senior on-site Manager must inform the ECO of the chance find and its immediate impact on operations. The ECO must then contact a professional archaeologist for an assessment of the finds who must notify SAHRA. Work may only continue once the go-ahead was issued by SAHRA. It is recommended that fossil material extracted from the boreholes, or later separated during sample analysis, be kept and bagged for identification by a palaeontologist. For preliminary analysis, quality images of the fossil material should be forwarded by email for examination by a specialist, in order to identify specimens of importance for stratigraphic diagnosis, and specimens requiring further examination and diagnosis. 		
<ul style="list-style-type: none"> Planning and surface sampling phase 	<ul style="list-style-type: none"> Deterioration of the access road to the prospecting area. 	<ul style="list-style-type: none"> Storm water must be diverted around the access road to prevent erosion. Access roads and tracks must make use as far as is possible of existing farm roads and tracks. Ideally, the routes will be approved and documented by an Environmental Control Officer (ECO). Rutting and erosion of the access road caused as a direct result of the prospecting activities must be repaired by the permit holder. 	<p>Throughout the operational phase and decommissioning phase.</p>	<p>The access road must be managed in accordance with the:</p> <ul style="list-style-type: none"> NRTA, 1996

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
<ul style="list-style-type: none"> • Planning and surface sampling phase 	<ul style="list-style-type: none"> • Potential impact on the Safety of the area due to increased human concentration 	<ul style="list-style-type: none"> ▪ Adequate ablution facilities and water for human consumption must daily be available on site. ▪ Workers must have access to the correct personal protection equipment (PPE) as required by law. ▪ All operations must comply with the Mine Health and Safety Act, 1996 (Act No 29 of 1996). 	Throughout the site establishment-, operational and decommissioning phase.	Health and safety aspects must be managed in accordance with the: <ul style="list-style-type: none"> • MHSA, 1996 • OHSA, 1993 • OHSAS, 18001

i) Financial Provision**(1) Determination of the amount of Financial Provision.****(a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.**

The primary objective is to obtain a closure certificate at the end of the life of the prospecting right at minimum cost and in as short a time period as possible whilst still complying with the requirements of the Minerals and Petroleum Resources Development Act. To realise this, the following objectives must be achieved:

- Remove all temporary infrastructure and waste from the site as per the requirements of this EMPr and of the Provincial Department of Mineral Regulation;
- Demolish / rehabilitate all roads with no post -prospecting use potential;
- Remove all waste from site;
- No wetland in the area may be compromised or destructed;
- Future public health and safety are not compromised;
- Ensure that no threat to surface and underground water quality remains;
- Ensure that all permanent changes in topography are sustainable and do not cause erosion or the damming up of runoff;
- Shape and contour all disturbed areas in compliance with the EMPr;
- The stockpiled topsoil (if any) will be spread over the disturbed area to a depth of at least 500 mm;
- Ensure that all rehabilitated areas are safe, stable and self-sustaining in terms of vegetation;
- Control of weeds and alien invasive plant species is an important aspect after topsoil replacement and seeding has been done in an area;
- The applicant will comply with the minimum closure objectives as prescribed by DMRE;
- Any adverse socio-economic impacts are minimised; and
- All socio-economic benefits are maximised

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

This report, the FINAL Basic Assessment Report, includes all the environmental objectives in relation to closure and will be made available for

perusal by the landowner, registered I&APs and stakeholders over a 30-days commenting period.

(c) Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main prospecting activities, including the anticipated prospecting area at the time of closure.

The requested rehabilitation plan is attached as Appendix D.

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

The decommissioning phase will entail the final rehabilitation of the prospecting site. Final landscaping, levelling and top dressing will be done. The rehabilitation of the prospecting area as indicated on the rehabilitation plan attached as Appendix D will comply with the minimum closure objectives as prescribed by DMRE and detailed below, and therefore is deemed to be compatible:

- Rehabilitation of the surface area shall entail landscaping, levelling, top dressing, land preparation, seeding and maintenance, and weed / alien clearing.
- All Temporary Infrastructures, equipment, plant, temporary housing and other items used during the prospecting period will be removed from the site.
- Waste material of any description, including receptacles, scrap, rubble and tyres, will be removed entirely from the prospecting area and disposed of at a recognized landfill facility, proof of this removal will be kept on file at the applicant's office. It will not be permitted to be buried or burned on the site.
- Weed / Alien clearing will be done in a sporadic manner during the life of the prospecting activities. Species regarded as the National Environmental Biodiversity Act [NEMBA] (Act No. 10 of 2004) Alien and Invasive Species Regulation GNR 598 and 599 of 2014 Species regarded as needing to be eradicated from the site on final closure.
- Final rehabilitation shall be completed within a period specified by the Regional Manager.

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

The calculation of the quantum for financial provision was according to Section B of the working manual.

Prospecting type and saleable mineral by-product

According to Tables B.12, B.13 and B.14

Prospecting type	Iron; Zinc; Lithium; Lead; Nickel; and Copper
Saleable mineral by-product	None

Risk ranking

According to Tables B.12, B.13 and B.14

Primary risk ranking (either Table B.12 or B.13)	C (Low risk).
Revised risk ranking (B.14)	N/A

Environmental sensitivity of the prospecting area

According to Table B.4

Environmental sensitivity of the prospecting area	Low
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Level of information

According to Step 4.2:

Level of information available	Limited
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Identify closure components

According to Table B.5 and site-specific conditions

Component No.	Main description	Applicability of closure components (Circle Yes or No)	
		-	NO
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	-	NO
2(A)	Demolition of steel buildings and structures	-	NO

Component No.	Main description	Applicability of closure components (Circle Yes or No)	
2(B)	Demolition of reinforced concrete buildings and structures	-	NO
3	Rehabilitation of access roads	-	NO
4(A)	Demolition and rehabilitation of electrified railway lines	-	NO
4(B)	Demolition and rehabilitation of non-electrified railway lines	-	NO
5	Demolition of housing and facilities	-	NO
6	Opencast rehabilitation including final voids and ramps	-	NO
7	Sealing of shafts, adits and inclines	-	NO
8(A)	Rehabilitation of overburden and spoils	-	NO
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing)	-	NO
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich)	-	NO
9	Rehabilitation of subsided areas	-	NO
10	General surface rehabilitation, including grassing of all denuded areas	YES	-
11	River diversions	-	NO
12	Fencing	-	NO
13	Water management (Separating clean and dirty water, managing polluted water and managing the impact on groundwater)	-	NO
14	2 to 3 years of maintenance and aftercare	YES	NO

Unit rates for closure components

According to Table B.6 master rates and multiplication factors for applicable closure components.

Component No.	Main description	Master rate	Multiplication factor
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	-	-
2(A)	Demolition of steel buildings and structures	-	-
2(B)	Demolition of reinforced concrete buildings and structures	-	-
3	Rehabilitation of access roads	-	-
4(A)	Demolition and rehabilitation of electrified railway lines	-	-
4(B)	Demolition and rehabilitation of non-electrified railway lines	-	-
5	Demolition of housing and facilities	-	-
6	Opencast rehabilitation including final voids and ramps	-	-
7	Sealing of shafts, adits and inclines	-	-
8(A)	Rehabilitation of overburden and spoils	-	-
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing)	-	-
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich)	-	-
9	Rehabilitation of subsided areas	-	-
10	General surface rehabilitation, including grassing of all denuded areas	159147	1.0
11	River diversions	-	-
12	Fencing	-	-
13	Water management (Separating clean and dirty water, managing polluted water and managing the impact on groundwater)	-	-

Component No.	Main description	Master rate	Multiplication factor
14	2 to 3 years of maintenance and aftercare	21179	1.0

Determine weighting factors

According to Tables B.7 and B.8

Weighting factor 1: Nature of terrain/accessibility	1.0 (Flat)
Weighting factor 2: Proximity to urban area where goods and services are to be supplied	1.05

Calculation of closure costs

Table B.10 Template for Level 2: "Rules-based" assessment of the quantum for financial provision

Table 38: Calculation of closure cost

CALCULATION OF THE QUANTUM							
Mine:	Gams Farm 367 - African Exploration Mining and Finance Corporation SOC Ltd			Location:	Gordonia District		
Evaluators:	Murchellin Saal			Date:	May 2023		
No	Description	Unit	A Quantity	B Master rate	C Multiplication factor	D Weighting factor 1	E=A *B*C*D Amount (Rand)
			Step 4.5	Step 4.3	Step 4.3	Step 4.4	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	m ²	0	21	1.0	1.0	R 0.00
2(A)	Demolition of steel buildings and structures	m ²	0	287	1.0	1.0	R 0.00
2(B)	Demolition of reinforced concrete buildings and structures	m ²	0	424	1.0	1.0	R 0.00
3	Rehabilitation of access roads	m ²	0	51	1.0	1.0	R 0.00
4(A)	Demolition and rehabilitation of electrified railway lines	m	0	499	1.0	1.0	R 0.00
4(B)	Demolition and rehabilitations of non-electrified railway lines	m	0	272	1.0	1.0	R 0.00
5	Demolition of housing and/or administration facilities	m ²	0	575	1.0	1.0	R 0.00
6	Opencast rehabilitation including final voids and ramps	ha	0	301350	0.04	1.0	R 0.00
7	Sealing of shaft, audits and inclines	m ³	0	154	1.0	1.0	R 0.00
8(A)	Rehabilitation of overburden and spoils	ha	0	200900	1.0	1.0	R 0.00
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing waste)	ha	0	250217	1.0	1.0	R 0.00
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)	ha	0	726749	0.51	1.0	R 0.00
9	Rehabilitation of subsided areas	ha	0	168223	1.0	1.0	R 0.00

10	General surface rehabilitation	ha	0.1	159147	1.0	1.0	R 15,914.70
11	River diversions	ha	0	159147	1.0	1.0	R 0.00
12	Fencing	m	0	182	1.0	1.0	R 0.00
13	Water Management	ha	0	60512	0.6	1.0	R 0.00
14	2 to 3 years of maintenance and aftercare	ha	4	21179	1.0	1.0	R84,716.00
15(A)	Specialists study	Sum	0				R 0.00
15(B)	Specialists study	Sum	0				R 0.00
Sum of items 1 to 15 above							R100,630.70
Multiply Sum of 1-15 by Weighting factor 2 (Step 4.4)			R100,630.70		1.05	Sub Total 1	R105,662.24

1	Preliminary and General	6% of Subtotal 1 if Subtotal 1 <R100 000 000.00	R 6,339.73
		12% of Subtotal 1 if Subtotal 1 >R100 000 000.00	R0.00
2	Contingency	10.0% of Subtotal 1	R 10,566.22
Sub Total 2 (Subtotal 1 plus management and contingency)			R 122,568.19
Vat (15%)			R 18,385.23
GRAND TOTAL (Subtotal 3 plus VAT)			R 140,953.42

The amount that will be necessary for the rehabilitation of damages caused by the operation, both sudden closures during the normal operation of the project and at final, planned closure gives a sum total of **R 140,953.42**

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

Herewith I, the person, whose name is stated below confirm that I am the person authorised to act as representative of the Applicant in terms of the resolution submitted with the application. I herewith confirm that the company will provide the amount that will be determined by the Regional Manager in accordance with the prescribed guidelines.

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

- g) Monitoring of Impact Management Actions
- h) Monitoring and reporting frequency
- i) Responsible persons
- j) Time period for implementing impact management actions
- k) Mechanisms for monitoring compliance

Table 39: Mechanisms for monitoring compliance with and performance assessment against the EMPr and reporting thereon.

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
<ul style="list-style-type: none"> • Demarcation of site with visible beacons 	Maintenance of beacons	<ul style="list-style-type: none"> • Visible beacons need to be placed at the corners of the prospecting area. 	<p><u>Role:</u></p> <ul style="list-style-type: none"> • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Responsibility:</u></p> <ul style="list-style-type: none"> • Ensure beacons are in place throughout the life of the prospecting activities. 	<p>Applicable throughout planning and surface sampling phase -, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.
<ul style="list-style-type: none"> • Planning and surface sampling phase 	<p><u>Visual Characteristics:</u></p> <ul style="list-style-type: none"> • Visual intrusion as a result of site establishment. 	<ul style="list-style-type: none"> • Minimize the visual impact of the activity on the surrounding environment through proper site management and implementing good housekeeping practices. 	<p><u>Role:</u></p> <ul style="list-style-type: none"> • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. 	<p>Applicable throughout Planning and surface sampling phase -, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> • Daily compliance monitoring by site management.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY AND TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> Contain prospecting to the boundaries of the authorised area. Ensure that the site have a neat appearance and is kept in good condition at all times. Limit vegetation removal, and only strip topsoil immediately prior to the use of a specific area. Rehabilitate and level the site upon closure to ensure that the visual impact on the aesthetic value of the area is kept to a minimum. 	<ul style="list-style-type: none"> Annual compliance monitoring of site by an Environmental Control Officer.
<ul style="list-style-type: none"> Closing of drill holes and landscaping upon closure of the prospecting area. 	<p><u>Geology and Soil:</u></p> <ul style="list-style-type: none"> Erosion rehabilitation after 	<ul style="list-style-type: none"> Erosion control infrastructure (if necessary) 	<p><u>Role:</u></p> <ul style="list-style-type: none"> Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPr. Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Responsibility:</u></p> <ul style="list-style-type: none"> As mentioned earlier, the applicant will not remove any topsoil due to the fast mobility of the drill rig. Prospecting will be done in 6 areas consisting of a total of 100 drilling prospecting holes. The boreholes will be capped with sand material from around the boreholes, and the area rehabilitated as they move to the next borehole. The following standard mitigation measure will be adhered to in the event of any possible removal of topsoil: Strip and stockpile the upper 300 mm of the soil. Carefully manage and conserve the topsoil throughout the stockpiling and rehabilitation process. 	<p>Applicable throughout Planning and surface sampling phase -, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> Daily compliance monitoring by site management. Annual compliance monitoring of site by an Environmental Control Officer.

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
			<ul style="list-style-type: none"> • Ensure topsoil stripping, stockpiling and re-spreading is done in a systematic way. Plan prospecting in such a way that topsoil is stockpiled for the minimum possible time. • Place topsoil heaps on a levelled area within the prospecting footprint area. Do not stockpile topsoil in undisturbed areas. • Protect topsoil stockpiles against losses by water and wind erosion. Position stockpiles so as not to be vulnerable to erosion by wind and water. Establishment of plants on the stockpiles will help prevent erosion. • Ensure that topsoil heaps do not exceed 1.5 m in order to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen. • Keep temporary stockpiles free of invasive plant species. • Divert storm- and runoff water around the stockpile area to prevent erosion. • Spread the topsoil evenly over the rehabilitated area, to a depth of 300 mm, upon closure of the site. • Strive to re-instate topsoil at a time of the year when vegetation cover can be established as quickly as possible afterwards, to that erosion of returned topsoil is minimized. The best time of year is at the end of the rainy season. • Plant and irrigate a cover crop immediately after spreading topsoil to stabilise the soil and protect it from erosion. Fertilise the cover crop for optimum biomass production. Rehabilitation extends until the first cover crop is well established. 	

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
			<ul style="list-style-type: none"> Monitor the rehabilitated area for erosion, and appropriately stabilize if erosion do occur, for at least 12 months after reinstatement. 	
<ul style="list-style-type: none"> Planning and surface sampling phase Closing of drill holes and landscaping upon closure of the prospecting area 	<p><u>Groundcover:</u></p> <ul style="list-style-type: none"> Impact of the natural vegetation of the footprint. Impact on FEPA area of biodiversity concern and/or drainage lines Impact of the natural vegetation of the footprint during decommissioning phase Loss of habitat within the footprint 	<ul style="list-style-type: none"> Stay within the demarcated area. Declare sensitive areas as no-go areas. Designated team to cut or pull-out invasive plant species that germinated on site. Herbicide application equipment. 	<p><u>Role:</u></p> <ul style="list-style-type: none"> Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPr. Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Responsibility:</u></p> <ul style="list-style-type: none"> Preparation of the drilling site must avoid damage to the vegetation as far as is possible. The size of the drilling sites must be restricted to a practical minimum and must be approved by the land owner and ECO. An extent of 20 m x 25 m is suggested but may be changed after discussion between the drilling contractor and the land owner. Once decided, the boundary of the site must be demarcated with a temporary fence which may consist of poles and An invasive plant species management plan (Appendix J) must be implemented at the site to ensure the management and control of all species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto). Weed/alien clearing must be done on an ongoing basis throughout the life of the prospecting activities. All stockpiles (topsoil) must be kept free of invasive plant species. Management must take responsibility to control declared invader or exotic species on the 	<p>Applicable throughout Planning and surface sampling phase -, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> Daily compliance monitoring by site management. Annual compliance monitoring of site by an Environmental Control Officer.

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
			rehabilitated areas. The following control methods can be used: <ul style="list-style-type: none"> The plants can be uprooted, felled or cut off and can be destroyed completely. The plants can be treated chemically by a registered pest control officer (PCO) through the use of an herbicide recommended for use by the PCO in accordance with the directions for the use of such an herbicide. 	
<ul style="list-style-type: none"> Planning and surface sampling phase 	<p>Fauna:</p> <ul style="list-style-type: none"> Potential impact on fauna (terrestrial) within the footprint area. 	<ul style="list-style-type: none"> Toolbox talks to educate employees how to handle fauna that enter the work areas. Minimal staff should be considered at the prospecting site to minimise additional noise disturbance. Implement an avifauna monitoring program during the prospecting 	<p><u>Role:</u></p> <ul style="list-style-type: none"> Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPr. Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Responsibility:</u></p> <ul style="list-style-type: none"> Ensure no fauna is caught, killed, harmed, sold or played with. Instruct workers to report any animals that may be trapped in the working area. Ensure no snares are set or nests raided for eggs or young. Prospecting areas should be done in consultation with the landowner in order to insure the safety and security of animals that might occur in the prospecting areas. All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limit (40 km/h), to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings and erosion is limited. 	<p>Applicable throughout planning and surface sampling phase -, and operational phases.</p> <ul style="list-style-type: none"> Daily compliance monitoring by site management. Annual compliance monitoring of site by an Environmental Control Officer.

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
<ul style="list-style-type: none"> Planning and surface sampling phase 	<p><u>Air Quality:</u></p> <ul style="list-style-type: none"> Dust nuisance as a result of the prospecting activities. 	<ul style="list-style-type: none"> Dust suppression equipment such as a water car. Signage that clearly reduce the speed on the access roads. 	<p><u>Role:</u></p> <ul style="list-style-type: none"> Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPr. Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Responsibility:</u></p> <ul style="list-style-type: none"> Control the liberation of dust into the surrounding environment by the use of; inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products). Ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression. Limit speed on the haul roads to 40 km/h to prevent the generation of excess dust. Minimise areas devoid of vegetation.. Take weather conditions into consideration upon commencement of daily operations. Limit operations during very windy periods to reduce airborne dust and resulting impacts. Ensure dust generating activities comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA, 2004 and ASTM D1739 (SANS 1137:2012). Implement best practice measures during the stripping of topsoil, loading, and transporting of material from site to minimize potential dust impacts. 	<p>Applicable throughout planning and surface sampling phase -, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> Daily compliance monitoring by site management. Annual compliance monitoring of site by an Environmental Control Officer.

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
<ul style="list-style-type: none"> Planning and surface sampling phase 	<p>Noise Ambiance:</p> <ul style="list-style-type: none"> Noise nuisance as a result of surface sampling. 	<ul style="list-style-type: none"> Silencers fitted to all project related vehicles, and the use of vehicles that are in road worthy condition in terms of the National Road Traffic Act, 1996. 	<p><u>Role:</u></p> <ul style="list-style-type: none"> Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPr. Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Responsibility:</u></p> <ul style="list-style-type: none"> Ensure that employees and staff conduct themselves in an acceptable manner while on site. No loud music may be permitted at the prospecting area. Ensure that all project related vehicles are equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996. Implement best practice measures to minimise potential noise impacts. Noise generated on-site from all the proposed activities must comply with the Northern Cape Noise Control Regulations Provincial Notice 200/2013 	<p>Applicable throughout planning and surface sampling phase -, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> Daily compliance monitoring by site management. Annual compliance monitoring of site by an Environmental Control Officer.
<ul style="list-style-type: none"> Planning and surface sampling phase Closing of drill holes and landscaping upon closure of the prospecting area 	<p>Waste Management:</p> <ul style="list-style-type: none"> Potential hydrocarbon contamination from leaks or spills Potential impact associated with litter/hydrocarbon spills left at the 	<ul style="list-style-type: none"> Oil spill kit. Sealed drip trays. Formal waste disposal system with waste registers. 	<p><u>Role:</u></p> <ul style="list-style-type: none"> Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPr. Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Responsibility:</u></p>	<p>Applicable throughout planning and surface sampling phase -, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> Daily compliance monitoring by site management. Annual compliance monitoring of site by an Environmental Control Officer.

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
	decommissioning activities.		<ul style="list-style-type: none"> • Provision must be made for proper retention of all garbage, domestic wastes, and drilling wastes. Bins with lids or skips must be provided and these must be emptied at an approved disposal site. No refuse of any sort may be buried or burned at the site. • Fuels and oils must be held in leak-free containers and must be kept on drip trays when not in use. • Waste oils and the like, including items such as used oil filters and oil-soaked paper or rags, must be retained in sealed containers and be kept on drip trays. • Vehicles and machines must be refuelled or serviced over drip trays. Any soil contaminated by fuel or oil spills must be collected and be held in a suitable sealed container prior to removal to an approved disposal site. A hazmat kit of appropriate capacity must be kept on the site at all times. • On completion of drilling operations at each site, all materials, including wastes or litter, must be removed for re-use at another site or for disposal as may be relevant. The site must be cleaned and tidied and its condition must be approved by the landowner before the contractor may leave the site. • Provide ablution facilities in the form of a chemical toilet that is placed outside the 1:100-year flood line of any open water source. Ensure the toilet is serviced at least once every two weeks for the duration of the prospecting activities. • Ensure that the use of any temporary, chemical toilet facilities does not cause any pollution to water sources or pose a health hazard. In 	

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
			<p>addition, ensure that no form of secondary pollution arise from the disposal of refuse or sewage from the temporary, chemical toilets. Address any pollution problems arising from the above immediately.</p> <ul style="list-style-type: none"> • Equip the diesel bowser with a drip tray if used on site. The nozzle of the bowser must rest in a sleeve to prevent dripping after refuelling. • Clean drip trays after use. Do not use dirty drip trays. • Keep a spill kit on site. • Collect any effluents containing oil, grease or other industrial substances in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Collect the contaminated soil from spillage that occurred, such as oil or diesel leaking from a burst pipe, within the first hour of occurrence, in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. File proof. • Compile a waste management plan and implement it on site. The plan must focus on the waste hierarchy of the NEM:WA. • Contain general waste in marked, sealable, refuse bins placed at a designated area and remove waste from the prospecting area to a recognised general waste landfill site. • Prevent the burning or burying of waste on site. • Report any significant spillage of chemicals, fuels etc. during the lifespan of the prospecting activities to the Department of Water and Sanitation and other relevant authorities. 	

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
			<ul style="list-style-type: none"> • Park the drill machinery at the prospecting area with drip trays placed underneath stationary vehicles. • 	
<ul style="list-style-type: none"> • Planning and surface sampling phase 	<ul style="list-style-type: none"> • Potential impact on areas/infrastructure of heritage or cultural concern. 	<ul style="list-style-type: none"> • Contact number of an archaeologist that can be contacted when a discovery is made on site. 	<p><u>Role:</u></p> <ul style="list-style-type: none"> • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Responsibility:</u></p> <ul style="list-style-type: none"> • Confine all prospecting to the development footprint area. • Once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, this should be conducted prior to the commencement of prospecting activities. • A paleontological desktop study should be conducted once the impact areas are confirmed. • Implement the following change find procedure when discoveries are made on site: <ul style="list-style-type: none"> ▪ If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and 	<p>Applicable throughout planning and surface sampling phase -, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

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			<p>through their supervisor to the senior on-site manager.</p> <ul style="list-style-type: none"> ▪ It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area. ▪ The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify SAHRA. ▪ Work may only continue once the go-ahead was issued by SAHRA. 	
<ul style="list-style-type: none"> • Planning and surface sampling phase 	<p>Hydrology:</p> <ul style="list-style-type: none"> • Storm water management 	<ul style="list-style-type: none"> • Storm water management structures such as berms to direct storm- and runoff water around the stockpiled topsoil area (when needed). 	<p><u>Role:</u></p> <ul style="list-style-type: none"> • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Responsibility:</u></p> <ul style="list-style-type: none"> • Conduct activity in terms of the Best Practice Guidelines for small-scale mining as developed by DWSJ. • No drilling should be undertaken at times when rain has fallen and the pans are holding water. This measure is recommended to both minimise the possibility of contamination of the surface and ground water, and to minimise disturbance of the important bird populations around the pans. • The access to the site must be planned together with the relevant land owner and be approved by the land owner. 	<p>Applicable throughout planning and surface sampling phase -, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

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
			<ul style="list-style-type: none"> • The land owner may stop operations at any site if the conditions of the approval are ignored or otherwise bypassed. • Access roads and tracks must make use as far as is possible of existing farm roads and tracks. Ideally, the routes will be approved and documented by an Environmental Control Officer (ECO). • To the greatest possible extent, the access roads and tracks must avoid passing through watercourses or pans or other environmentally sensitive areas. Such areas could include known home ranges of species of especial biodiversity conservation concern. • Preparation of the drilling site must avoid damage to the vegetation as far as is possible. • The size of the drilling sites must be restricted to a practical minimum and must be approved by the land owner and ECO. An extent of 20 m x 25 m is suggested but may be changed after discussion between the drilling contractor and the land owner. Once decided, the boundary of the site must be demarcated with a temporary fence which may consist of poles and hazard tape, plastic mesh, or shade cloth. • If needed, a lay-down area for pipes may be established close by the drilling site but its boundary must also be demarcated. • Any roads or tracks that were prepared or used for access to the site must be returned to their prior state and their condition must be approved by the land owner. 	

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
<ul style="list-style-type: none"> Planning and surface sampling phase 	<p>Existing Infrastructure:</p> <ul style="list-style-type: none"> Deterioration of the access road to the prospecting area. 	<ul style="list-style-type: none"> Grader to restore the road surface when needed. 	<p><u>Role:</u></p> <ul style="list-style-type: none"> Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPr. Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Responsibility:</u></p> <ul style="list-style-type: none"> Divert storm water around the access road to prevent erosion. Access roads and tracks must make use as far as is possible of existing farm roads and tracks. Ideally, the routes will be approved and documented by an Environmental Control Officer (ECO). Repair rutting and erosion of the access road caused as a direct result of the prospecting activities. 	<p>Applicable throughout operational phases.</p> <ul style="list-style-type: none"> Daily compliance monitoring by site management. Annual compliance monitoring of site by an Environmental Control Officer.
<ul style="list-style-type: none"> Planning and surface sampling phase 	<ul style="list-style-type: none"> Potential impact on the Safety of the area due to increased human concentration 	<ul style="list-style-type: none"> Enhance security at the entrance Stocked first aid box. Level 1 certified first aider. All appointments in terms of the Mine Health and Safety Act, 1996. 	<p><u>Role:</u></p> <ul style="list-style-type: none"> Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPr. Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Responsibility:</u></p> <ul style="list-style-type: none"> Ensure adequate ablution facilities and water for human consumption is daily available on site. Ensure that workers have access to the correct PPE as required by law. Manage all operations in compliance with the Mine Health and Safety Act, 1996 (Act No 29 of 1996). 	<p>Applicable throughout planning and surface sampling phase, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> Daily compliance monitoring by site management. Annual compliance monitoring of site by an Environmental Control Officer.

l) Indicate the frequency of the submission of the performance assessment/environmental audit report.

The Environmental Audit Report in accordance with Appendix 7 as prescribed in Regulation 34 of the EIA Regulations, 2014 (as amended) will annually be submitted to DMRE for compliance monitoring purposes or in accordance with the time period stipulated by the Environmental Authorisation.

m) Environmental Awareness Plan

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

Once the Applicant received the prospecting right and may commence with the proposed activity, a copy of the Environmental Management Programme will be handed to the site manager for his perusal. Issues such as the prospecting boundaries, fire principals and waste handling will be discussed.

An induction meeting will be held with all the site workers to inform them of the Basic Rules of Conduct with regard to the environment.

ii) Manner in which risk will be dealt with in order to avoid pollution or the degradation of the environment.

The operations manager must ensure that he/she understands the EMPR document and its requirement and commitments before any prospecting takes place. An Environmental Control Officer needs to check compliance of the prospecting activity to the management programmes described in the EMPR.

The following list represents the basic steps towards environmental awareness, which all participants in this project must consider whilst carrying out their tasks.

- **Site Management:**
 - Stay within boundaries of site – do not enter adjacent properties.
 - Keep tools and material properly stored.
 - Smoke only in designated areas.
 - Use toilets provided – report full or leaking toilets.

- **Water Management and Erosion:**
 - Check that rainwater flows around work areas and are not contaminated.
 - Report any erosion.
 - Check that dirty water is kept from clean water.

- **Waste Management:**
 - Take care of your own waste
 - Keep waste separate into labelled containers – report full bins.
 - Place waste in containers and always close lid.
 - Don't burn waste.
 - Pick-up any litter laying around.

- **Hazardous Waste Management (Petrol, Oil, Diesel, Grease)**
 - Never mix general waste with hazardous waste.
 - Use only sealed, non-leaking containers.
 - Keep all containers closed and store only in approved areas.
 - Always put drip trays under vehicles and machinery.
 - Empty drip trays after rain.
 - Stop leaks and spills, if safe:
 - ✓ Keep spilled liquids moving away.
 - ✓ Immediately report the spill to the site manager/supervision.
 - ✓ Locate spill kit/supplies and use to clean-up, if safe.
 - ✓ Place spill clean-up wastes in proper containers.
 - ✓ Label containers and move to approved storage area.

- **Discoveries:**
 - Stop work immediately.
 - Notify site manager/supervisor.
 - Includes – archaeological finds, cultural artefacts, contaminated water, pipes, containers, tanks and drums, any buried structures.

- **Air Quality:**
 - Wear protection when working in very dusty areas.
 - Implement dust control measures:
 - ✓ Water all roads and work areas.

- ✓ Minimize handling of material.
- ✓ Obey speed limit and cover trucks.

- **Driving and Noise:**

- Use only approved access roads.
- Respect speed limits.
- Only use turn-around areas – no crisscrossing through undisturbed areas.
- Avoid unnecessary loud noises.
- Report or repair noisy vehicles.

- **Vegetation and Animal life:**

- Do not remove any plants or trees without approval of the site manager.
- Do not collect fire wood.
- Do not catch, kill, harm, sell or play with any animal, reptile, bird or amphibian on site.
- Report any animal trapped in the work area.
- Do not set snares or raid nests for eggs or young.

- **Fire Management:**

- Do not light any fires on site, unless contained in a drum at demarcated area.
- Put cigarette butts in a rubbish bin.
- Do not smoke near gas, paints or petrol.
- Know the position of firefighting equipment.
- Report all fires.
- Don't burn waste or vegetation.

n) Specific information required by the Competent Authority

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

The Applicant undertakes to annually review and update the financial provision calculation, upon which it will be submitted to DMRE for review and approved as being sufficient to cover the environmental liability at the time and for closure of the prospecting area at that time.

2. UNDERTAKING

The EAP herewith confirms

- a) the correctness of the information provided in the reports
- b) the inclusion of comments and inputs from stakeholders and I&AP's
- c) the inclusion of inputs and recommendations from the specialist reports where relevant,
and
- d) that the information provided by the EAP to interested and affected parties and any response by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein



Signature of the environmental assessment practitioner:

Greenmined Environmental (Pty) Ltd

Name of Company:

25 August 2023

Date:

-END-

APPENDIX A

REGULATION 2(2) PROSPECTING MAP



APPENDIX B

LOCALITY AND LANDUSE MAP



APPENDIX C

PROSPECTING ACTIVITIES PLAN



APPENDIX C1 – PROPOSED DRILLING PLAN



APPENDIX D

REHABILITATION CLOSURE MAP



APPENDIX E

PROOF OF PUBLIC PARTICIPATION



APPENDIX F

SUPPORTING IMPACT ASSESSMENT



APPENDIX G

PHOTOGRAPHS OF THE SITE



APPENDIX H

DMRE ACCEPTANCE AND ACKNOWLEDGEMENT LETTERS



APPENDIX I

CV AND EXPERIENCE RECORD OF EAP



APPENDIX J

INVASIVE PLANT SPECIES MANAGEMENT PLAN



APPENDIX K1 AQUATIC BIODIVERSITY IMPACT ASSESSMENT



APPENDIX K2 TERRESTRIAL BIODIVERSITY IMPACT ASSESSMENT



APPENDIX K3 HERITAGE IMPACT ASSESSMENT



APPENDIX K4

AGRICULTURAL IMPACT ASSESSMENT



APPENDIX L

CLOSURE REHABILITATION PLAN

