

**PROPOSED PROSPECTING RIGHT ON PORTION 1,2, 3
AND THE REMAINDER OF THE FARM KLIPVLEY KAROO
KOP 153, WEST COAST DISTRICT MUNICIPALITY,
WESTERN CAPE PROVINCE.**

DRAFT BASIC ASSESSMENT REPORT



JULY 2023

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EXECUTIVE SUMMARY

Mineral Sands Resources (Pty) Ltd (“hereinafter referred to as “the Applicant”), applied for environmental authorisation (EA) and a prospecting right for Garnet (Abbrasive), Heavy Minerals (General) Leucoxene, (Heavy Mineral) Monazite (Heavy Mineral), Rare Eaths, Rutile (Heavy Mineral), Zirconium Ore, Ilmenite (hereafter referred to as mineral resource) over Portion 1,2, 3 and the Remainder of the farm Klipvley Karoo Kop 153, West Coast District Municipality, Western Cape Province.

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 Draft 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 was approximately 3970 ha over Portion 1,2, 3 and the Remainder of the farm Klipvley Karoo Kop 153, West Coast District Municipality, Western Cape Province. The prospecting activities will involve the following invasive activities:

■ Surface Sampling

Where heavy mineral concentrations are noted on surface 25-liter surface samples will be collected manually with a shovel and plastic sampling bag for concentration and laboratory analysis to determine the type of minerals present and the tenor of mineralization. Each pit will be ~ 50cm x 50cm in size and dug to a maximum depth of 1m. Each sample locality will be backfilled and fully rehabilitated concurrently with sampling.

■ Auger Drilling.

Handheld engine operated auger drill. The auger is portable and will be walked to site from the closest track. Approximately 100 auger drill holes are anticipated to be drilled. The auger is in essence a corkscrew-type drill where the helical ridge raises the drilled material to the surface for sampling purposes. A total of 100 drill holes are planned for initially to be collected over an estimated 18-month period.

■ Evaluation Air core Drilling

Air-core drilling uses steel or tungsten blades to bore a hole into unconsolidated ground. The drill cuttings are removed by the injection of compressed air into the hole. This method of drilling is used to drill unconsolidated sands and soft sediments. Where possible, air-core drilling is preferred over RAB drilling as it provides a more representative sample. Air-core drilling is relatively inexpensive and is often used in first pass exploration drill programs. Air-core drilling is limited to depths of 50-60m.

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. Access to the proposed prospecting area will be via the R363, making use of the existing internal/haul roads to access the prospecting area.

Site Alternative 1 (Preferred and Only Site Alternative):

Site Alternative 1, which entails the prospecting area in which drilling sites can be moved to various positions in consultation with the landowners depending on sensitivity and accessibility. 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 geological setting of the area is well known for heavy mineral concentrations and smaller deposits has been described in the area by the Council for Geoscience in Bulletin 25, by CB Coetzee, 1957.
- Availability of the mineral resource will only be determined should prospecting the prospecting right be granted and drilling can take place.

Site Alternative 2 (Not viable and will not be further assessed and excluded from the application):

Site Alternative 2, which entails the prospecting area with a footprint of approximately 3970 ha over Portion 1,2, 3 and the Remainder of the farm Klipvley Karoo Kop 153, West Coast District Municipality, Western Cape Province. Prospecting will involve exploration within the prospecting area without excluding areas of sensitivity and accessibility. However, the proposed prospecting area was not found viable for the proposed prospecting as it was not found environmentally and practically suitable.,

S2 was not found viable to be assessed during the assessment phase of the environmental impact assessment by the Applicant and project team. Although the position of Site Alternative 2 will still allow the prospecting on the property, it is believed that the impact associated with this site alternative is of higher significance without the need or motivation justifying it.

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 resource as well as provide possible future 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 will be distributed for comment and perusal to the I&AP's and stakeholders. A 30-day commenting period, ending 3 August 2023, will be allowed for perusal of the documentation and submission of comments. The comments received on the DBAR will be incorporated into the Final Basic Assessment Report (FBAR) to be submitted for decision making to DMRE.

During this public participation process the relevant stakeholders and I&AP's were informed of the project by means of an advertisement in Ons Kontrei on 30 June 2023, and two on-site notices was placed at visible locations, one on the farm boundary fence at the entrance, and another at the at the Sentra Mini Mark in Koekenaap.

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 project area is flat to slightly undulating landscape of coastal peneplain. Vegetation is low species-rich shrubland dominated by a plethora of erect and creeping succulent shrubs (*Cephalophyllum*, *Didelta*, *Othonna*, *Ruschia*, *Tetragonia*, *Tripteris*, *Zygophyllum*) as well as nonsucculent shrubs (*Eriocephalus*, *Lebeckia*, *Pteronia*, *Salvia*). Annual mixed with perennial flora can present spectacular displays in wet years. The altitude varies between 8– 128 m.

Visual Characteristics:

The viewshed analysis showed that the visual impact of the proposed prospecting operation will be of low significance. The prospecting activities will include surface sampling, auger drilling and air core drilling which only be visible from the sea. 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 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 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 ambience of the receiving environment is expected to be of low significance.

Geology and Soil:

According to Mucina & Rutherford (2012), the project area is generally underlain by rocky coastal plain which is extensively blanketed by an unconsolidated Cenozoic sedimentary cover. The Cenozoic deposits extending northward from Elands Bay to Alexander Bay are classified as the West Coast Group. The bulk of the overlying sediments occurs as marine- aeolian couplets with lithologic successions that are increasingly more marine in proportion north of Doring Bay. Conversely, the aeolian component turns dominant south of Hondeklip Bay. Generally, the basal, shallow-marine deposits rest unconformably on four main wave-cut, raised terraces corresponding to late Miocene and Pliocene sea-level transgressive maxima around 90, 50, 30, and 10 m amsl (meters above mean sea level). Heavy minerals, however, are concentrated in both marine and aeolian sediments, particularly north of Doring Bay.

As per the Soil Impact Assessment (Appendix M3), two dominant soil forms, the more sensitive forms identified within the assessment area are the Clovelly and Tongwane soil forms. The baseline findings

and land capability sensitivity concur with each other, in most areas indicating a “Low” to “Moderate” land capability sensitivity. In some areas which were identified with a “Low” are characterized with soils with a good potential following the verified soil baseline findings. Overall, the area can be classified as “Medium” following the verified soil baseline on-site.

Furthermore, the available climate also limits crop production significantly. The climatic conditions are associated with low annual precipitation and high evapotranspiration potential demands of the area, which might not be favourable for most cropping practices.

There is no segregation of crop fields or land with a high land potential and capability identified within the proposed area. It is the specialist’s opinion that the proposed project will have limited impacts on the agricultural production ability of the land, and the proposed prospecting mining project may be favourably considered.

Hydrology:

The proposed site falls within the Olifants/ Doorn Water Management Area, in the F60E quaternary catchment area. According to the National Wetland Map 5 map as presented by CapeFarmMapper, a few wetlands lie on the border line of the proposed area. However, it should be noted that prospecting sites can be moved to various area depending on sensitivity and accessibility.

It was confirmed during the specialist (Appendix M2) site inspection that a that depression wetland and non-perennial rivers were present on the prospecting right application area. The depression wetland and the perennial rivers have a Present Ecological State (PES) score of B. The watercourses are largely natural with few modifications. A small change in natural habitats and biota may have taken place but the ecosystem functions are essentially unchanged. Factors that have contributed are changes in the catchment hydrology and land use that contributes the small changes in flow, and changes to the channel characteristics by the development of a roads.

A general 17 m buffer around the rivers and 15 m around depression wetland has been recommended to mostly reduce the risk of sediment loading and erosion. The specific drilling sites are expected to be within 500m and 100m of the rivers and a wetland. However, the rivers area expected to be overall impacted by grazing, downstream mining activities and the development of a road. The PES and EIS of the rivers and wetland is concluded to be B.

Taking into consideration the expected sensitivity of the footprint, sensitive features identified by the Screening Tool, the results from the expected baseline biodiversity and ecosystem of the site, it can be concluded that the development footprint is of low sensitivity for the Aquatic Biodiversity Theme, given that the drilling sites will avoid the watercourses and their respective buffers. Should the drilling

sites be developed in the watercourses or within the buffers, the sensitivity rating will be increased to medium-high.

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 within a CBA and ONA, 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 M1), some species of conservation were recorded in the prospecting footprint and the area is likely to provide habitat for those species (as identified by the DFFE Screening Tool) not observed during the site inspection. It must also be noted that various provincially protected species were recorded on the footprint (not identified by the Screening Tool). For the species mentioned in Appendix M1, a Plant Removal Permit must be applied for before they can be removed. It is recommended that search and rescue operations be conducted prior to construction to ensure that all SCC's are properly translocated to suitable alternative habitats.

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 trained snake handler and 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 the prospecting activities will include surface sampling, auger drilling and air-core drilling. Prior to moving to the next drill holes 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.

According to the Terrestrial Impact Assessment (Appendix M1), no animal species of conservation concern were recorded on the development footprint. However common, non-threatened species are likely to inhabit the footprint and immediate surrounds. Given that area surrounding the development footprint is natural and mostly undisturbed, any faunal species that are found on the development footprint would be able to find refuge outside of the footprint. 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.

As per the Avifauna Impact Assessment (AIA) (Appendix M5), the total number of individual species accounts for approximately 34.3% of the total number of expected species Eight SCC was recorded within the PAOI during the survey period *Phalacrocorax capensis* (Cape Cormorant), *Phoenicopterus roseus* (Greater Flamingo), *Sagittarius serpentarius* (Secretarybird), *Afrotis afra* (Southern Black Korhaan), *Neotis ludwigii* (Ludwig's Bustard), *Ardeotis kori* (Kori Bustard), *Geocolaptes olivaceus* (Ground Woodpecker), *Polemaetus bellicosus* (Martial Eagle) and they were recorded 46 times during the surveying period.

The Site Ecological Importance (SEI) of the proposed Project Area of Influence PAOI was found to be Very High. However, the overall residual impacts expected for the prospecting activities is low. Management measures include ensuring the prospecting footprints are minimised and restored after prospecting. Considering the provided information in the AIA, the specialist believes the project may be favourably considered on condition that all the mitigation and recommendations provided in this report and other specialist reports are implemented.

HUMAN ENVIRONMENT:

Cultural, Heritage and Palaeontological Environment:

As per the screening report, the area has a low heritage impact but has a high 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 planning and surface sampling, operational- and decommissioning phase. According to the Palaeontological Impact Assessment (Appendix M) and Heritage Impact Assessment (Appendix M7), there are no known outcrops of sensitive fossiliferous strata in the Project Area that require protection as NO-GO sites, such as spots where fossil bones occur in obvious abundance, and which are not marked as an archaeological site. If the proposed mitigation measures and monitoring programs, as proposed in this document as well as the HIA & PIA, no fatal flaws could be identified that prevents the activity continuing.

Site Specific Infrastructure:

The prospecting site will contain the following:

- Surveying Equipment;
- Drilling equipment;
- Chemical toilet

- 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 (in worst case scenario), both sudden closures during the normal operation of the project and at final, planned closure gives a sum total of R58 186.83.

LIST OF ABBREVIATIONS

AIA	Avifauna Impact Assessment
BID	Background Information Document
BGIS	Biodiversity GIS
CARA	Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)
CBA	Critical Biodiversity Area
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 2017)
EISC	Ecological Importance and Sensitivity Category
EIS	Ecological Importance Sensitivity
ESA	Ecological Support Areas
EMPR	Environmental Management Programme
FBAR	Final Basic Assessment Report
WCDARD	Western Cape Department of Agricultural and Rural Development
GDP	Gross Domestic Product
WCBSP	Western Cape Biodiversity Spatial Plan
GNR	Government Notice
I&AP's	Interested and Affected Parties
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)
Mineral Resource	All forms of Garnet (Abbrasive), Heavy Minerals (General) Leucoxene, (Heavy Mineral) Monazite (Heavy Mineral), Rare Eaths, Rutile (Heavy Mineral), Zirconium Ore, Ilmenite.
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)
PAOI	Project Area of Influence
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
S1	Site Alternative 1
S2	Site Alternative 2
SEI	Site Ecological Importance
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SAMBF	South African Mining and Biodiversity Forum
WMA	Water Management Area
WULA	Water Use Licence Application

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Appendix F	Supporting Impact Assessment
Appendix G	Photographs of the site
Appendix H	Prospecting Work Programme
Appendix I	DMRE Acceptance and Acknowledgement Letters
Appendix J	CV and Experience Record of EAP
Appendix K	Screening report
Appendix L	Site Sensitivity Report
Appendix M1	Terrestrial Impact Assessment
Appendix M2	Aquatic Impact Assessment
Appendix M3	Soil Impact Assessment
Appendix M4	Palaeontological Impact Assessment
Appendix M5	Avifaunal Assessment
Appendix M6	NID
Appendix M7	Heritage Impact Assessment
Appendix N	Invasive Plant Species Management Plan
Appendix O	Closure Rehabilitation Plan



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).

NAME OF APPLICANT:	Mineral Sand Resources (Pty) Ltd
CELL NO:	021 555 2860
FAX NO:	N/A
POSTAL ADDRESS:	1st Floor, Block A. The Forum, North Bank Lane, Century City, Cape Town, 7441
FILE REFERENCE NUMBER SAMRAD:	WC 30/5/1/3/3/2/1/10433 PR

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. Mineral Sands Resources (Pty) Ltd appointed Greenmined Environmental to undertake the study needed. Greenmined Environmental has no vested interest in Mineral Sands Resources (Pty) Ltd or the proposed project and declares its independence as required by the Environmental Impact Assessment Regulations, 2014 (as amended April 2017) (EIA Regulations).

i) Details of the EAP

Prepared by:

Name of the Practitioner: Ms Zoë Norval (Junior Environmental Specialist)
Tel No.: 021 851 2673
Fax No.: 086 546 0579
E-mail address: zoe@greenmined.co.za

Reviewed by:

Name of the Practitioner: Mrs Sonette Smit (Senior Environmental Specialist)
Tel No.: 021 851 2673
Fax No.: 086 546 0579
E-mail address: sonette.s@greenmined.co.za

ii) Expertise of the EAP.

(1) The qualifications of the EAP

(with evidence).

Mrs. S Smit has sixteen 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..

Ms Z. Norval has a Bsc degree in Environmental Science and an Honours degree in Botany. In her Honours year, she focused mainly on environmental assessments and geographic information systems.

Please find CV's of both EAP's attached in Appendix J.

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

(In carrying out the Environmental Impact Assessment Procedure)

Sonette Smit is an Environmental Consultant with 16 years' experience in the environmental sector. She specialized the last 8 years in the mining sector where she conducted the mining related report and programs. She has also been involved in a number of other environmental and water use application projects where she compiled environmental management plans, environmental impact assessments, environmental audits, IWULA's/IWWMP's.

Zoë Norval is a Junior Environmental Consultant with two years of experience in environmental services, Environmental Control and Environmental Performance Assessments / Compliance Audits, preparation of environmental related documentation, Mining Right and Permit applications and applications for Environmental Authorisations.

b) Location of the overall Activity.

Table 1: Location of the proposed project.

Farm Name:	Portion 1,2, 3 and the Remainder of the farm Klipvley Karoo Kop 153, West Coast District Municipality, Western Cape Province.
Application area (Ha)	3970 ha
Magisterial district:	Vredendal
Distance and direction from the nearest town	The farms are located 40km Northwest of Lutzville, Western Cape Province.
21 digit Surveyor General Code for each farm portion	<ul style="list-style-type: none"> ➤ C07800000000015300000 ➤ C07800000000015300001 ➤ C07800000000015300002 ➤ C07800000000015300003

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 Mineral Sands Resources (Pty) 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

The Applicant applied for a prospecting right on over Portion 1,2, 3 and the Remainder of the farm Klipvley Karoo Kop 153, West Coast District Municipality, Western Cape Province. The proposed prospecting area is a natural area. The planned activity for the proposed site's is detailed below under point ii.

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

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, GNR 517)
SITE VISITS BY VARIOUS SPECIALIST	3970 ha	N/A	Not Listed
DEMARCATON OF SITE WITH VISIBLE BEACONS.	3970 ha	N/A	Not Listed
PROSPECTING	± 1.25 ha	X	GNR 517 Listing Notice 1: Activity 20 GNR 517 Listing Notice 3: Activity 12
OVERALL FINAL REHABILITATION ACTIVITIES	±1.25 ha	N/A	Not Listed

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 was approximately 3970 ha over Portion 1,2, 3 and the Remainder of the farm Klipley Karoo Kop 153, West Coast District Municipality, Western Cape Province. The prospecting activities will involve the following invasive activities:

■ Surface Sampling

Where heavy mineral concentrations are noted on surface 25-liter surface samples will be collected manually with a shovel and plastic sampling bag for concentration and laboratory analysis to determine the type of minerals present and the tenor of mineralization. Each pit will be ~ 50cm x 50cm in size and dug to a maximum depth of 1m. Each sample locality will be backfilled and fully rehabilitated concurrently with sampling.

■ Auger Drilling.

Handheld engine operated auger drill. The auger is portable and will be walked to site from the closest track. Approximately 100 auger drill holes are anticipated to be drilled. The auger is in essence a corkscrew-type drill where the helical ridge raises the drilled

material to the surface for sampling purposes. A total of 100 drill holes are planned for initially to be collected over an estimated 18-month period.

■ Evaluation Air core Drilling

Air-core drilling uses steel or tungsten blades to bore a hole into unconsolidated ground. The drill cuttings are removed by the injection of compressed air into the hole. This method of drilling is used to drill unconsolidated sands and soft sediments. Where possible, air-core drilling is preferred over RAB drilling as it provides a more representative sample. Air-core drilling is relatively inexpensive and is often used in first pass exploration drill programs. Air-core drilling is limited to depths of 50-60m.

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 and 5

Phase 1 will involve the following desk-top activities: data acquisition from government and private sources, and analysis of any existing/previous prospecting and drilling data, satellite (Landsat) imagery, aerial photos, and terrain data, as well as geological map interpretation. The synthesis and interpretation of such information will contribute towards providing a clearer picture of the location and characteristics of the heavy mineral deposit/s and will guide the in-field prospecting programme.

Phase 5 will involve analytical desk-top study. All the data collected will be analysed and compiled into a final report/model in order to determine the potential of the project and to outline possible future drill sampling programs if any.

DESCRIPTION OF PLANNED INVASIVE ACTIVITIES

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

Phase 2, 3 and 4

Phase 2: Surface mapping will be conducted by the project geologist and assistants and will take place over a period of 3 months. Such mapping will encompass GPS controlled traverses, and aerial photo mapping. Surface sampling. Where heavy mineral concentrations are noted on surface 25-liter surface samples will be collected manually with a shovel and plastic sampling bag for concentration and laboratory analysis to

determine the type of minerals present and the tenor of mineralization. Each pit will be 50cm x 50cm in size and dug to a maximum depth of 1m. The final number of samples will be determined by the size of surface mineralized areas if any, 200 samples are planned for initially. Each sample locality will be backfilled and fully rehabilitated concurrently with sampling.

Phase 3 will involve surveying and pegging of the anticipated deposit. This sub-phase will include the following activities: Surveying of the mapped area to be prospected. A grid (average 500m x 500m) will be marked on the map, after which those positions will be marked in the field by a surveyor with labelled droppers (pegs). Shallow small diameter auger drilling will take place at these positions to an average depth of 4m. A total of 100 auger drill holes are planned initially and may be followed up with additional drilling. Access routes to the drill sites will also be located (existing roads will used and new tracks only permitted in exceptional circumstances).

Phase 4 will be conducted with Air Core drilling method to access the deeper lying sediment package. A total of 250 Air-core holes are planned down to an average depth of 30m. More drilling may be required depending on results. Drill cutting will be sampled and analysed for heavy mineral content as described above for surface sampling.

The footprint of each borehole site is $\pm 50 \text{ m}^2$ that allows for the placing of the drill rig and vehicle. The applicant will not remove any topsoil due to the fast mobility of the drill rig and approximately 2 - 3 boreholes are planned to be operated per day. The boreholes will be capped with sand material from around the boreholes, and the area rehabilitated as they move to the next borehole.

1.1 Access Road

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

1.2 Equipment and Infrastructure

The only equipment used during the invasive phase of the prospecting activities is the percussion drill rig and a vehicle. No other infrastructure is needed or has been established. The drilling crew will reside at the nearest accommodation in Lutzville and therefore no campsite is needed on the earmarked properties.

1.3 Water Use

Potable water is brought to site daily by the employees.

1.4 Electricity

The prospecting activities does 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 Lutzville. 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.

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, has been, or will be established within the boundaries of the prospecting right. When needed the maintenance/service of the drill rig will be performed at the contractor’s off-site workshop.

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.)

A preliminary geological model will be compiled once the geological mapping and reconnaissance sampling and drilling have been completed. This will be done using standard software for the compilation of geological models and cross-sections from drill and sample data. Metallurgical and petrographical studies to determine the mineralogy, best processing and recovery system to upgrade the minerals to a saleable product.

Modelling of cut-off grades to determine if an inferred or indicated resource can be upgraded into reserve category. JORC or SAMREC compliant resource is the targeted outcome. Based on the resource model and planned processing method an economic feasibility

The prospecting site will contain the following:

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

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 they move 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; and
- Landscaping and replacing the topsoil (if removed);
- Controlling the invasive plant species.

The PR Holder will comply with the minimum closure objectives as prescribed 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) Mine Plan attached as Appendix A.

Table 3: GPS Coordinates of the proposed prospecting footprint.

Name	DECIMAL DEGREES	
	LONG (E)	LAT (S)
A	17.94216°	-31.39091°
B	17.97082°	-31.38289°
C	17.97398°	-31.38706°
D	17.99670°	-31.41602°
E	18.01963°	-31.44521°
F	18.06056°	-31.49722°
G	18.04609°	-31.50950°
H	17.99369°	-31.45015°
I	17.97715°	-31.42784°
J	17.95840°	-31.41048°
K	17.94216°	-31.39091°



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

Should the PR be issued and the prospecting for the mineral resource will be allowed, the proposed project will comprise of activities 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 Desk top study	Geologist (s)	Month 1 - 6	Geological map	Month 6	Geologist	
2	Invasive Prospecting	Geological mapping and surface sampling	Geologist Labourers x 2	Month 7-18	Heavy mineral concentrates Analytical data Geological model Prospecting target	Month 18	Geologist
3		Reconnaissance Auger Drilling	Geologist Labourers x 4	Month 19-36	Heavy mineral concentrates Analytical data Geological model Prospecting target.	Month 36	Geologist
4		Evaluation Air-core drilling	Geologist Drill foreman Labourers x 4	Month 37-48	Heavy mineral concentrates Analytical data Geological model Resource estimation.	Month 48	Geologist
5	Non-Invasive Prospecting Resource estimation and financial analysis	Geologist	Month 49-60	Geological report Final target areas Financial economic assessment Planning for next phase of evaluation of the discovered resources	Month 60	Geologist	

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>	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. ■ Section 16	Part A(1)(d) Description of the scope of the proposed overall activity	Application for a prospecting right submitted to DMRE-WC. Ref No: WC 30/5/1/3/3/2/1/10433 PR
National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 as amended, and the Environmental Impact Assessment Regulations Listing Notice 1; Listing Notice 2 and Listing Notice 3, as amended ■ GNR 517 Listing Notice 1 Activity 20 ■ GNR 517 Listing Notice 3 Activity 12	Part A(1)(d)(i) Listed and specified activities.	Application for environmental authorisation submitted to DMRE-WC Ref No: WC 30/5/1/3/3/2/1/10433 PR
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-WC to be applied throughout the EIA assessment, Closure phase. Ref No: WC 30/5/1/3/3/2/1/10433 PR
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>	The mitigation measures proposed for the site includes specifications of the NEM:BA, 2004.

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: 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 take into account 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.
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 the 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> , the prospecting activities does not require the removal of any large trees or vegetation of significance. The proposed prospecting area does indeed fall within a CBA and ONA, 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. 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 prospecting activities will include surface sampling, auger drilling and air-core drilling over the 3970 ha area. Prior to moving to the next boreholes, 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.	
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 cleaned and the contaminated soil is contained in a designated hazardous waste container that is daily (when applicable)	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
	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. 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.	
How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage?	As per the screening report, the area has a low heritage impact but has a high palaeontology sensitivity. However, the Applicant will implement a chance-find protocol on site for the duration of the planning and surface sampling, operational- and decommissioning phase. According to the Heritage Impact Assessment (Appendix M7), There are no known outcrops of sensitive fossiliferous strata in the Project Area that require protection as NO-GO sites, such as spots where fossil bones occur in obvious abundance, and which are not marked as an archaeological site. If the proposed mitigation measures and monitoring programs, as proposed in this document as well as the HIA, no fatal flaws could be identified that prevents the activity continuing.	Could not be determined
How will this development use and/or impact on non-renewable natural resources?	As per the prospecting work programme (PWP), the area applied for is situated to the south of the world class Namakwa Sands mine of Tronox that has been in operation from 1995. The region is well known for heavy mineral concentrations and smaller deposits has been described in the area by the Council for Geoscience in Bulletin 25, by CB Coetzee, 1957. The geological setting of the area is favorable for orogenic gold deposits and informal reports of gold is know from the area. Kaolin deposit has been investigated in the area and has been written up by the Council for Geoscience in Bulletin 36, by H Heystek, 1961. Only should the prospecting right be approved a reserve of the mineral resource will be determined.	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
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 no water is needed to allow the operation of the activity.	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 resulting 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 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.	Highly Desirable
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?		

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
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		
<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 form of the mineral resource ➤ Determine the availability of the 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. 	

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
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
In terms of location, describe how the placement of the proposed development will contribute to the area.	As per the prospecting work programme (PWP), the area applied for is situated to the south of the world class Namakwa Sands mine of Tronox that has been in operation from 1995. The region is well known for heavy mineral concentrations and smaller deposits has been described in the area by the Council for Geoscience in Bulletin 25, by CB Coetzee, 1957. The geological setting of the area is favorable for orogenic gold deposits and informal reports of gold is know from the area. Kaolin deposit has been investigated in the area and has been written up by the Council for Geoscience in Bulletin 36, by H Heystek, 1961. Therefore, only should the prospecting right be approved a reserve of the mineral resource will be determined.	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 resulting 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; ■ 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 agriculture to include small scale mining. The need is to find above-mentioned mineral resource, qualify and quantify it to develop a business model.</p>	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
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.	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.	Highly Desirable
Describe how the development will impact on job creation in terms of, amongst other aspects?	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 form of the mineral resource ➤ Determine the availability of the 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
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.	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 also be managed in accordance with all the mining and environmental related legislations.	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
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 applied for was approximately 3970 ha the above mentioned property and will involve the following invasive activities:

■ Surface Sampling

Where heavy mineral concentrations are noted on surface 25-liter surface samples will be collected manually with a shovel and plastic sampling bag for concentration and laboratory analysis to determine the type of minerals present and the tenor of mineralization. Each pit will be ~ 50cm x 50cm in size and dug to a maximum depth of 1m. Each sample locality will be backfilled and fully rehabilitated concurrently with sampling.

■ Auger Drilling.

Handheld engine operated auger drill. The auger is portable and will be walked to site from the closest track. Approximately 100 auger drill holes are anticipated to be drilled. The auger is in essence a corkscrew-type drill where the helical ridge raises the drilled material to the surface for sampling purposes. A total of 100 drill holes are planned for initially to be collected over an estimated 18-month period.

■ Evaluation Air core Drilling

Air-core drilling uses steel or tungsten blades to bore a hole into unconsolidated ground. The drill cuttings are removed by the injection of compressed air into the hole. This method of drilling is used to drill unconsolidated sands and soft sediments. Where possible, air-core drilling is preferred over RAB drilling as it provides a more representative sample. Air-core drilling is relatively inexpensive and is often used in first pass exploration drill programs. Air-core drilling is limited to depths of 50-60.

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 site activities plan (Appendix C). It is important to note that prospecting sites can be moved 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 was approximately 3970 ha over Portion 1,2, 3 and the Remainder of the farm Klipvley Karoo Kop 153, West Coast District Municipality, Western Cape Province. All activities will be contained within the boundaries of the site. The proposed prospecting area is a natural area. And will involve the following invasive activities:

■ **Surface Sampling**

Where heavy mineral concentrations are noted on surface 25-liter surface samples will be collected manually with a shovel and plastic sampling bag for concentration and laboratory analysis to determine the type of minerals present and the tenor of mineralization. Each pit will be ~ 50cm x 50cm in size and dug to a maximum depth of 1m. Each sample locality will be backfilled and fully rehabilitated concurrently with sampling.

■ **Auger Drilling.**

Handheld engine operated auger drill. The auger is portable and will be walked to site from the closest track. Approximately 100 auger drill holes are anticipated to be drilled. The auger is in essence a corkscrew-type drill where the helical ridge raises the drilled material to the surface for sampling purposes. A total of 100 drill holes are planned for initially to be collected over an estimated 18-month period.

■ **Evaluation Air core Drilling**

Air-core drilling uses steel or tungsten blades to bore a hole into unconsolidated ground. The drill cuttings are removed by the injection of compressed air into the hole. This method of drilling is used to drill unconsolidated sands and soft sediments. Where possible, air-core drilling is preferred over RAB drilling as it provides a more representative sample. Air-core drilling is relatively inexpensive and is often used in first pass exploration drill programs. Air-core drilling is limited to depths of 50-60m.

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 2, 3 and 4

Phase 2: Surface mapping will be conducted by the project geologist and assistants and will take place over a period of 3 months. Such mapping will encompass GPS controlled traverses, and aerial photo mapping. Surface sampling. Where heavy mineral concentrations are noted on surface 25-liter surface samples will be collected manually with a shovel and plastic sampling bag for concentration and laboratory analysis to determine the type of minerals present and the tenor of mineralization. Each

pit will be 50cm x 50cm in size and dug to a maximum depth of 1m. The final number of samples will be determined by the size of surface mineralized areas if any, 200 samples are planned for initially. Each sample locality will be backfilled and fully rehabilitated concurrently with sampling.

Phase 3 will involve surveying and pegging of the anticipated deposit. This sub-phase will include the following activities: Surveying of the mapped area to be prospected. A grid (average 500m x 500m) will be marked on the map, after which those positions will be marked in the field by a surveyor with labelled droppers (pegs). Shallow small diameter auger drilling will take place at these positions to an average depth of 4m. A total of 100 auger drill holes are planned initially and may be followed up with additional drilling. Access routes to the drill sites will also be located (existing roads will be used and new tracks only permitted in exceptional circumstances).

Phase 4 will be conducted with Air Core drilling method to access the deeper lying sediment package. A total of 250 Air-core holes are planned down to an average depth of 30m. More drilling may be required depending on results. Drill cutting will be sampled and analysed for heavy mineral content as described above for surface sampling.

The footprint of each borehole site is ± 50 m² that allows for the placing of the drill rig and vehicle. The applicant will not remove any topsoil due to the fast mobility of the drill rig and approximately 2 - 3 boreholes are planned to be operated per day. The boreholes will be capped with sand material from around the boreholes, and the area rehabilitated as they move to the next borehole.

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 only equipment used during the invasive phase of the prospecting activities is the percussion drill rig. No other infrastructure is needed or has been established. The drilling crew will reside at the nearest accommodation in Lutzville and therefore no campsite is needed on the earmarked properties.

1.4 Water Use

Potable water is brought to site daily by the employees.

1.4 Electricity

The prospecting activities does 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 contaminated soil will be contained in designated hazardous waste containers to be removed daily to a hazardous waste disposal yard at Lutzville. 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.

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, has been, or will be established within the boundaries of the prospecting right. When needed the maintenance/service of the drill rig will be performed at the contractor’s off-site workshop.

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.)

A preliminary geological model will be compiled once the geological mapping and reconnaissance sampling and drilling have been completed. This will be done using standard software for the compilation of geological models and cross-sections from drill and sample data. Metallurgical and petrographical studies to determine the mineralogy, best processing and recovery system to upgrade the minerals to a saleable product.

Modelling of cut-off grades to determine if an inferred or indicated resource can be upgraded into reserve category. JORC or SAMREC compliant resource is the targeted outcome. Based on the resource model and planned processing method an economic feasibility

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.

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 they move 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; and
- Landscaping and replacing the topsoil (if removed);
- Controlling the invasive plant species.

The PR Holder will comply with the minimum closure objectives as prescribed 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) Mine Plan attached as Appendix A

Site Alternative 1 (S1) (Preferred and Only Site Alternative): Site Alternative 1 entails the prospecting area for all forms of the mineral resource within the GPS coordinates as listed in the table below.

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

Name	DECIMAL DEGREES	
	LONG (E)	LAT (S)
A	17.94216°	-31.39091°
B	17.97082°	-31.38289°
C	17.97398°	-31.38706°
D	17.99670°	-31.41602°
E	18.01963°	-31.44521°
F	18.06056°	-31.49722°
G	18.04609°	-31.50950°
H	17.99369°	-31.45015°
I	17.97715°	-31.42784°
J	17.95840°	-31.41048°
K	17.94216°	-31.39091°



Figure 3: Satellite view showing the position of Site Alternative 1 (purple polygon) within the surrounding landscape.

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 mineral resource;
- The application, if approved, would allow the applicant to determine the available mineral resource 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.

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&AP’s will be informed of the project by means of an advertisement in Ons kontrei on 30 June 2023, and two on-site notices was placed at visible locations, one on the farm boundary fence at the entrance, and another at the at the Sentra Mini Mark in Koekenaap.

A notification letter inviting comments on the DBAR over a 30-days commenting period (3 July to 3 August 2023) was sent to the landowner, neighbouring landowners, stakeholders and other I&AP that may be interested in the project. The comments received on the DBAR will be incorporated into the final Basic Assessment Report (FBAR) to be submitted to the DMRE for consideration. The following I&AP’s and stakeholders will be 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"> ■ H & H Skaapvlei Boerdery Cc – (Remaining Extent of Farm Klipveldi Karoo Kop) ■ Tronox Mineral Sands Pty Ltd – (Portion 1 Of the Remaining Extent Of The Farm Klipveldi Karoo Kop) ■ Raakvat Boerdery Pty Ltd (Portion 2 Of Farm Klipveldi Karoo Kop) ■ Visser Christoffel Dreyer (Portion 3 Of the Farm Klipveldi Karoo Kop 153) ■ Rsa – (Portion 4 Of the Farm Klipveldi Karoo Kop 153) ■ Rsa – (Portion 5 Of the Farm Klipveldi Karoo Kop) ■ Rsa – (Portion 6 Of the Farm Klipveldi Karoo Kop 153) ■ Rsa – (Portion 7 Of the Farm Klipveldi Karoo Kop 153) ■ Area C0780000000000000009 - Unknown ■ De Beers Consolidated Mines Ltd – (Portion 0 Of the Farm Geelwal Karoo 262) ■ Tronox Mineral Sands Pty Ltd – (Portion 2 Of the Farm Graauw Duinen 152) ■ Tronox Mineral Sands Pty Ltd – (Portion 0 Of the Farm Graauw Duinen 152) ■ Rsa – Portion 3 Of the Farm Graauw Duinen 152) 	<ul style="list-style-type: none"> ■ West Coast District Municipality Development Planning; ■ Matzikama Local Municipality; ■ Matzikama Local Municipality Ward Number: 8; ■ Heritage Western Cape Heritage Resource Council; ■ Cape West Coast Biosphere Reserve; ■ Cape Nature; ■ Department of Agriculture Land Reform, Rural Development Land and Soil Management ■ Department of Water and Sanitation; ■ Department of Economic Development and Tourism; ■ Department of Environmental Affairs and Development; ■ Department of Transport and Public Works; ■ Department of Forestry, Fisheries and the Environment ■ Department of Labour; ■ Department of Rural Development and Land Refor ■ Department of Social Development ■ Eskom; ■ South African Heritage Resource 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 will be distributed for comment and perusal to the I&AP’s and stakeholders listed above. A 30-day commenting period, ending 3 August 2023, will be 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, will be incorporated into the

Final Basic Assessment Report (FBAR), which 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)

Table 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				
B Visser-H & H Skaapvlei Boerdery Cc (Landowner of Remaining Extent of Farm Klipvley Karoo Kop)	X	According to the applicant, the landowners are aware of the prospecting right application and provided their consent (Please see Appendix E)		
Marius Vlok / P Laubcher - Tronox Mineral Sands Pty Ltd (Landowner of Portion 1 Of the Remaining Extent of the Farm Klipvley Karoo Kop)				
J Aggenbach - Raakvat Boerdery Pty Ltd (Landonwer of Portion 2 Of Farm Klipvley Karoo Kop)				
Visser Christoffel Dreyer (Landonwer Portion 3 Of the Farm Klipvlei Karoo Kop 153)				
RSA (Landowner of Portion 4 Of the Farm Klipvlei Karoo Kop 153)				
Landowners or lawful occupiers on adjacent properties	X	-	-	-

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.
RSA – Portion 3, 5 – 7 of the farm Klipvley Karoo Kop			Any comments received on the draft BAR will be incorporated into the final BAR.	
De Beers Consolidated Mines Ltd – (Portion 0 Of the Farm Geelwal Karoo 262)			Any comments received on the draft BAR will be incorporated into the final BAR.	
Marius Vlok / P Laubcher - Tronox Mineral Sands Pty Ltd – (Portion 0 and 2 of the Farm Graauw Duinen 152)			Any comments received on the draft BAR will be incorporated into the final BAR.	
Municipal councillor				
Matzikama Local Municipality Ward Number: 8	X		Any comments received on the draft BAR will be incorporated into the final BAR.	
Municipality				
Matzikama Local Municipality	X		Any comments received on the draft BAR will be incorporated into the final BAR.	
West Coast District Municipality Development Planning	X		Any comments received on the draft BAR will be incorporated into the final BAR.	
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e				

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					
Department of Transport and Public Works	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Department of Public Works and Infrastructure;	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Eskom	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Communities	No community were identified within the study area.				
Dept. Land Affairs					
Department of Rural Development and Land Reform	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Traditional Leaders	N/A				
Dept. Environmental Affairs		No comments received	N/A	N/A	N/A
Western Cape Department of Agricultural, Forestry and Fisheries	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Department of Environmental Affairs and Development	X	Any comments received on the draft BAR will be incorporated into the final BAR.			

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.
Other Competent Authorities affected				
Department of Labour	X	Any comments received on the draft BAR will be incorporated into the final BAR.		
Department of Transportation and Public Works	X	Any comments received on the draft BAR will be incorporated into the final BAR.		
Department of Rural Development and Land Reform	X	Any comments received on the draft BAR will be incorporated into the final BAR.		
Department of Economic Development and Tourism	X	Any comments received on the draft BAR will be incorporated into the final BAR.		
Department of Water and Sanitation	X	Any comments received on the draft BAR will be incorporated into the final BAR.		
South African Heritage Resources Agency	X	Any comments received on the draft BAR will be incorporated into the final BAR.		
Department of Water and Sanitation	X	Any comments received on the draft BAR will be incorporated into the final BAR.		
Cape Nature Land-Use Scientist Landscape West Conservation Operations	X	Any comments received on the draft BAR will be incorporated into the final BAR.		
South African Heritage Resource Agency	X	Any comments received on the draft BAR will be incorporated into the final BAR.		
Heritage Western Cape Heritage Resource Council;	X	Any comments received on the draft BAR will be incorporated into the final BAR.		
Cape West Coast Biosphere Reserve	X	Any comments received on the draft BAR will be incorporated into the final BAR.		
<u>OTHER AFFECTED PARTIES</u>				
N/A		Any comments received on the draft BAR will be incorporated into the final BAR.		
<u>INTERESTED PARTIES</u>				
N/A		Any comments received on the draft BAR will be incorporated into the final 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, Lutzville area normally receives an average of 13 mm of rain per year, with most rainfall occurring mainly during winter. The chart below (middle) shows the average rainfall values for Lutzville area per month. It receives the lowest rainfall (<2 mm) in January and the highest (20-50 mm) in June. The monthly distribution of average daily maximum temperatures (centre chart below) shows that the average midday temperatures for Lutzville area range from >7.0°C in July to > 29°C in February. The region is the coldest during July when the mercury drops to 1°C on average during the night.

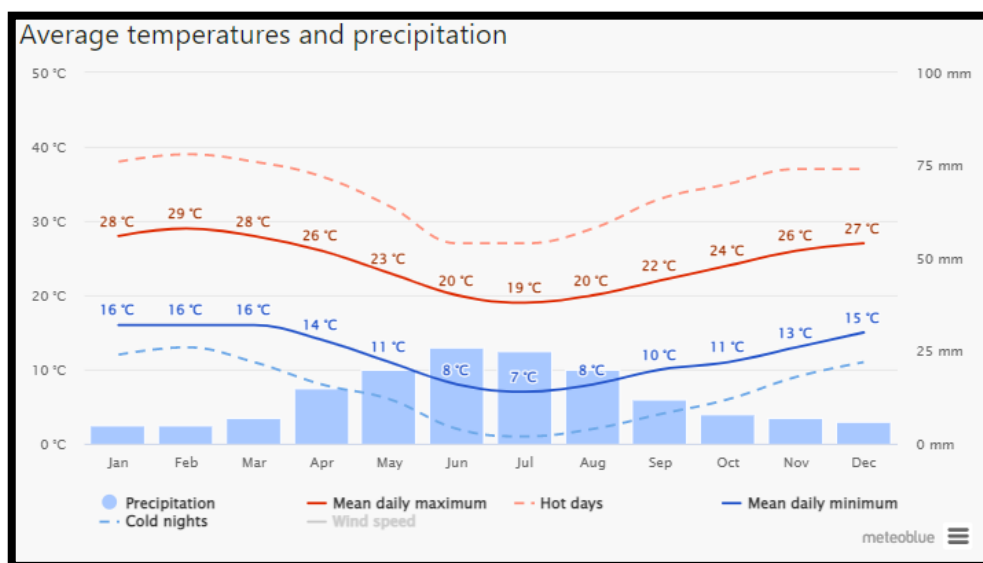


Figure 4: Statistical representation of the average rainfall, maximum temperatures, and wind speed for the Lutzville region (Chart obtained from meteoblue).

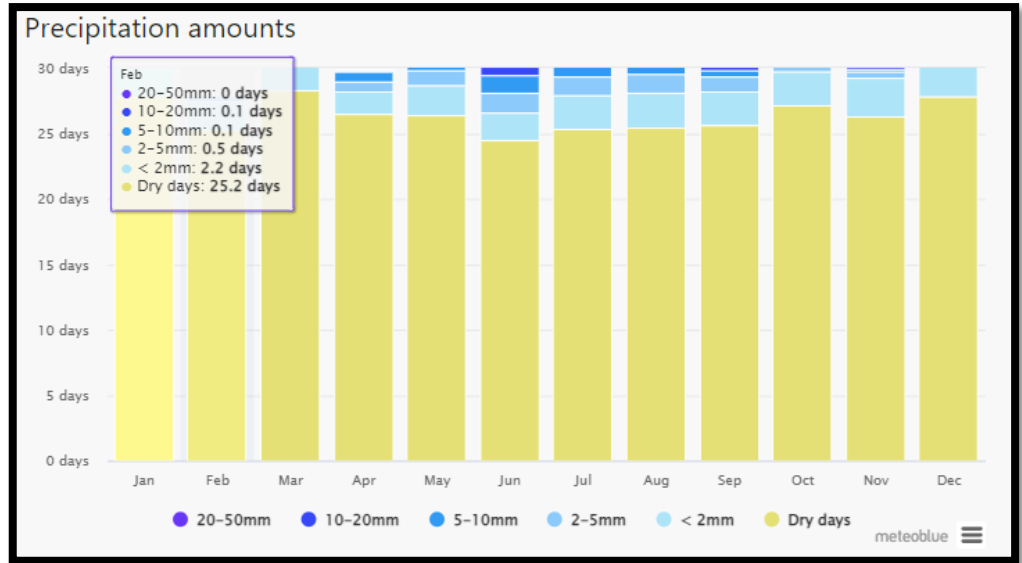


Figure 5: Statistical representation of the average rainfall, maximum temperatures and wind speed for the Lutzville p region (Chart obtained from meteoblue).

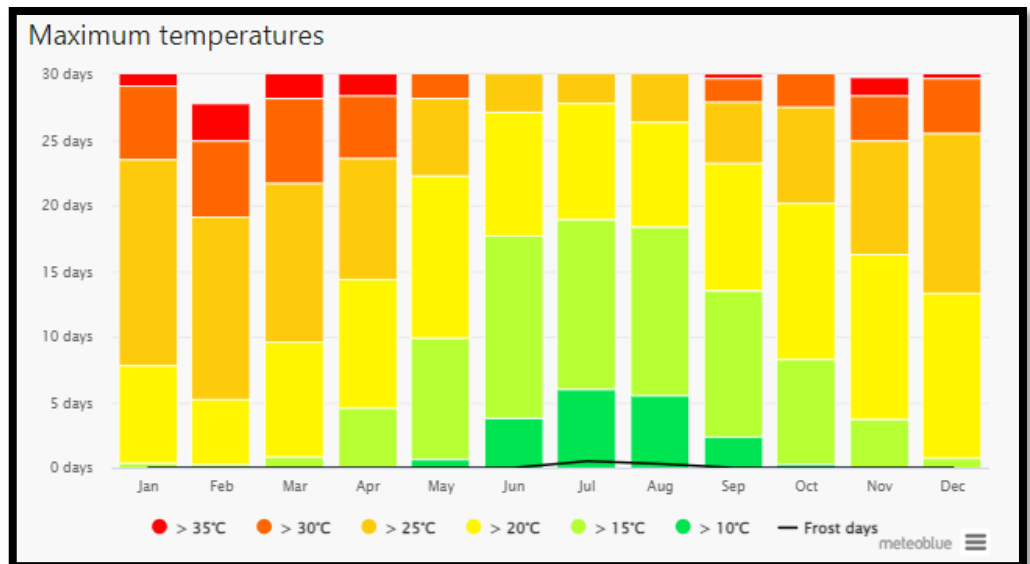


Figure 6: Statistical representation of the average rainfall, maximum temperatures and wind speed for the Lutzville region (Chart obtained from meteoblue).

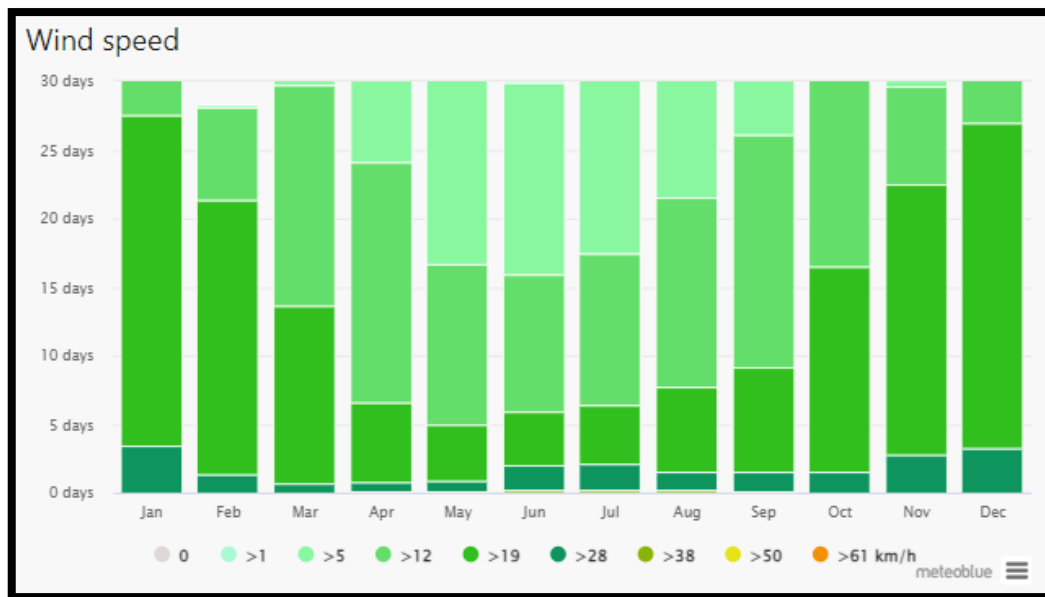


Figure 7: Statistical representation of the average rainfall, maximum temperatures and wind speed for the Lutzville region (Chart obtained from meteoblue).

The dominant wind direction of Lutzville ranges from East-North-East to South-West for most of the year. The figure below presents the wind direction distribution in % for the greater Lutzville area.

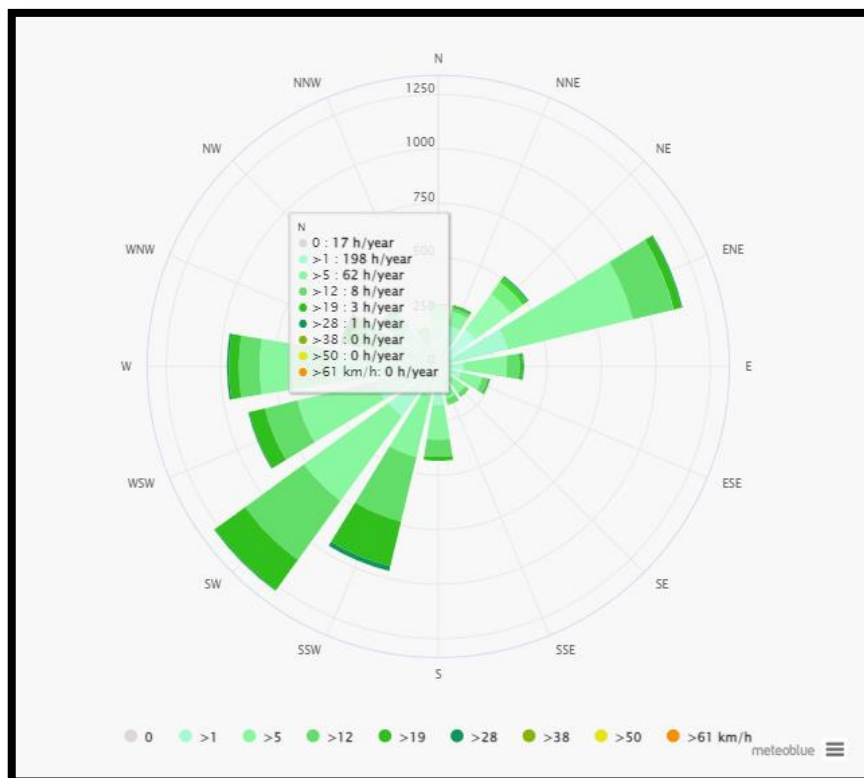


Figure 8: Annual wind direction distribution for the Lutzville area, (Image obtained from www.meteoblue.com)

TOPOGRAPHY

The project area is flat to slightly undulating landscape of coastal peneplain. Vegetation is low species-rich shrubland dominated by a plethora of erect and creeping succulent shrubs (*Cephalophyllum*, *Didelta*, *Othonna*, *Ruschia*, *Tetragonia*, *Tripteris*, *Zygophyllum*) as well as nonsucculent shrubs (*Eriocephalus*, *Lebeckia*, *Pteronia*, *Salvia*). Annual mixed with perennial flora can present spectacular displays in wet years. The altitude varies between 8 – 128 m.



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 prospecting activities will include surface sampling, auger drilling and air core drilling which only be visible from the sea. 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 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 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 ambience of the receiving environment is expected to be of low significance.

GEOLOGY AND SOIL

The project area is generally underlain by rocky coastal plain which is extensively blanketed by an unconsolidated Cenozoic sedimentary cover. The Cenozoic deposits extending northward from Elands Bay to Alexander Bay are classified as the West Coast Group. The bulk of the overlying sediments occurs as marine- aeolian couplets with lithologic successions that are increasingly more marine in proportion north of Doring Bay. Conversely, the aeolian component turns dominant south of Hondeklip Bay. Generally, the basal, shallow-marine deposits rest unconformably on four main wave-cut, raised terraces corresponding to late Miocene and Pliocene sea-level transgressive maxima around 90, 50, 30, and 10 m amsl (meters above mean sea level). Heavy minerals, however, are concentrated in both marine and aeolian sediments, particularly north of Doring Bay

HYDROLOGY

The proposed site falls within the Olifants/ Doorn Water Management Area, in the F60E quaternary catchment area. According to the National Wetland Map 5 map as presented by CapeFarmMapper, a few wetlands lie on the border line of the proposed area. However, it should be noted that prospecting sites can be moved to various area depending on sensitivity and accessibility.

Table 9: Aquatic characteristics of the greater study area

Water Management Area	Olifants/Doorn
Quaternary Catchment	F60E



Figure 10: Map showing the proposed prospecting area (blue polygon) relative to the wetlands (light blue) - CapeFarmMapper

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 prospecting activities does not require the removal of any large trees or vegetation of significance. The proposed prosecting area does indeed fall within a CBA and ONA, 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.

BIODIVERSITY CONSERVATION AREAS

According to the Western Cape Biodiversity Spatial Plan, sections of the proposed site fall within a Critical Biodiversity Area and Other Natural Areas. Please refer to part A(1)(h)(iv)(c) for the findings of the specialist study.

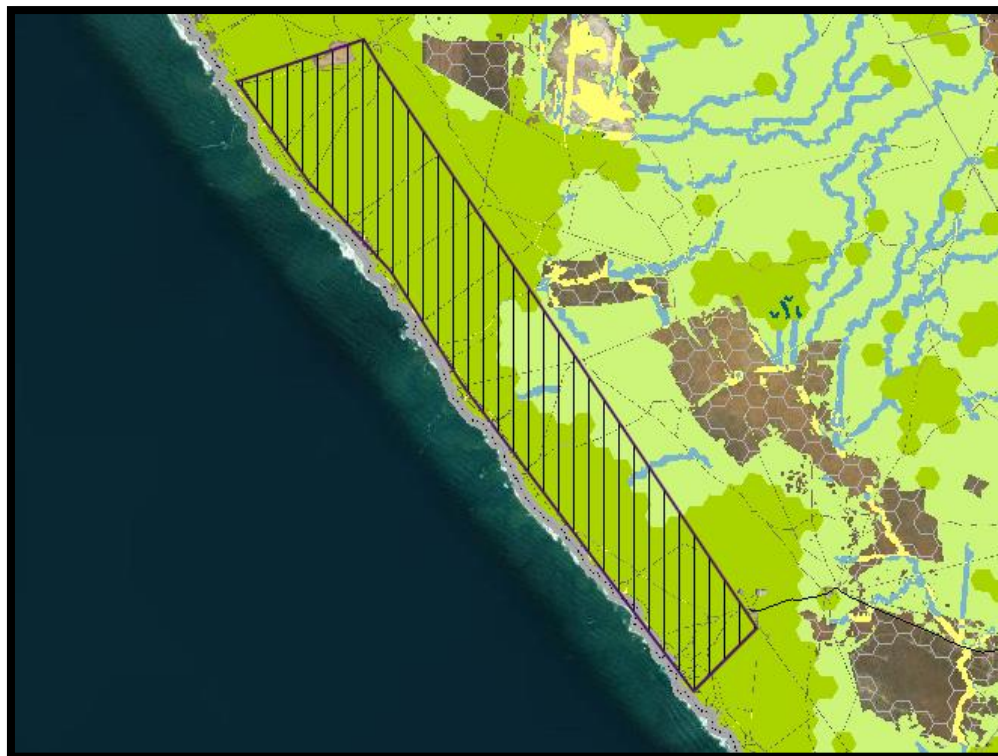


Figure 11: View of the proposed prospecting right area in relation to the Critical Biodiversity Areas (green areas)- Western Cape Biodiversity Spatial Plan.

GROUNDCOVER

According to Mucina and Rutherford (2012) the proposed area extends over a vegetation type known as SKs 7 Namaqualand Strandveld. The vegetation type that dominates is low species-rich shrubland dominated by a plethora of erect and creeping succulent shrubs (*Cephalophyllum*, *Didelta*, *Othonna*, *Ruschia*, *Tetragonia*, *Tripteris*, *Zygophyllum*) as well as nonsucculent shrubs (*Eriocephalus*, *Lebeckia*, *Pteronia*, *Salvia*). Annual mixed with perennial flora can present spectacular displays in wet years.

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. 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. Workers

should be trained snake handler and 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 include surface sampling, auger drilling and air-core drilling over the 3970 ha area. Prior to moving to the next drill holes 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.

HUMAN ENVIRONMENT:

CULTURAL, HERITAGE AND PALAEOLOGICAL ENVIRONMENT

As per the screening report, the area has a low heritage impact but has a high palaeontology sensitivity which only requires a desktop study. However, the Applicant will implement a chance-find protocol on site for the duration of the planning and surface sampling, 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 very high palaeontology sensitivity (red) concern as presented in the figure below. Please refer to part A(1)(h)(iv)(c) for the findings of the specialist study.

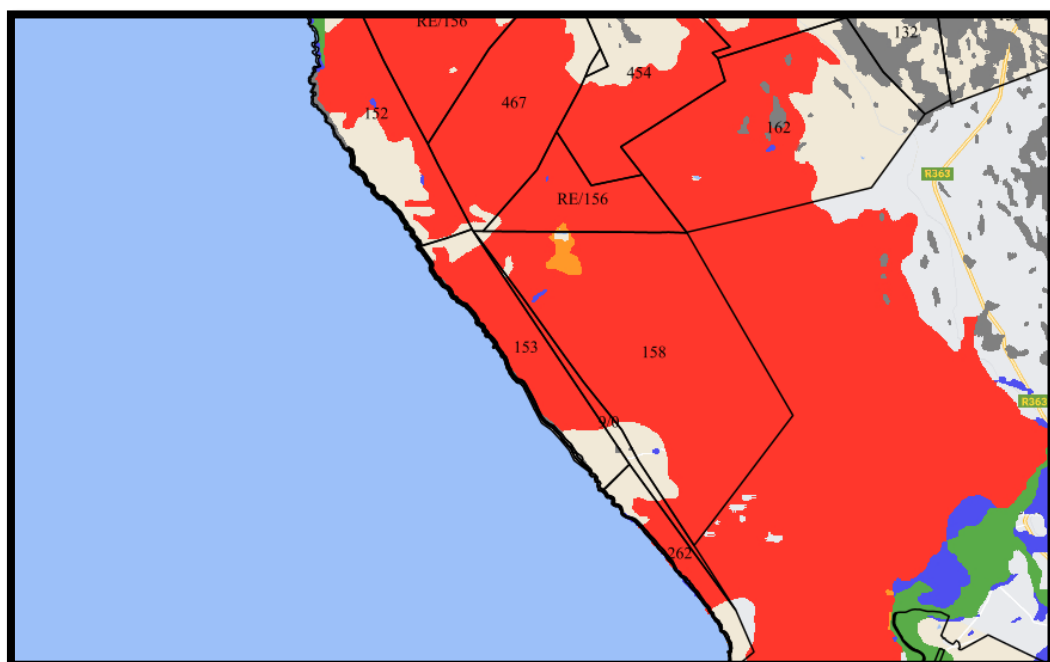


Figure 12: The SAHRA palaeontological sensitivity map shows the proposed prospecting footprint falls in an area of low insignificant (blue) concern.

SOCIO-ECONOMIC ENVIRONMENT

(Information extracted from the Matzikama Municipality Integrated Development Plan 2017/22)

Lutzville, the main town in Ward 1 is the center of social and economic services and infrastructure in the ward. Lutzville-Wes is a small predominantly housing cluster located some kilometers out of the town.

In 2020, the housing waiting list indicates that 1589 individuals wish to be accommodated in Lutzville. A housing project is already in the pipeline, which will accommodate 361 people in Lutzville with the purpose of re-allocating housing opportunities in the current Mbeki Square from the said waiting list in Lutzville. The Municipality is also busy transferring Title Deeds to pre-1994 houses and serviced plots within Mbeki Square. Additional land will need to be earmarked for the next phase of housing delivery in Lutzville..

Population and Gender Profile

As of 2021, Matzikama Municipality has an estimate of 72 759 persons, making it the second smallest populated municipal area in the WCD. This total is expected to grow to 73 026 by 2025, equating to an average annual growth rate of 0.2 per cent.

In 2020, the population density of the West Coast District (WCD) was 15 persons per square kilometer with Matzikama recording a figure of 6 persons per square kilometer. Population density figures aid public sector decision makers to mitigate environmental, health and service delivery risks.

Population

The table below reveals the total population in the municipal area for the past five years.

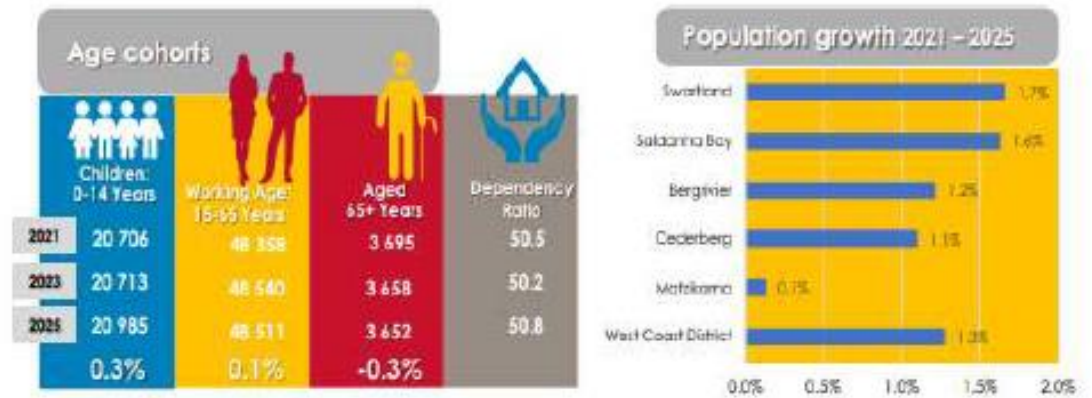
Table 10: Socio-economic Profile: Matzikama Municipality (extracted from Matzikama Final Intergrated Development Plan 2022-2023)

2016/2017	2017/2018	2018/2019	2019/2020	2020/2021
72565	71403	74636	73 066	72 759

Source: 2021 Socio-economic Profile: Matzikama Municipality

According to the 2021 Matzikama Municipality Socio-Economic Profile, Matzikama is 72 759 people in 2021, making it the least populated municipal

area in the WCD. This total is expected to grow to 73 026 by 2025, equating to an average annual growth rate of 0.2 per cent. The estimated population growth rate of Matzikama is the lowest in the WCD. The graph below indicate the District average annual growth rate is 1.3 per cent.



Source: 2021 Socio-economic Profile: Matzikama Municipality

Figure 13: Socio-economic Profile: Matzikama Municipality (extracted from Matzikama Final Intergrated Development Plan 2022-2023)

Sex Ratio

The overall sex ratio (SR) depicts the number of males per 100 females in the population. The data indicates that there are slightly more females than males in the Matzikama municipal area with a ratio of 100.1 males per 100 females in 2021, rising marginally to 101.6 males per 100 females in 2025. The increasing SR for Matzikama could be attributed to a wide range of factors such as an increase in female mortality rates as well as the potential inflow of working males to the municipal area.

Economic Profile

In 2019, the economy of Matzikama was valued at R4.5 billion (current prices) and employed 28 507 people. Historical trends between 2015 and 2019 indicate that the municipal economy realised an average annual growth rate of 0.4 per cent which can be attributed to the tertiary and primary sector growth of 0.7 per cent and 0.4 per cent respectively. In terms of sectoral contribution, the agriculture, forestry and fishing sector (R880.6 million in 2019 or 19.6 per cent of total GDP) was the main driver of growth in the primary sector, while the wholesale and retail trade, catering and accommodation (R781.2 million; 17.4 per cent), manufacturing (R648.4 million or 14.5 per cent) and general government (R512.7 million; 11.4 per cent), finance, insurance, real estate and business services (R442.0 million; 9.8 per cent) sectors were the main drivers that contributed to the positive growth in the tertiary sector. The agriculture, forestry and fishing was estimated to have performed relatively very well in 2020, coming in with estimated growth of 12.4 per cent. Employment creation for 2020 was poor overall, with all sectors contracting in the number of jobs per sector. Despite the manufacturing sector's important role in the local economy, particularly as one of the main sources of employment, this sector is estimated to have contracted by 7.4 per cent in 2020.

.The table below indicates Matzikama's Economy and Labour Market Performance.

Table 11: Matzikama's Economy and Labour Market (extracted from Matzikama Final Intergrated Development Plan 2022-2023)

Economy and Labour Market Performance						
SECTOR	GDP			Employment		
	£ Million value 2019	Trend 2015 - 2019	Real GDP growth 2020e	Number of jobs 2019	Average annual change 2015 - 2019	Net change 2020e
PS Primary Sector	1 110.6	0.4	6.2	11 584	312	-387
Agriculture, forestry & fishing	880.6	0.9	12.4	11 291	321	-363
Mining & quarrying	230.1	-1.6	-23.9	293	-8	-24
SS Secondary sector	991.6	0.3	-10.3	2 938	43	-224
Manufacturing	648.4	1.4	-7.4	1 800	36	-68
Electricity, gas & water	131.9	-5.7	-10.7	96	-1	-5
Construction	211.3	0.2	-20.8	1 034	8	-151
TS Tertiary sector	2 348.1	0.7	-6.6	13 985	243	-740
Wholesale & retail trade, catering & accommodation	781.2	0.9	-10.4	5 247	139	-319
Transport, storage & communication	331.0	-2.9	-18.5	663	2	-36
Finance, insurance, real estate & business services	442.0	2.3	-3.9	2 071	35	-124
General government	512.7	0.4	0.5	2 731	10	33
Community, social & personal services	301.2	1.7	-2.1	3 273	58	-294
Matzikama	4 470.4	0.4	-3.7	28 807	598	-1 381

Skill Levels formal employment	Skill Level Contribution 2020 (%)	Average growth (%) 2016 - 2020	Number of jobs	
			2019	2020
Skilled	14.5	0.2	3 110	2 997
Semi-skilled	32.4	-0.6	7 072	6 702
Low-skilled	53.1	-0.6	11 505	10 980
TOTAL	100.0	-0.5	21 687	20 679

Informal Employment	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Number of informal jobs	6 595	6 434	6 574	7 034	6 992	7 915	7 276	7 391	7 087	6 820	6 477
% of total Employment	28.0	27.3	26.8	27.4	27.4	27.7	25.7	26.0	24.9	23.9	23.9

Unemployment rates	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bergvliet	4.9	5.2	5.0	4.6	5.0	4.1	4.6	5.1	5.2	5.6	5.4
Matzikama	11.0	11.4	11.0	10.4	11.0	9.5	10.5	11.3	11.4	12.3	11.7
Swartland	9.0	9.4	9.2	8.9	9.4	8.5	9.3	10.1	10.2	11.1	10.6
Saldanha Bay	14.2	14.8	14.3	13.6	14.4	13.4	14.9	16.1	16.4	17.8	17.6
Cederberg	7.0	7.3	7.0	6.6	7.1	6.0	6.7	7.3	7.4	8.1	7.8
West Coast	10.0	10.4	10.1	9.6	10.2	9.1	10.1	10.9	11.1	12.0	11.7
Western Cape	15.9	16.1	16.1	16.0	16.4	16.5	17.7	18.4	18.3	19.6	18.9

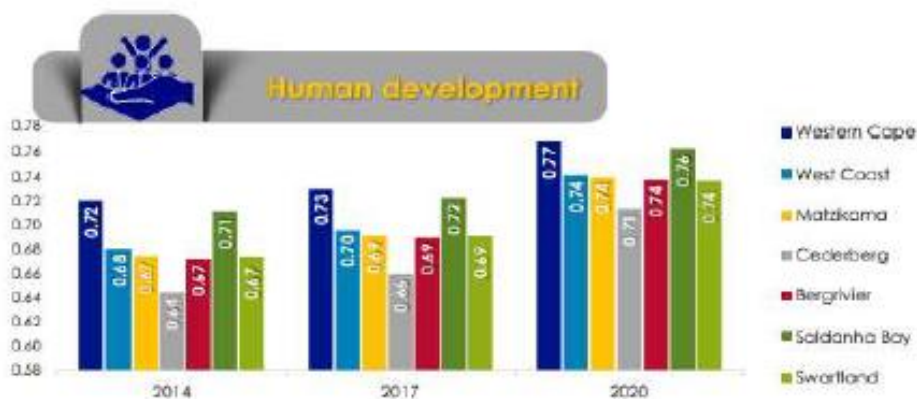
Source: 2021 Socio-economic Profile: Matzikama Municipality

GDPR Per Capita

An increase in regional gross domestic product (GDPR) per capita, i.e. GDPR per person, is experienced only if the real economic growth rate exceeds the population growth rate. Even though real GDPR per capita reflects changes in the overall well-being of the population, not everyone within an economy will earn the same amount of money as estimated by the real GDPR per capita indicator. At R59 347 in 2020, Matzikama's GDPR per capita (in nominal terms) is below the West Coast District figure of R69 251 while also ranking bottom when compared to that of neighbouring municipalities (WCD). Furthermore, Matzikama's per capita income ranks well below that of the Western Cape Figure of R84 967.

Human Development

The HDI (Human Development Index) is a composite indicator reflecting on education levels, health, and income. It is a measure of peoples' ability to live a long and healthy life, to communicate, participate in the community and to have sufficient means to be able to afford a decent living. The HDI is represented by a number between 0 and 1, where 1 indicates a high level of human development and 0 represents no human development. The United Nations uses the Human Development Index (HDI) to assess the relative level of socio-economic development within countries. There has been a general increase in the HDI for the Matzikama area, from 0.67 in 2017 to 0.74 in 2020. There has been a similar upward trend for the West Coast District as well as for the Western Cape. The table below indicates the HDI across municipalities within the WCD between 2014-2020.

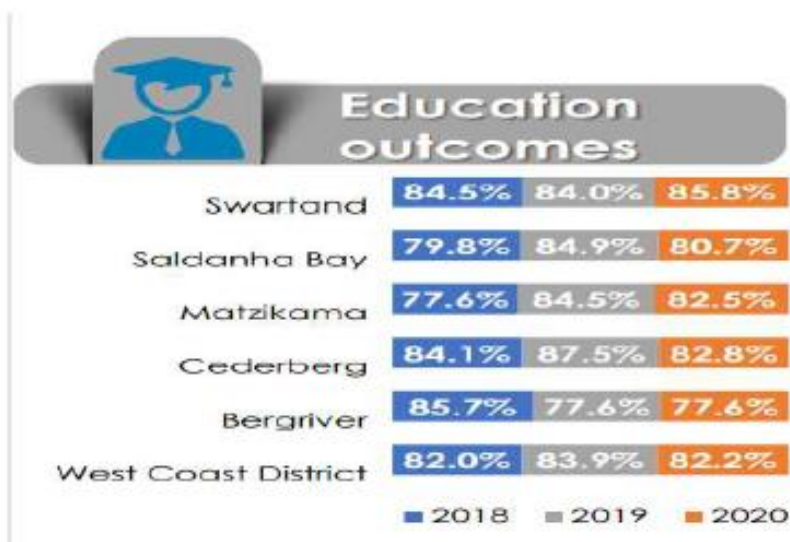


2021 Socio-economic Profile: Matzikama Municipality

Figure 14: Human development (extracted from Matzikama Final Intergrated Development Plan 2022-2023)

Education Levels

Education remains one of the key avenues through which the state is involved in the economy. In preparing individuals for future engagements in the labour market, policy decisions and choices in the sphere of education play a critical role in determining the extent to which future economy and poverty reduction plans can be realised. Matzikama’s matric outcomes dropped from 84.5 per cent in 2019 to 82.5 per cent in 2020. Better results could improve access to learners to higher education to broaden their employment opportunities. The regression of the matric pass rate within the Matzikama area remains a serious concern. The table below measures the matric pass rate within the Matzikama municipal area compared with other municipalities within WCD.



Source: Socio Economic Profile 2021, Matzikama Municipality

Figure 15: Education outcomes in and around the Matzikama municipality (extracted from Matzikama Final Intergrated Development Plan 2022-2023)

The matric pass rate in Matzikama regressed from 93.9% in 2017 to 84.5% in 2019. Higher matric pass rates could improve access for learners to higher education to broaden their opportunities. The regression of the matric pass rate within the Matzikama area remains a serious concern.

Employment Profile

In 2019, the agriculture sector is the largest within Matzikama Local Municipality accounting for R 1.03 billion or 17.9% of the total GVA in the local municipality's economy. The sector that contributes the second most to the GVA of the Matzikama Local Municipality is the trade sector at 16.5%, followed by the community services sector with 15.5%. The sector that contributes the least to the economy of Matzikama Local Municipality is the mining sector with a contribution of R 134 million or 2.34% of the total GVA. In Matzikama Local Municipality the economic sectors that recorded the largest number of employment in 2019 were the agriculture sector with a total of 15 800 employed people or 51.6% of total employment in the local municipality. The trade sector with a total of 3 980 (13.0%) employs the second highest number of people relative to the rest of the sectors. The electricity sector with 88.4 (0.3%) is the sector that employs the least number of people in Matzikama Local Municipality, followed by the mining sector with 414 (1.3%) people employed.

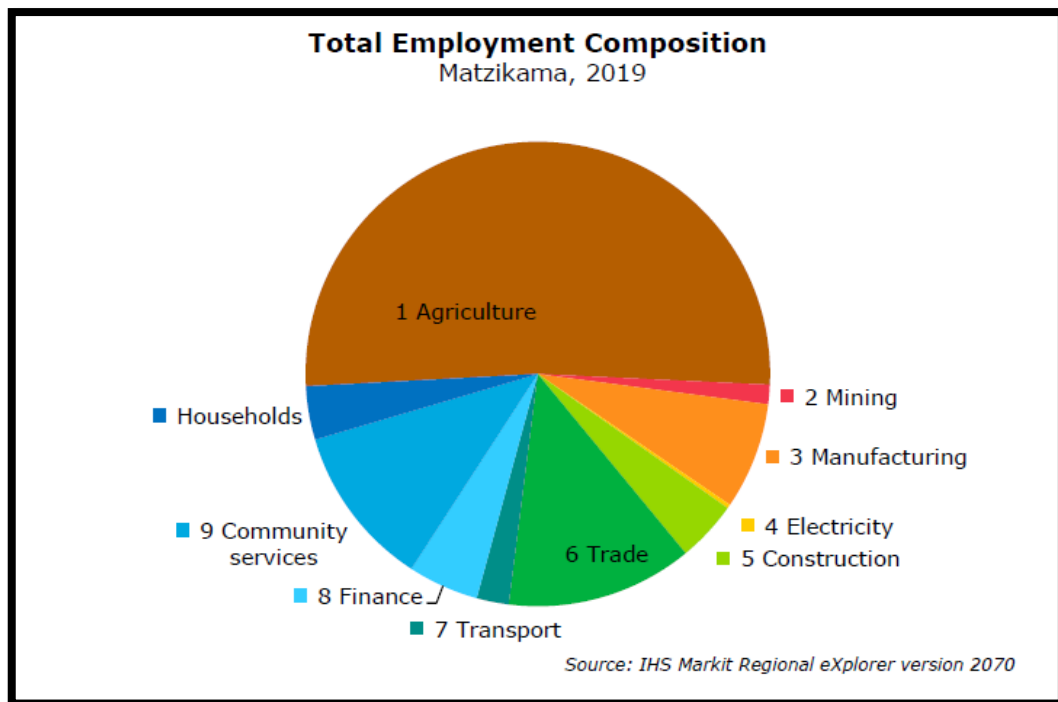


Figure 16: Total employment composition in the Matzikama municipality (extracted from Matzikama Final Intergrated Development Plan 2022-2023)

(b) Description of the current land uses

The current surrounding land uses can be classified as agricultural land, wind farms, existing mining and tourism.

Table 12: Land uses and/or prominent features that occur within 500 m radius of S1

LAND USE CHARACTER	YES	NO	DESCRIPTION
Natural area	YES	-	The study area is surrounded by natural areas
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	YES		An existing quarry used for the same mineral borders the proposed area.
Dam or reservoir		NO	
Hospital/medical centre	-	NO	
School/ crèche	-	NO	

LAND USE CHARACTER	YES	NO	DESCRIPTION
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	
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
River, stream or wetland		NO	A depression wetland and non-perennial rivers were confirmed during the site inspection.
Nature conservation area	-	NO	
Mountain, hill or ridge	YES		
Museum	-	NO	
Historical building	-	NO	
Protected Area	YES	NO	The area contains Critical Biodiversity Area (CBA), Other Natural Areas and Aquatic Ecological Support Areas.
Graveyard	-	NO	
Archaeological site	-	NO	
Other land uses (describe)	YES	NO	There is a house about 1.6km from the proposed site.

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

SPECIFIC ENVIRONMENTAL FEATURES

SITE SPECIFIC TOPOGRAPHY

The project area is flat to slightly undulating landscape of coastal peneplain. Vegetation is low species-rich shrubland dominated by a plethora of erect and creeping succulent shrubs (*Cephalophyllum*, *Didelta*, *Othonna*, *Ruschia*, *Tetragonia*, *Tripteris*, *Zygophyllum*) as well as nonsucculent shrubs (*Eriocephalus*, *Lebeckia*, *Pteronia*, *Salvia*). Annual mixed with perennial flora can present spectacular displays in wet years. The altitude varies between 8 – 128 m.

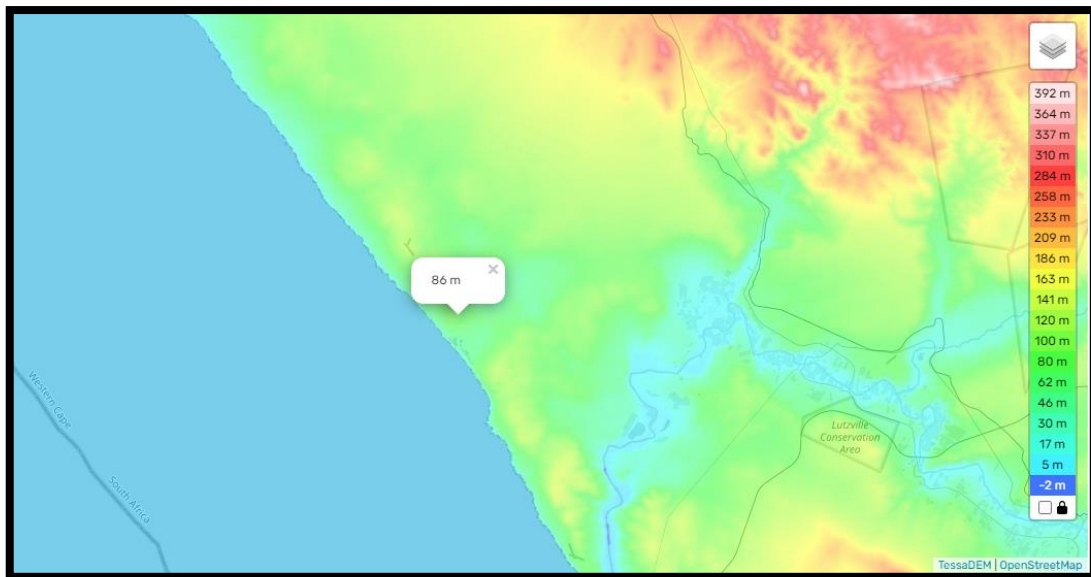


Figure 17: Map showing the topography of the Lutzville area (image obtained from www.en-za.topographic-map.com/maps/gwpq/South-Africa/).

SITE SPECIFIC VISUAL CHARACTERISTICS

The figure below shows the viewshed analysis for the footprint. 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 due to the small scale of the proposed operation. Should the Applicant follow the mitigation measures as described in this document, the potential impact on the visual characteristics of the receiving environment is expected to be of low significance.



Figure 18: Viewshed of the proposed prospecting footprint where the green shaded areas shows the positions from where the prospecting area (purple 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 ambience 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. The proposed activity will contribute the emissions of one drill right to 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.

SITE SPECIFIC GEOLOGY AND SOIL

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

As mentioned earlier, the project area is generally underlain by rocky coastal plain which is extensively blanketed by an unconsolidated Cenozoic sedimentary cover. The Cenozoic deposits extending northward from Elands Bay to Alexander Bay are classified as the West Coast Group. The bulk of the overlying sediments occurs as marine- aeolian couplets with lithologic successions that are increasingly more marine in proportion north of Doring Bay. Conversely, the aeolian component turns dominant south of Hondeklip Bay. Generally, the basal, shallow-marine deposits rest unconformably on four main wave-cut, raised terraces corresponding to late Miocene and Pliocene sea-level transgressive maxima around 90, 50, 30, and 10 m amsl (meters above mean sea level). Heavy minerals, however, are concentrated in both marine and aeolian sediments, particularly north of Doring Bay.

SITE SPECIFIC HYDROLOGY

The proposed site falls within the Olifants/ Doorn Water Management Area, in the E33G quaternary catchment area. According to the Aquatic Biodiversity Compliance Statement, it was confirmed during the site inspection that depression wetland and non-perennial rivers were present on the prospecting right application area.

The depression wetland is considered natural with limited disturbance impacts. The wetland has a high clay content and due to heavy rainfall, little to no plants are found within the depression (figure below). With heavy rainfall, the depression will be saturated and is highly likely to function as a foraging ground and habitat for various fauna. This is also given the large natural and intact area around the depression which supports a high diversity plant species

The non-perennial river supports a high abundance and diversity of large shrubs such as *Roepera morgsana*, *Caroxylon aphyllum*, *Osteospermum monstrosum*, and *Lycium cinereum*. These rivers are in good ecological condition and are likely to support a variety of ecosystem services such as foraging ground for fauna. Some of the identified non-perennial rivers are included in Ecological Support Areas (ESA). Given that the rivers are in good condition, these specific rivers are expected to contribute significantly to

functioning of the ESA. The rivers have been subject to some disturbance, including the development of roads and downstream mining activities which is expected to affect the functioning of these rivers.



Figure 19: Watercourses on the prospecting right area footprint (demarcated in black)

Present Ecological State (PES) is a measure of aquatic ecosystem condition, compared to that of the system in its natural or “reference” condition. The depression wetland and the perennial rivers have PES scores of B. The watercourses are largely natural with few modifications. A small change in natural habitats and biota may have taken place but the ecosystem functions are essentially unchanged. Factors that have contributed are changes in the catchment hydrology and land use that contributes the small changes in flow, and changes to the channel characteristics by the development of a roads.

The wetland and the rivers can be classified as have an EIS category of B, thus being classified as ecologically important and sensitive. Biodiversity may be sensitive to flow and habitat modifications. These watercourses have been impacted by current and past agriculture, and road infrastructure. The habitat and species richness are ecologically significant. During high rainfall events, the river can provide some stormwater management, erosion control, flood

attenuation and does provide a breeding and feeding ground to various faunal species.

The proposed prospecting works are planned within delineated rivers and a wetland. Buffer/regulated areas around the watercourses have been recommended based on Buffer Zone Guidelines for Wetlands, Rivers, and Estuaries. A general 17 m buffer around the rivers and 15 m around depression wetland has been recommended to mostly reduce the risk of sediment loading and erosion.



Figure 20: Watercourses on the prospecting right area with their respective buffers (red line).

The specific drilling sites are expected to be within 500m and 100m of the rivers and a wetland. However, the rivers area expected to be overall impacted by grazing, downstream mining activities and the development of a road . The PES and EIS of the rivers and wetland is concluded to be B.

In terms of conservation significance, the rivers included in the Ecological Support Areas as a whole are expected to contribute to the Ecological Support area functioning and objectives. The wetland and rivers are likely to inhabit various aquatic fauna and flora, provide ecosystem services and has good levels of ecosystem functioning. Therefore, the rivers and wetland are still necessary for some species to be maintained and efforts to improve the condition of the rivers should be invested in.

Taking into consideration the expected sensitivity of the footprint, sensitive features identified by the Screening Tool, the results from the expected baseline biodiversity and ecosystem of the site, it can be concluded that the development footprint is of low sensitivity for the Aquatic Biodiversity Theme, given that the drilling sites will avoid the watercourses and their respective buffers. Should the drilling sites be developed in the watercourses or within the buffers, the sensitivity rating will be increased to medium-high.

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 prospecting activities does not require the removal of any large trees or vegetation of significance. The proposed prospecting area does indeed fall within a CBA and ONA, 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. The Applicant will make use of the existing access roads. 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.

According to the Terrestrial Impact Assessment (Appendix M1), the proposed development footprint is situated in- and is surrounded by a Critical Biodiversity Area (CBA), Other Natural Areas and Aquatic Ecological Support Areas, as shown in the figure below.



Figure 21: Sensitivity of the proposed prospecting footprint (image obtained from Appendix M1)

Most of the prospecting footprint is in good ecological condition and represents the indigenous vegetation types. These are likely to contribute to the overall ecological functioning of the area. These areas are also of conservation importance given that they are classified as a Critical Biodiverse Area/Other Natural Area. The Site Ecological Importance (SEI) of the footprint was evaluated as Medium for each of the habitat units. Therefore, impacts should be minimised, and restoration activities should follow disturbance. Development activities of medium impact acceptable followed by appropriate restoration activities.

In addition, some species of conservation were recorded in the prospecting footprint and the area is likely to provide habitat for those species (as identified by the DFFE Screening Tool) not observed during the site inspection. It must also be noted that various provincially protected species were recorded on the footprint (not identified by the Screening Tool). For the aforementioned species, a Plant Removal Permit must be applied for before they can be removed. It is recommended that search and rescue operations be conducted prior to construction to ensure that all SCC's are properly translocated to suitable

alternative habitats. Areas within the Critical Biodiverse Areas must be avoided as far as practically possible.

Recommended mitigation measures as per the Terrestrial Impact Assessment:

- A search and rescue operations must be conducted prior to commencement of the drilling during the flowering period (July-November) of herbs, succulents, and grasses. This will ensure that no provincially protected or threatened species have potentially been missed.
- Should any threatened species be located within the footprint, these must be translocated to a suitable location outside of the footprint.
- Translocation methodology and suitable areas must be detailed in a Translocation Method Statement compiled by an Environmental Compliance Officer. This method statement must be reviewed and signed-off by a Botanical Specialist.
- Should any protected or threatened species be removed from the footprint, a Plant Removal Permit must be obtained from Cape Nature prior to any being removed.
- An Ordinance Plant Removal Permit must be obtained for the removal of provincially protected species.
- No plants may be removed that have not been specifically earmarked as part of the demarcated footprint.
- Construction, movement of personnel and vehicles must be restricted to the development footprint.
- Should any areas be disturbed outside of the development footprint, these areas must be rehabilitated via a Rehabilitation Plan or Method Statement
- All laydown areas must be confined to already disturbed areas.
- All construction personnel must be subjected to awareness training to make the personnel aware of the mitigation measures as stipulated above.

SITE SPECIFIC 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 trained snake handler and 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 include surface sampling, auger drilling and air-core drilling over the 3970 ha area. Prior to moving to the next drill holes 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.

According to the Terrestrial Impact Assessment (Appendix M1), no animal species of conservation concern were recorded on the development footprint. However common, non-threatened species are likely to inhabit the footprint and immediate surrounds. Given that area surrounding the development footprint is natural and mostly undisturbed, any faunal species that are found on the development footprint would be able to find refuge outside of the footprint. 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.

As per the Avifauna Impact Assessment (AIA) (Appendix M5), the total number of individual species accounts for approximately 34.3% of the total number of expected species Eight SCC was recorded within the PAOI during the survey period *Phalacrocorax capensis* (Cape Cormorant), *Phoenicopterus roseus* (Greater Flamingo), *Sagittarius serpentarius* (Secretarybird), *Afrotis afra* (Southern Black Korhaan), *Neotis ludwigii* (Ludwig's Bustard), *Ardeotis kori* (Kori Bustard), *Geocolaptes olivaceus* (Ground Woodpecker), *Polemaetus bellicosus* (Martial Eagle) and they were recorded 46 times during the surveying period.

The SEI of the proposed PAOI was found to be Very High. However, the overall residual impacts expected for the prospecting activities is low. Management measures include ensuring the prospecting footprints are minimised and restored after prospecting. Considering the provided information in the AIA, the specialist believes the project may be favourably considered on condition that all the mitigation and recommendations provided in this report and other specialist reports are implemented.

Recommended mitigation measures as per the Terrestrial Impact Assessment:

- No animals may be hunted, trapped, or captured.
- 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.
- Vehicles should be restricted to a clearly demarcated area and drivers should be vigilant.
- A speed limit of 20km per hour should apply to the roads on site to reduce the chance of road fatalities.
- Avoidance of all vegetated systems in the surrounding area.
- Drilling should be done in stages to avoid significant impact on fauna species.
- All personnel should attend an environmental induction which includes awareness raising around the illegal collection of fauna and flora.
- Loud signing is prohibited.
- All machinery must be fitted with noise silencers.
- Emergency numbers for all animal related incidents must be clearly displayed in the offices.
- The Environmental Officer must be a trained snake handler.
- No feeding of any fauna is allowed.
- All laydown areas must be confined to already disturbed areas.
- Should any protected species need to be translocated, a permit must be obtained from the relevant authority.

SITE SPECIFIC CULTURAL, HERITAGE AND PALAEOLOGICAL ENVIRONMENT

As mentioned earlier, the area has a low heritage impact but has a high palaeontology sensitivity which only requires a desktop study. However, the Applicant will implement a chance-find protocol on site for the duration of the planning and surface sampling, operational- and decommissioning phase.

According to the Palaeontological Impact Assessment (Appendix M) and Heritage Impact Assessment (Appendix M7), there are no known outcrops of sensitive fossiliferous strata in the Project Area that require protection as NO-GO sites, such as spots where fossil bones occur in obvious abundance, and

which are not marked as an archaeological site. The palaeontological resources are predominantly subsurface and consequently considerations of fossil potential do not result in preferred sites and the particular locations of surface sampling and drilling do not affect this assessment.

It is recommended that a requirement to be alert for fossil materials and archaeological material uncovered during the shallow pitting, or brought up by drilling, be included in the Environmental Management Programme (EMPr) for the proposed prospecting operations. Under supervision of the Environmental Control Officer (ECO) and as part of Environmental and Health & Safety awareness training, 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 provided below, for incorporation into the Environmental Management Programme for the proposed prospecting, must be followed. Due to the scarcity of fossil bones in the affected formations it is important that such ephemeral opportunities to rescue fossil bones must not be overlooked. Although the palaeontological impact of the auger and air-core drilling is minimal due to the small volumes affected, it is proposed that a degree of mitigation is feasible and could have a positive benefit for the geological interpretation of the stratigraphy of the deposits. The accomplishment of this proposed mitigation requires the participation of the geologists supervising the drilling sampling and the personnel carrying out the subsequent processing of the samples. Larger-size fossils, such as shells and smaller bones, may be noticed in the field when material is extracted from the boreholes for sampling and must be retained along with the contextual information (borehole no., location, depth in hole). Subsequently, the laboratory analysis of the borehole samples initially entails sieving in order to separate coarse material, such as pebbles and small fossils, from the sand fractions containing the heavy minerals. 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, recording the details of the sample such as its borehole number, depth and the lithology of the material, with such included in the borehole log. 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.

Organic-rich, dark, peaty layers intersected in boreholes which may contain fossil pollens and plant remains are particularly important, irrespective of which formation in which they may occur. Samples of such material, which lacking heavy minerals is not of economic interest, must be collected, along with the relevant details of the contexts. The possible availability of such material from southern Africa is of international scientific interest and is a standing request from the fossil pollen specialists.

These mitigation measures are deemed adequate for the prospecting sampling and drilling operation. The proposed mitigation actions for the prospecting programme are relatively easily accomplished and their implementation will result in a positive impact for palaeontology arising from the proposed prospecting operation.

FOSSIL FINDS PROCEDURE

Fossil bones in excavations

Should fossil bones and teeth be encountered in the shallow prospecting pits, work must cease at the site and the works foreman and the ECO for the project must be informed immediately. Scattered, unearthed parts/fragments of the find must be retrieved and returned to the main find site

which must be protected from further disturbance. It should be possible to continue with the sampling at other sites.

Fossil bones which may be noticed in old excavations must also be protected from possible loss and be reported. HWC and/or an appropriate specialist palaeontologist must be informed and supplied with contextual information:

- A description of the nature of the find.
- Detailed images of the finds (with scale included).
- Position of the find and depth.
- Digital images of the context. i.e. the excavation (with scales).

HWC and an appropriate specialist palaeontologist will assess the information and liaise with the ECO, the environmental consultants and the developer and a suitable response will be established.

Fossils from borehole samples

The geologists and laboratory personnel must retain small fossil material (teeth, bones, shell) sieved from the samples and liaise with a palaeontologist for identification and possible stratigraphic significance.

All fossils deemed important must be deposited in an appropriate, approved curatorial institution.

(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

Air quality and emissions as a result of planning and 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: Medium			Site Layout Alternative 1			Degree of Mitigation: None					
1	1	1	1	1	4	2.5	2.5				

Visual intrusion as a result of planning and surface sampling phase

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

Potential hydrocarbon contamination from leaks or spills leeching into the water table

			Consequence			Likelihood	Significance				
Severity	Duration	Extent		Probability	Frequency		Low	Low-Medium	Medium	Medium-High	High
2	4	1	2.3	2	2	2	4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low			Site Layout Alternative 1			Degree of Mitigation: None					
2	4	1	2.3	2	2	2	4.6				

Potential impact on fauna within the footprint area

			Consequence			Likelihood	Significance				
Severity	Duration	Extent		Probability	Frequency		Low	Low-Medium	Medium	Medium-High	High
3	1	1	1.6	1	1	1.6	4.9	5 - 9.9	10 - 14.9	15 - 19.9	20 - 25
Rating: Low			Site Layout Alternative 1			Degree of Mitigation: None					
3	1	1	1.6	1	1	1.6	1.6				

Dust nuisance as a result of the result of planning and surface sampling phase

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

Noise nuisance as a result of the result of planning and surface sampling phase

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

Safety and security on properties due to trespassing of contractors / workers.

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

OPERATIONAL / DRILLING PHASE

Visual intrusion as a result of prospecting 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			Site Layout Alternative 1			Degree of Mitigation: None					
1	3	1	1.6	1	4	2.5	4.1				

Potential impact associated with littering and hydrocarbon spills

			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 Layout Alternative 1			Degree of Mitigation: None					
3	4	1	2.6	3	2	2	5.2				

Disturbance to fauna within the footprint 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: Medium			Site Layout Alternative 1			Degree of Mitigation: None					
5	1	2	2.6	5	5	5	13.3				

Loss of topsoil and fertility during prospecting 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: Medium			Site Layout Alternative 1			Degree of Mitigation: None					
3	4	1	2.6	3	2	2	5.2				

Disturbance to the avifauna community

			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			Site Layout Alternative 1			Degree of Mitigation: None					
5	1	2	2.6	5	5	5	13.3				

Loss of habitat within the footprint 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: Medium			Site Layout Alternative 1			Degree of Mitigation: None					
5	1	2	2.6	5	5	5	13.3				

Noise nuisance as a result of the prospecting 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 Layout Alternative 1			Degree of Mitigation: None					
3	4	1	2.6	4	5	4.5	12				

Dust nuisance as a result of the prospecting 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			Site Layout Alternative 1			Degree of Mitigation: None					
2	4	1	2.3	3	2	2.5	5.75				

Infestation of denuded areas with invader plant species

			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 Layout Alternative 1			Degree of Mitigation: None					

4	4	1	3	2	2	2	6
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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			Site Layout Alternative 1			Degree of Mitigation: None					
1	4	1	2	1	1	1	2				

Safety and security on properties due to trespassing of contractors / workers.

			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			Site Layout Alternative 1			Degree of Mitigation: None					
1	4	1	2	1	1	1	2				

Changing local fire regime from wildfires from alien species invasion

			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			Site Layout Alternative 1			Degree of Mitigation: None					
4	4	1	3	4	3	3.5	10.5				

Establishment and operations of the drilling may result in erosion on site and within 500m of wetlands and 100m of a river.

			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			Site Layout Alternative 1			Degree of Mitigation: None					
4	4	1	3	4	3	3.5	10.5				

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: Medium			Site Layout Alternative 1			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

Visual intrusion as a result of the 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			Site Layout Alternative 1			Degree of Mitigation: None					
2	1	1	1.3	1	4	2.5	3.25				

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 Medium			Site Layout Alternative 1			Degree of Mitigation: None					
3	5	1	3	2	2	2	6				

Infestation of denuded areas with invader plant species

			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 Layout Alternative 1			Degree of Mitigation: None					
2	5	1	2.6	2	2	2	5.2				

Noise nuisance as a result of the 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 Layout Alternative 1			Degree of Mitigation: None					
1	4	1	2	4	5	4.5	9				

Dust nuisance as a result of the 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			Site Layout Alternative 1			Degree of Mitigation: None					
1	4	1	2	2	2	2	4				

Potential impact associated with litter/hydrocarbon spills left at the 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 Layout Alternative 1			Degree of Mitigation: None					
3	4	1	2.6	3	2	2.5	6.5				

Disturbance to fauna within the footprint area during 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			Site Layout Alternative 1			Degree of Mitigation: None					
3	4	1	2.6	1	1	1	2.6				

Safety and security on properties due to trespassing of contractors / workers.

			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 Layout Alternative 1			Degree of Mitigation: None					
1	4	1	2	1	1	1	2				

Deterioration of the access road to the 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			Site Layout Alternative 1			Degree of Mitigation: None					
1	4	1	2	1	1	1	2				

Return of the prospecting area to landscape feature 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 Layout Alternative 1			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 13: 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 14: 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 15: 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 16: 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 17: 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 18: 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 19: 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 20: 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 21: 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.	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.

Significance	Low	Low-Medium	Medium	Medium-High	High
		Where possible improve			

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 relevant stakeholders depending on sensitivity and accessibility as per the specialists' input. 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 geological setting of the area is well known for heavy mineral concentrations and smaller deposits has been described in the area by the Council for Geoscience in Bulletin 25, by CB Coetzee, 1957.
- Availability of the mineral resource will only be determined should prospecting the prospecting right be granted and drilling can take place.

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

- Air quality and emissions as a result of planning and surface sampling phase,
- Visual intrusion as a result of planning and surface sampling phase;
- Potential hydrocarbon contamination from leaks or spills leeching into the water table;
- Potential impact on fauna within the footprint area;
- Dust nuisance as a result of the result of planning and surface sampling phase;
- Noise nuisance as a result of the result of planning and surface sampling phase;
- Safety and security on properties due to trespassing of contractors / workers;

OPERATIONAL PHASE (DRILLING)

- Visual intrusion as a result of prospecting activities;
- Potential impact associated with littering and hydrocarbon spills;
- Disturbance to fauna within the footprint area;
- Loss of topsoil and fertility during prospecting activities
- Disturbance to the avifauna community;
- Loss of habitat within the footprint area;
- Noise nuisance as a result of the prospecting activities;
- Dust nuisance as a result of the prospecting activities;
- Infestation of denuded areas with invader plant species;
- Deterioration of the access road to the prospecting area;
- Safety and security on properties due to trespassing of contractors / workers;
- Changing local fire regime from wildfires from alien species invasion;
- Establishment and operations of the drilling may result in erosion on site and within 500m of wetlands and 100m of a river.
- Potential impact on areas/infrastructure of heritage or cultural concern.

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

- Visual intrusion as a result of the decommissioning activities;
- Erosion after rehabilitation;
- Infestation of denuded areas with invader plant species
- Noise nuisance as a result of the decommissioning activities;
- Dust nuisance as a result of the decommissioning activities
- Potential impact associated with litter/hydrocarbon spills left at the decommissioning activities;
- Disturbance to fauna within the footprint area;
- Safety and security on properties due to trespassing of contractors / workers;
- Deterioration of the access road to 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 to a low-medium 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 and sloped to insure 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 being low 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 20 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.
- No prospecting from Sunrise until 09:00 and 16:00 and Sunset to minimise noise disturbance during their peak activity times. Allowing for vocalisation.
- Noise generated on-site from all the proposed activities must comply with the Western Cape Noise Control Regulations Provincial Notice 200/2013.

MINING AND BIODIVERSITY & GROUND COVER

Protection of sensitive areas

- Areas around the footprint that fall within a CBA or Other Natural Area must be adequately rehabilitated if exposed to any disturbance.
- Drilling should be done in stages to allow for rehabilitation measures to be implemented at disturbed sites.

- Areas within the Critical Biodiverse Areas must be avoided as far as practically possible.
- A search and rescue operations be conducted prior to commencement of the project during the spring (July-November) when most species in the vegetation will be in flower.

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 N) 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.
- 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.
- 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.
- Seashore areas must be declared No-go areas, they must be demarcated to ensure no vehicles or people move into these areas.
- All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limit (20 km/h), to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings and erosion is limited.
- The duration of the prospecting should be kept to a minimum to avoid disturbing avifauna, but also outside prime activity hours of avifauna.
- All areas to be developed must be walked through prior to any activity to ensure no nests or avifauna species are found in the area. Should any Species of Conservation Concern be found and not move out of the area, or their nest be found in the area a suitably qualified specialist must be consulted to advise on the correct actions to be taken.
- Implement an avifauna monitoring program during the prospecting. This is of utmost importance to implement this due to the very high sensitivity of the PAOI and will provide valuable information for any future prospecting activities in the areas. However, this should be conducted by an avifauna specialist.

HYDROLOGY

- Establish a 17 m buffers around the rivers and 15 m around the wetlands and consider this area as no-go area..
- Implement suitable erosion prevention measures during all phases.

- Soil erosion must be controlled as an ongoing management strategy throughout the various phases of the proposed development activities.
- Make use of surface erosion control measures within disturbed areas to avoid erosion in times of high risk (e.g. rain season and time of high wind speeds).
- Stormwater management should prevent excessive sediment to be carried into drainage channels and the natural environment.
- Removal of debris and other obstructing materials from the site must take place and erosion preventing structures must be constructed. This is done to prevent damming of water and increasing flooding danger.
- Disturbed areas, that will not form part of the footprint but which were disturbed as part of the construction activities, should be rehabilitated and re-vegetated using site-appropriate vegetation and/or seed mixes, to prevent gulley erosion.
- Sheet runoff from cleared areas needs to be curtailed.
- No materials of any kind are allowed to be stored in the stormwater channels.
- Areas around the proposed project footprint, must be adequately rehabilitated to prevent significant erosion.
- Avoid the use of concrete lined channels for storm water management as this can increase the speed of water. This in turn increases erosion potential that can cause erosion on site and in watercourse banks and increase siltation downstream. If concrete-lined channels are used; they should end in silt traps.
- Soil disturbance must be kept to a minimum within and around the footprints.
- The development footprint must remain as small as practically possible.
- All buffers as stated in Section 6.4 of the Aquatic Impact Assessment must be adhered to.
- All bare areas must be rehabilitated via a Revegetation Method Statement of the Aquatic Impact Assessment.

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:

- Regular vehicle maintenance, repairs and services may only take place at the off-site workshop and service area of the prospecting right holder, and none of the above may be allowed on site. When a breakdown occurs in on site, the

prospecting right holder must arrange for the removal of the machine, within 6 hours, to a recognised workshop where it can be mended.

- 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.
- If a diesel bowser is used on site, it must be equipped with a drip tray at all times. Drip trays must be used during each and every refuelling event. The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling.
- 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.
- 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.
- 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.
- All safe disposal certificates, including hazardous waste and waste from the chemical ablation facilities, should be retained for a minimum period of five years. Waste registers, as described in the Draft BAR and EMPr, must be made available for review upon request by any relevant authority.
- All machinery must be parked at the stockpile area with drip trays placed underneath stationary vehicles.

Management of Health and Safety Risks:

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

- Adequate ablation 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.
- Regular toolbox talks must be conducted by the designated safety officer.

ix) Motivation where no alternative sites were considered.

As mentioned previously, the prospecting area in which drilling sites can be moved to various positions in consultation with the relevant stakeholders depending on sensitivity and accessibility as per the specialists' input. 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 geological setting of the area is well known for heavy mineral concentrations and smaller deposits has been described in the area by the Council for Geoscience in Bulletin 25, by CB Coetzee, 1957.
- Availability of the mineral resource will only be determined should prospecting the prospecting right be granted and drilling can take place.

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. The following matters contributed to the identification of the preferred development footprint:

- 1. Topography** – The project area is flat to slightly undulating landscape of coastal peneplain. Vegetation is low species-rich shrubland dominated by a plethora of erect and creeping succulent shrubs (*Cephalophyllum*, *Didelta*, *Othonna*, *Ruschia*, *Tetragonia*, *Tripteris*, *Zygophyllum*) as well as nonsucculent shrubs (*Eriocephalus*, *Lebeckia*, *Pteronia*, *Salvia*). Annual mixed with perennial flora can present spectacular displays in wet years. The altitude varies between 8– 128 m.
- 2. Visual Characteristics** – The viewshed analysis showed that the visual impact of the proposed prospecting operation will be of low significance. The prospecting activities will include surface sampling, auger drilling and air core drilling which only be visible from the sea. 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 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 ambience of the receiving environment is expected to be of low significance.
- 4. Geology and Soil** – The project area is generally underlain by rocky coastal plain which is extensively blanketed by an unconsolidated Cenozoic sedimentary cover. The Cenozoic deposits extending northward from Elands Bay to Alexander Bay are classified as the West Coast Group. The bulk of the overlying sediments occurs as marine- aeolian couplets with lithologic successions that are increasingly more marine in proportion north of Doring Bay. Conversely, the aeolian component turns dominant south of Hondeklip Bay. Generally, the basal, shallow-marine deposits rest unconformably on four main wave-cut, raised terraces corresponding to late Miocene and Pliocene sea-level transgressive maxima around 90, 50, 30, and 10

m amsl (meters above mean sea level). Heavy minerals, however, are concentrated in both marine and aeolian sediments, particularly north of Doring Bay

5. **Hydrology** – The proposed site falls within the Olifants/ Doorn Water Management Area, in the F60E quaternary catchment area. According to the National Wetland Map 5 map as presented by CapeFarmMapper, a few wetlands lie on the border line of the proposed area. However, it should be noted that prospecting sites can be moved to various area depending on sensitivity and accessibility. It was confirmed during the specialist (Appendix M2) site inspection that a that depression wetland and non-perennial rivers were present on the prospecting right application area. The depression wetland and the perennial rivers have a Present Ecological State (PES) scores of B. The watercourses are largely natural with few modifications. A small change in natural habitats and biota may have taken place but the ecosystem functions are essentially unchanged. Factors that have contributed are changes in the catchment hydrology and land use that contributes the small changes in flow, and changes to the channel characteristics by the development of a roads. A general 17 m buffer around the rivers and 15 m around depression wetland has been recommended to mostly reduce the risk of sediment loading and erosion. The specific drilling sites are expected to be within 500m and 100m of the rivers and a wetland. However, the rivers area expected to be overall impacted by grazing, downstream mining activities and the development of a road. The PES and EIS of the rivers and wetland is concluded to be B. Taking into consideration the expected sensitivity of the footprint, sensitive features identified by the Screening Tool, the results from the expected baseline biodiversity and ecosystem of the site, it can be concluded that the development footprint is of low sensitivity for the Aquatic Biodiversity Theme, given that the drilling sites will avoid the watercourses and their respective buffers. Should the drilling sites be developed in the watercourses or within the buffers, the sensitivity rating will be increased too medium-high. 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. The proposed prosecting area does indeed fall within a CBA and ONA, 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 M1), some species of conservation were recorded in the prospecting footprint and the area is likely to provide habitat for those species (as identified by the DFFE Screening Tool) not observed during the site inspection. It must also be noted that various provincially protected species were recorded on the footprint (not identified by the Screening Tool). For the species mentioned in Appendix M1, a Plant Removal Permit must be applied for before they can be removed. It is recommended that search and rescue operations be conducted prior to construction to ensure that all SCC's are properly translocated to suitable alternative habitats. 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 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 trained snake handler and 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 include surface sampling, auger drilling and air-core drilling over the 3970 ha area. Prior to moving to the next drill holes 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. According to the Terrestrial Impact Assessment (Appendix M1), no animal species of conservation concern were recorded on the development footprint. However common, non-threatened species are likely to inhabit the footprint and immediate surrounds. Given that area surrounding the development footprint is natural and mostly undisturbed, any faunal species that are found on the development footprint would be able to find refuge outside of the footprint. 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. As per the Avifauna Impact Assessment (AIA) (Appendix M5), the total number of individual species accounts for approximately 34.3% of the total

number of expected species Eight SCC was recorded within the PAOI during the survey period *Phalacrocorax capensis* (Cape Cormorant), *Phoenicopterus roseus* (Greater Flamingo), *Sagittarius serpentarius* (Secretarybird), *Afrotis afra* (Southern Black Korhaan), *Neotis ludwigii* (Ludwig's Bustard), *Ardeotis kori* (Kori Bustard), *Geocolaptes olivaceus* (Ground Woodpecker), *Polemaetus bellicosus* (Martial Eagle) and they were recorded 46 times during the surveying period. The SEI of the proposed PAOI was found to be Very High. However, the overall residual impacts expected for the prospecting activities is low. Management measures include ensuring the prospecting footprints are minimised and restored after prospecting. Considering the provided information in the AIA, the specialist believes the project may be favourably considered on condition that all the mitigation and recommendations provided in this report and other specialist reports are implemented.

8. **Cultural, Heritage and Palaeontological Environment** - As per the screening report, the area has a low heritage impact but has a high 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 planning and surface sampling, operational- and decommissioning phase. According to the Palaeontological Impact Assessment (Appendix M) and Heritage Impact Assessment (Appendix M7), there are no known outcrops of sensitive fossiliferous strata in the Project Area that require protection as NO-GO sites, such as spots where fossil bones occur in obvious abundance, and which are not marked as an archaeological site. If the proposed mitigation measures and monitoring programs, as proposed in this document as well as the HIA & PIA, no fatal flaws could be identified that prevents the activity continuing.

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

Air quality and emissions as a result of planning and surface sampling 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			Site Layout Alternative 1			Degree of Mitigation: Full					
1	1	1	1	1	4	2.5	2.5				

Visual intrusion as a result of planning and surface sampling 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			Site Layout Alternative 1			Degree of Mitigation: Full					
1	1	1	1	2	4	3	3				

Potential hydrocarbon contamination from leaks or spills leeching into the water table

			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			Site Layout Alternative 1			Degree of Mitigation: Full					
2	4	1	2.3	2	2	2	4.6				

Potential impact on fauna within the footprint 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			Site Layout Alternative 1			Degree of Mitigation: Full					
3	1	1	1.6	1	1	1.6	1.6				

Dust nuisance as a result of the result of planning and surface sampling 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: M Low			Site Layout Alternative 1			Degree of Mitigation: Full					
1	1	1	1	1	5	3	3				

Noise nuisance as a result of the result of planning and surface sampling 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			Site Layout Alternative 1			Degree of Mitigation: Full					
1	1	1	1	1	5	3	3				

Safety and security on properties due to trespassing of contractors / workers.

			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			Site Layout Alternative 1			Degree of Mitigation: Full					
1	1	1	1	2	5	3.5	3.5				

OPERATIONAL / DRILLING PHASE

Visual intrusion as a result of prospecting 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			Site Layout Alternative 1			Degree of Mitigation: Full					
1	3	1	1.6	1	4	2.5	4.1				

Potential impact associated with littering and hydrocarbon spills

			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 Layout Alternative 1			Degree of Mitigation: Full					
2	4	1	2.3	3	1	2	4.6				

Disturbance to fauna within the footprint 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: Medium			Site Layout Alternative 1			Degree of Mitigation: Full					
3	1	2	2	3	5	4	8				

Loss of topsoil and fertility during prospecting 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: Medium			Site Layout Alternative 1			Degree of Mitigation: None					
3	4	1	2.6	1	2	1.5	3.9				

Disturbance to the avifauna community

			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 Layout Alternative 1			Degree of Mitigation: Full					
3	1	2	2	3	5	4	8				

Loss of habitat 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 Layout Alternative 1			Degree of Mitigation: Full					
3	1	2	2	3	5	4	8				

Noise nuisance as a result of the prospecting 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: Medium			Site Layout Alternative 1			Degree of Mitigation: Full					
3	1	2	2	3	5	4	8				

Dust nuisance as a result of the prospecting 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			Site Layout Alternative 1			Degree of Mitigation: Full					
1	4	1	2	2	2	2	4				

Infestation of denuded areas with invader plant species

			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 Layout Alternative 1			Degree of Mitigation: Full					
3	4	1	2.6	1	2	1.5	3.9				

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			Site Layout Alternative 1			Degree of Mitigation: Full					
1	4	1	2	1	1	1	2				

Safety and security on properties due to trespassing of contractors / workers.

			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			Site Layout Alternative 1			Degree of Mitigation: Full					
1	4	1	2	1	1	1	2				

Changing local fire regime from wildfires from alien species invasion

			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			Site Layout Alternative 1			Degree of Mitigation: Full					
4	4	1	3	2	2	2	6				

Establishment and operations of the drilling may result in erosion on site and within 500m of wetlands and 100m of a river.

			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			Site Layout Alternative 1			Degree of Mitigation: Full					
2	4	1	2.3	4	3	3.5	8.16				

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: Medium			Site Layout Alternative 1			Degree of Mitigation: Full					
3	4	1	2.6	1	2	1.5	3.9				

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

Visual intrusion as a result of the 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			Site Layout Alternative 1			Degree of Mitigation: Full					
2	1	1	1.3	1	4	2.5	3.25				

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 Medium			Site Layout Alternative 1			Degree of Mitigation: Full					
3	4	1	2.6	1	2	1.5	3.9				

Infestation of denuded areas with invader plant species

			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 Layout Alternative 1			Degree of Mitigation: Full					
3	4	1	2.6	1	2	1.5	3.9				

Noise nuisance as a result of the 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 Layout Alternative 1			Degree of Mitigation: Full					
1	4	1	2	2	2	2	4				

Dust nuisance as a result of the 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			Site Layout Alternative 1			Degree of Mitigation: Full					
1	4	1	2	2	2	2	4				

Potential impact associated with litter/hydrocarbon spills left at the 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 Layout Alternative 1			Degree of Mitigation: Full					

4	4	1	3	2	1	1.5	4.5
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Disturbance to fauna within the footprint area during 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			Site Layout Alternative 1			Degree of Mitigation: Full					
3	4	1	2.6	1	1	1	2.6				

Safety and security on properties due to trespassing of contractors / workers.

			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 Layout Alternative 1			Degree of Mitigation: Full					
1	4	1	2	1	1	1	2				

Deterioration of the access road to the 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			Site Layout Alternative 1			Degree of Mitigation: Full					
1	4	1	2	1	1	1	2				

Return of the prospecting area to landscape feature 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 Layout Alternative 1			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 22: 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 ■ Prospecting activities ■ 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 ■ Visual intrusion as a result of prospecting activities ■ Visual intrusion as a result of Closing of drill holes and landscaping upon closure of the prospecting area. 	The visual impact may affect the aesthetics of the landscape.	Planning and design, Operational and Decommissioning Phase	<ul style="list-style-type: none"> ■ Low ■ Low ■ Low 	<u>Control:</u> Implementing proper housekeeping.	<ul style="list-style-type: none"> ■ Low ■ Low ■ Low

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
<ul style="list-style-type: none"> ➤ Prospecting activities ➤ Closing of drill holes and landscaping upon closure of the prospecting area. 	<ul style="list-style-type: none"> ➤ Loss of topsoil and fertility during prospecting activities ➤ Erosion after rehabilitation 	Loss of topsoil will affect the rehabilitation success upon closure of the prospecting area.	Operational and Decommissioning Phase	<ul style="list-style-type: none"> ➤ Low-Medium ➤ Low-Medium 	<u>Control & Remedy:</u> Proper housekeeping.	<ul style="list-style-type: none"> ➤ Low ➤ Low ➤
<ul style="list-style-type: none"> ➤ Prospecting activities ➤ Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> ➤ Infestation of denuded areas with invader plant species ➤ Infestation of denuded areas with invader plant species 	This will impact on the biodiversity of the receiving environment.	Operational and Decommissioning Phase	<ul style="list-style-type: none"> ➤ Low - Medium ➤ Low -Medium 	<u>Control:</u> Implementing good management practices.	<ul style="list-style-type: none"> ➤ Low ➤ Low
<ul style="list-style-type: none"> ➤ Planning and surface sampling phase ➤ Prospecting activities ➤ 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. ➤ Disturbance to fauna within the footprint area ➤ Disturbance to fauna within the footprint area during decommissioning activities ➤ Loss of habitat within the footprint area 	This will impact on the biodiversity of the receiving environment.	Planning and design, Operational and Decommissioning Phase	<ul style="list-style-type: none"> ➤ Low ➤ Medium ➤ Low ➤ Medium 	<u>Control & Stop:</u> Implementing good management practices.	<ul style="list-style-type: none"> ➤ Low ➤ Low - Medium ➤ Low ➤ Low-Medium
<ul style="list-style-type: none"> ➤ Planning and surface sampling phase ➤ Prospecting activities ➤ Closing of drill holes and landscaping upon closure of the prospecting area. 	<ul style="list-style-type: none"> ➤ Dust nuisance as a result of the planning and surface sampling phase. ➤ Dust nuisance as a result of the prospecting activities. 	Increased dust generation will impact on the air quality of the receiving environment.	Planning and design, Operational and Decommissioning Phase	<ul style="list-style-type: none"> ➤ Low ➤ Low - Medium ➤ Low 	<u>Control:</u> Dust suppression methods and proper housekeeping.	<ul style="list-style-type: none"> ➤ Low ➤ Low ➤ Low

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
	<ul style="list-style-type: none"> Dust nuisance as a result of the decommissioning activities 					
<ul style="list-style-type: none"> Planning and surface sampling phase Prospecting activities Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> Noise nuisance as a result of the result of planning and surface sampling phase Noise nuisance as a result of the prospecting activities. Noise nuisance as a result of the decommissioning activities. 	Should noise levels become excessive it may have an impact on the noise ambience of the receiving environment.	Planning and design, Operational and Decommissioning Phase	<ul style="list-style-type: none"> Low Low - Medium Low 	<u>Control:</u> Noise suppression methods and proper housekeeping.	<ul style="list-style-type: none"> Low Low Low
<ul style="list-style-type: none"> Planning and surface sampling phase Prospecting activities 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 leeching into the water table Potential impact associated with littering and hydrocarbon spills. Potential impact associated with litter left at the prospecting area. 	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 design, Operational and Decommissioning Phase	<ul style="list-style-type: none"> Low Low - 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 Low
<ul style="list-style-type: none"> Prospecting activities Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> Deterioration of the access road to the prospecting area. Deterioration of the access road to the decommissioning activities 	Collapse of the road infrastructure will affect the landowner.	Operational and Decommissioning Phase	<ul style="list-style-type: none"> Low Low 	<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 Low

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
<ul style="list-style-type: none"> ■ Planning and surface sampling phase ■ Prospecting activities ■ Closing of drill holes and landscaping upon closure of the prospecting area. 	<ul style="list-style-type: none"> ■ Safety and security on properties due to trespassing of contractors / workers. 	<p>Trespassing will negatively affect the landowner due to possible loss of fauna.</p>	<p>Planning and design, Operational and Decommissioning Phase</p>	<ul style="list-style-type: none"> ■ Low ■ Low ■ Low 	<p><u>Control:</u> Proper site management.</p>	<ul style="list-style-type: none"> ■ Low ■ Low ■ Low
<ul style="list-style-type: none"> ■ Prospecting activities 	<ul style="list-style-type: none"> ■ Potential impact on areas/infrastructure of heritage or cultural concern 	<p>This could impact on the cultural and heritage legacy of the receiving environment.</p>	<p>Operational /Drilling Phase</p>	<ul style="list-style-type: none"> ■ Low - Medium 	<p><u>Control & Stop:</u> Implementing good management practices</p>	<ul style="list-style-type: none"> ■ Low
<ul style="list-style-type: none"> ■ Prospecting activities 	<ul style="list-style-type: none"> ■ Changing local fire regime from wildfires from alien species invasion ■ Establishment and operations of the drilling may result in erosion on site and within 500m of wetlands and 100m of a river. 	<p>This will impact on the biodiversity of the receiving environment.</p>	<p>Operational /Drilling Phase</p>	<ul style="list-style-type: none"> ■ Medium ■ Medium 	<p><u>Control & Stop:</u> Implementing good management practices</p>	<ul style="list-style-type: none"> ■ Low - Medium ■ Low - Medium

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):

SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORISATION AS REQUIRED BY THE 2014 EIA REGULATIONS:


The report identified the following list of specialist assessment for inclusion in the assessment report:


- Agricultural Impact Assessment;
- Archaeological and Cultural Heritage Impact Assessment;
- Palaeontology Impact Assessment;
- Civil Aviation Assessment;
- Defence theme
- Terrestrial Biodiversity Impact Assessment;
- Aquatic Biodiversity Impact Assessment;
- Noise Impact Assessment;
- Radioactivity Impact Assessment;
- Plant Species Assessment;
- Animal Species Assessment.

Table 23: 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; ■ Animal Species Assessment. 			
<ul style="list-style-type: none"> ■ Agricultural Impact Assessment (AIA): <p>As per the Soil Impact Assessment (Appendix M3), two dominant soil forms, the more sensitive forms identified within the assessment area are the Clovelly and Tongwane soil forms. The baseline findings and land capability sensitivity concur with each other, in most areas indicating a “Low” to “Moderate” land</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>capability sensitivity. In some areas which were identified with a “Low” are characterized with soils with a good potential following the verified soil baseline findings. Overall, the area can be classified as “Medium” following the verified soil baseline on-site.</p> <p>Furthermore, the available climate also limits crop production significantly. The climatic conditions are associated with low annual precipitation and high evapotranspiration potential demands of the area, which might not be favourable for most cropping practices.</p> <p>There is no segregation of crop fields or land with a high land potential and capability identified within the proposed area. It is the specialist’s opinion that the proposed project will have limited impacts on the agricultural production ability of the land, and the proposed prospecting mining project may be favourably considered.</p> <p>■ Archaeological and Cultural Heritage Impact Assessment (HIA) & Paleontology Impact Assessment (PIA):</p> <p>The prospecting programme will consist of invasive prospecting activities which includes surface sampling, auger drilling and air core drilling. It was noted during the screening phase that the Palaeontology Theme of the area had a high sensitivity. As per the Palaeontological Impact Assessment (Appendix M4) There are no known outcrops of sensitive fossiliferous strata in the Project Area that require protection as NO-GO sites, such as spots where fossils occur in obvious abundance. The palaeontological resources are predominantly subsurface and consequently considerations of fossil potential do not result in preferred sites and the particular locations of surface sampling and drilling do not affect this assessment. If the mitigation measures and monitoring programmes proposed in the PIA be implemented, then no fatal flaws could be identified that prevents the activity continuing.</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) & Animal Species Assessment (ASA): </p> <p> According to the Terrestrial Impact Assessment (Appendix M1), no animal species of conservation concern were recorded on the development footprint. However common, non-threatened species are likely to inhabit the footprint and immediate surrounds. Given that area surrounding the development footprint is natural and mostly undisturbed, any faunal species that are found on the development footprint would be able to find refuge outside of the footprint. 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. </p> <p> As per the Avifauna Impact Assessment (AIA) (Appendix M5), the total number of individual species accounts for approximately 34.3% of the total number of expected species Eight SCC was recorded within the PAOI during the survey period <i>Phalacrocorax capensis</i> (Cape Cormorant), <i>Phoenicopterus roseus</i> (Greater Flamingo), <i>Sagittarius serpentarius</i> (Secretarybird), <i>Afrotis afra</i> (Southern Black Korhaan), <i>Neotis ludwigii</i> (Ludwig's Bustard), <i>Ardeotis kori</i> (Kori Bustard), <i>Geocolaptes olivaceus</i> (Ground Woodpecker), <i>Polemaetus bellicosus</i> (Martial Eagle) and they were recorded 46 times during the surveying period. </p> <p> The SEI of the proposed PAOI was found to be Very High. However, the overall residual impacts expected for the prospecting activities is low. Management measures include ensuring the prospecting footprints are minimised and restored after prospecting. Considering the provided information in the AIA, the specialist believes the project may be favourably considered on condition that all the mitigation and recommendations provided in this report and other specialist reports are implemented. </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>  Aquatic Biodiversity Impact Assessment (ABIA) & Hydrology Assessment (HA): </p> <p> The proposed site falls within the Olifants/ Doorn Water Management Area, in the E33G quaternary catchment area. According to the Aquatic Biodiversity Compliance Statement, it was confirmed during the site inspection that depression wetland and non-perennial rivers were present on the prospecting right application area. </p> <p> The depression wetland is considered natural with limited disturbance impacts. The wetland has a high clay content and due to heavy rainfall, little to no plants are found within the depression. With heavy rainfall, the depression will be saturated and is highly likely to function as a foraging ground and habitat for various fauna. This is also given the large natural and intact area around the depression which supports a high diversity plant species </p> <p> The non-perennial river supports a high abundance and diversity of large shrubs such as <i>Roepora morgsana</i>, <i>Caroxylon aphyllum</i>, <i>Osteospermum monstrosum</i>, and <i>Lycium cinereum</i>. These rivers are in good ecological condition and are likely to support a variety of ecosystem services such as foraging ground for fauna. Some of the identified non-perennial rivers are included in Ecological Support Areas (ESA). Given that the rivers are in good condition, these specific rivers are expected to contribute significantly to functioning of the ESA. The rivers have been subject to some disturbance, including the development of roads and downstream mining activities which is expected to affect the functioning of these rivers. Present Ecological State (PES) is a measure of aquatic ecosystem condition, compared to that of the system in its natural or “reference” condition. The depression wetland and the perennial rivers have PES scores of B. The watercourses are largely natural with few modifications. A small change in natural habitats and biota may have taken place but the ecosystem functions are essentially unchanged. Factors that have contributed are changes in the catchment hydrology and land use that contributes the small changes in flow, and changes to the channel characteristics by the development of a roads. </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>The wetland and the rivers can be classified as have an EIS category of B, thus being classified as ecologically important and sensitive. Biodiversity may be sensitive to flow and habitat modifications. These watercourses have been impacted by current and past agriculture, and road infrastructure. The habitat and species richness are ecologically significant. During high rainfall events, the river can provide some stormwater management, erosion control, flood attenuation and does provide a breeding and feeding ground to various faunal species.</p> <p>The proposed prospecting works are planned within delineated rivers and a wetland. Buffer/regulated areas around the watercourses have been recommended based on Buffer Zone Guidelines for Wetlands, Rivers, and Estuaries. A general 17 m buffer around the rivers and 15 m around depression wetland has been recommended to mostly reduce the risk of sediment loading and erosion.</p> <p>The specific drilling sites are expected to be within 500m and 100m of the rivers and a wetland. However, the rivers area expected to be overall impacted by grazing, downstream mining activities and the development of a road . The PES and EIS of the rivers and wetland is concluded to be B.</p> <p>In terms of conservation significance, the rivers included in the Ecological Support Areas as a whole are expected to contribute to the Ecological Support area functioning and objectives. The wetland and rivers are likely to inhabit various aquatic fauna and flora, provide ecosystem services and has good levels of ecosystem functioning. Therefore, the rivers and wetland are still necessary for some species to be maintained and efforts to improve the condition of the rivers should be invested in.</p> <p>Taking into consideration the expected sensitivity of the footprint, sensitive features identified by the Screening Tool, the results from the expected baseline biodiversity and ecosystem of the site, it can be concluded that the development footprint is of low sensitivity for the Aquatic Biodiversity Theme, given that the drilling sites will avoid the watercourses and their respective buffers. Should the drilling sites be developed in the watercourses or within the buffers,</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>the sensitivity rating will be increased to medium-high. 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> <p>■ Noise Impact Assessment (NIA):</p> <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> <li> <p>■ Radioactivity Impact Assessment</p> <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> <li> <p>■ Traffic Impact Assessment (TIA):</p> <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> <li> <p>■ Geotechnical Assessment:</p> <p>No reason for a geotechnical assessment could be identified as no permanent infrastructure will be established at the proposed prospecting area.</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>■ Socio-economic Assessment (SEA):</p> <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 that will be feasible. In light of this a SEA is not deemed applicable to this project.</p> <p>■ Plant Species Assessment:</p> <p>According to the Terrestrial Impact Assessment (Appendix M1), the proposed development footprint is situated in- and is surrounded by a Critical Biodiversity Area (CBA), Other Natural Areas and Aquatic Ecological Support Areas. Most of the prospecting footprint is in good ecological condition and represents the indigenous vegetation types. These are likely to contribute to the overall ecological functioning of the area. These areas are also of conservation importance given that they are classified as a Critical Biodiverse Area/Other Natural Area. The Site Ecological Importance (SEI) of the footprint was evaluated as Medium for each of the habitat units. Therefore, impacts should be minimised, and restoration activities should follow disturbance. Development activities of medium impact acceptable followed by appropriate restoration activities.</p> <p>In addition, some species of conservation were recorded in the prospecting footprint and the area is likely to provide habitat for those species (as identified by the DFFE Screening Tool) not observed during the site inspection. It must also be noted that various provincially protected species were recorded on the footprint (not identified by the Screening Tool). For the aforementioned species, a Plant Removal Permit must be applied for before they can be removed. It is recommended that search and rescue operations be conducted prior to construction to ensure that all SCC's are properly translocated to suitable alternative habitats.</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 Proposal

The proposed prospecting footprint applied for was approximately 3970 ha over Portion 1,2, 3 and the Remainder of the farm Klipvley Karoo Kop 153, West Coast District Municipality, Western Cape Province. The prospecting activities will involve the following invasive activities:

■ Surface Sampling

Where heavy mineral concentrations are noted on surface 25-liter surface samples will be collected manually with a shovel and plastic sampling bag for concentration and laboratory analysis to determine the type of minerals present and the tenor of mineralization. Each pit will be ~ 50cm x 50cm in size and dug to a maximum depth of 1m. Each sample locality will be backfilled and fully rehabilitated concurrently with sampling.

■ Auger Drilling.

Handheld engine operated auger drill. The auger is portable and will be walked to site from the closest track. Approximately 100 auger drill holes are anticipated to be drilled. The auger is in essence a corkscrew-type drill where the helical ridge raises the drilled material to the surface for sampling purposes. A total of 100 drill holes are planned for initially to be collected over an estimated 18-month period.

■ Evaluation Air core Drilling

Air-core drilling uses steel or tungsten blades to bore a hole into unconsolidated ground. The drill cuttings are removed by the injection of compressed air into the hole. This method of drilling is used to drill unconsolidated sands and soft sediments. Where possible, air-core drilling is preferred over RAB drilling as it provides a more representative sample. Air-core drilling is relatively inexpensive and is often used in first pass exploration drill programs. Air-core drilling is limited to depths of 50-60m.

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. Access to the proposed prospecting area will be via the R363, making use of the existing internal/haul roads to access the prospecting area.



Figure 22: Satellite view of the proposed prospecting footprint of Mineral Sands Resources (Pty) Ltd.

Topography

The project area is flat to slightly undulating landscape of coastal peneplain. Vegetation is low species-rich shrubland dominated by a plethora of erect and creeping succulent shrubs (*Cephalophyllum*, *Didelta*, *Othonna*, *Ruschia*, *Tetragonia*, *Tripteris*, *Zygophyllum*) as well as nonsucculent shrubs (*Eriocephalus*, *Lebeckia*, *Pteronia*, *Salvia*). Annual mixed with perennial flora can present spectacular displays in wet years. The altitude varies between 8– 128 m.

Visual Characteristics

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 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 ambience of the receiving environment is expected to be of low significance.

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 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 ambience of the receiving environment is expected to be of low significance.

Geology and Soil

According to Mucina & Rutherford (2012), the project area is generally underlain by rocky coastal plain which is extensively blanketed by an unconsolidated Cenozoic sedimentary cover. The Cenozoic deposits extending northward from Elands Bay to Alexander Bay are classified as the West Coast Group. The bulk of the overlying sediments occurs as marine- aeolian couplets with lithologic successions that are increasingly more marine in proportion north of Doring Bay. Conversely, the aeolian component turns dominant south of Hondeklip Bay. Generally, the basal, shallow-marine deposits rest unconformably on four main wave-cut, raised terraces corresponding to late Miocene and Pliocene sea-level transgressive maxima around 90, 50, 30, and 10 m amsl (meters above mean sea level). Heavy minerals, however, are concentrated in both marine and aeolian sediments, particularly north of Doring Bay.

As per the Soil Impact Assessment (Appendix M3), two dominant soil forms, the more sensitive forms identified within the assessment area are the Clovelly and Tongwane soil forms. The baseline findings and land capability sensitivity concur with each other, in most areas indicating a “Low” to “Moderate” land capability sensitivity. In some areas which were identified with a “Low” are characterized with soils with a good potential

following the verified soil baseline findings. Overall, the area can be classified as “Medium” following the verified soil baseline on-site.

Furthermore, the available climate also limits crop production significantly. The climatic conditions are associated with low annual precipitation and high evapotranspiration potential demands of the area, which might not be favourable for most cropping practices.

There is no segregation of crop fields or land with a high land potential and capability identified within the proposed area. It is the specialist’s opinion that the proposed project will have limited impacts on the agricultural production ability of the land, and the proposed prospecting mining project may be favourably considered.

Palaeontology

It was noted during the screening phase that the Palaeontology Theme of the area had a high sensitivity. As per the Palaeontological Impact Assessment (Appendix M4) There are no known outcrops of sensitive fossiliferous strata in the Project Area that require protection as NO-GO sites, such as spots where fossils occur in obvious abundance. The palaeontological resources are predominantly subsurface and consequently considerations of fossil potential do not result in preferred sites and the particular locations of surface sampling and drilling do not affect this assessment. If the mitigation measures and monitoring programmes proposed in the PIA be implemented, then no fatal flaws could be identified that prevents the activity continuing.

Hydrology

The proposed site falls within the Olifants/ Doorn Water Management Area, in the F60E quaternary catchment area. According to the National Wetland Map 5 map as presented by CapeFarmMapper, a few wetlands lie on the border line of the proposed area. However, it should be noted that prospecting sites can be moved to various area depending on sensitivity and accessibility.

It was confirmed during the specialist (Appendix M2) site inspection that a that depression wetland and non-perennial rivers were present on the prospecting right application area. The depression wetland and the perennial rivers have a Present Ecological State (PES) scores of B. The watercourses are largely natural with few modifications. A small change in natural habitats and biota may have taken place but

the ecosystem functions are essentially unchanged. Factors that have contributed are changes in the catchment hydrology and land use that contributes the small changes in flow, and changes to the channel characteristics by the development of a roads.

A general 17 m buffer around the rivers and 15 m around depression wetland has been recommended to mostly reduce the risk of sediment loading and erosion. The specific drilling sites are expected to be within 500m and 100m of the rivers and a wetland. However, the rivers area expected to be overall impacted by grazing, downstream mining activities and the development of a road . The PES and EIS of the rivers and wetland is concluded to be B.

Taking into consideration the expected sensitivity of the footprint, sensitive features identified by the Screening Tool, the results from the expected baseline biodiversity and ecosystem of the site, it can be concluded that the development footprint is of low sensitivity for the Aquatic Biodiversity Theme, given that the drilling sites will avoid the watercourses and their respective buffers. Should the drilling sites be developed in the watercourses or within the buffers, the sensitivity rating will be increased to medium-high.

Mining, Biodiversity and Groundcover

The prospecting activities does not require the removal of any large trees or vegetation of significance. The proposed prosecting area does indeed fall within a CBA and ONA, 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 M1), some species of conservation were recorded in the prospecting footprint and the area is likely to provide habitat for those species (as identified by the DFFE Screening Tool) not observed during the site inspection. It must also be noted that various provincially protected species were recorded on the footprint (not identified by the Screening Tool). For the species mentioned in Appendix M1, a Plant Removal Permit must be applied for before they can be removed. It is recommended that search and rescue operations be conducted prior to construction to ensure that all SCC's are properly translocated to suitable alternative habitats.

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 trained snake handler and 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 include surface sampling, auger drilling and air-core drilling over the 3970-ha area. Prior to moving to the next drill holes 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.

According to the Terrestrial Impact Assessment (Appendix M1), no animal species of conservation concern were recorded on the development footprint. However common, non-threatened species are likely to inhabit the footprint and immediate surrounds. Given that area surrounding the development footprint is natural and mostly undisturbed, any faunal species that are found on the development footprint would be able to find refuge outside of the footprint. 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.

As per the Avifauna Impact Assessment (AIA) (Appendix M5), the total number of individual species accounts for approximately 34.3% of the total number of expected species Eight SCC was recorded within the PAOI during the survey period *Phalacrocorax capensis* (Cape Cormorant), *Phoenicopterus roseus* (Greater Flamingo), *Sagittarius serpentarius* (Secretarybird), *Afrotis afra* (Southern Black Korhaan), *Neotis ludwigii* (Ludwig's Bustard), *Ardeotis kori* (Kori Bustard), *Geocolaptes olivaceus* (Ground Woodpecker), *Polemaetus bellicosus* (Martial Eagle) and they were recorded 46 times during the surveying period.

The SEI of the proposed PAOI was found to be Very High. However, the overall residual impacts expected for the prospecting activities is low. Management measures include ensuring the prospecting footprints are minimised and restored after prospecting. Considering the provided information in the AIA, the specialist believes the project may be favourably considered on condition that all the mitigation and recommendations provided in this report and other specialist reports are implemented.

Cultural, Heritage and Palaeontological Environment

As per the screening report, the area has a low heritage impact but has a high 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 planning and surface sampling, operational- and decommissioning phase. According to the Palaeontological Impact Assessment (Appendix M) and Heritage Impact Assessment (Appendix M7), there are no known outcrops of sensitive fossiliferous strata in the Project Area that require protection as NO-GO sites, such as spots where fossil bones occur in obvious abundance, and which are not marked as an archaeological site. If the proposed mitigation measures and monitoring programs, as proposed in this document as well as the HIA & PIA, no fatal flaws could be identified that prevents the activity continuing.

ii) 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.

See the map indicating site activities attached as Appendix C.

iii) 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 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

- Air quality and emissions as a result of planning and surface sampling phase,
- Visual intrusion as a result of planning and surface sampling phase;
- Potential hydrocarbon contamination from leaks or spills leeching into the water table;
- Potential impact on fauna within the footprint area;
- Dust nuisance as a result of the result of planning and surface sampling phase;
- Noise nuisance as a result of the result of planning and surface sampling phase;

- Safety and security on properties due to trespassing of contractors / workers;

OPERATIONAL PHASE (DRILLING)

- Visual intrusion as a result of prospecting activities;
- Potential impact associated with littering and hydrocarbon spills;
- Disturbance to fauna within the footprint area;
- Loss of topsoil and fertility during prospecting activities
- Disturbance to the avifauna community;
- Loss of habitat within the footprint area;
- Noise nuisance as a result of the prospecting activities;
- Dust nuisance as a result of the prospecting activities;
- Loss of topsoil a result of the prospecting activities;
- Infestation of denuded areas with invader plant species;
- Deterioration of the access road to the prospecting area;
- Safety and security on properties due to trespassing of contractors / workers;
- Changing local fire regime from wildfires from alien species invasion;
- Establishment and operations of the drilling may result in erosion on site and within 500m of wetlands and 100m of a river.
- Potential impact on areas/infrastructure of heritage or cultural concern.

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

- Visual intrusion as a result of the decommissioning activities;
- Erosion after rehabilitation;
- Infestation of denuded areas with invader plant species
- Noise nuisance as a result of the decommissioning activities;
- Dust nuisance as a result of the decommissioning activities
- Potential impact associated with litter/hydrocarbon spills left at the decommissioning activities;
- Disturbance to fauna within the footprint area;
- Safety and security on properties due to trespassing of contractors / workers;
- Deterioration of the access road to the decommissioning activities.

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

- Disturbance to fauna within the footprint area during the operational phase
Low-Medium
- Changing local fire regime from wildfires from alien species invasion **Low-Medium**
- Establishment and operations of the drilling may result in erosion on site and within 500m of wetlands and 100m of a river **Low-Medium**

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 24: 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 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"> ➤ 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 20 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. ■ No prospecting from Sunrise until 09:00 and 16:00 and Sunset to minimise noise disturbance during their peak activity times. Allowing for vocalisation. ■ Noise generated on-site from all the proposed activities must comply with the Western 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 mitigation measures</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>As mentioned earlier, the applicant will not remove any topsoil due to the fast mobility of the drill rig and approximately 2 - 3 boreholes are planned to be operated per day. 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. 	<ul style="list-style-type: none"> ■ Adequate fertile topsoil is available to rehabilitate the mined area upon closure.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		<ul style="list-style-type: none"> ➤ 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 (if applicable) 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. ➤ 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 small-scale mining as developed by DWS. ➤ Establish a 17 m buffers around the rivers and 15 m around the wetlands and consider this area as no-go area. ➤ Implement suitable erosion prevention measures during all phases. ➤ Soil erosion must be controlled as an ongoing management strategy throughout the various phases of the proposed development activities. 	<ul style="list-style-type: none"> ➤ Impact to the environment caused by storm water discharge is avoided.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		<ul style="list-style-type: none"> ■ Make use of surface erosion control measures within disturbed areas to avoid erosion in times of high risk (e.g. rain season and time of high wind speeds). ■ Stormwater management should prevent excessive sediment to be carried into drainage channels and the natural environment. ■ Removal of debris and other obstructing materials from the site must take place and erosion preventing structures must be constructed. This is done to prevent damming of water and increasing flooding danger. ■ Disturbed areas, that will not form part of the footprint but which were disturbed as part of the construction activities, should be rehabilitated and re-vegetated using site-appropriate vegetation and/or seed mixes, to prevent gulley erosion. ■ Sheet runoff from cleared areas needs to be curtailed. ■ No materials of any kind are allowed to be stored in the stormwater channels. ■ Areas around the proposed project footprint, must be adequately rehabilitated to prevent significant erosion. ■ Avoid the use of concrete lined channels for storm water management as this can increase the speed of water. This in turn increases erosion potential that can cause erosion on site and in watercourse banks and increase siltation downstream. If concrete-lined channels are used; they should end in silt traps. ■ Soil disturbance must be kept to a minimum within and around the footprints. ■ The development footprint must remain as small as practically possible. ■ All buffers as stated in Section 6.4 of the Aquatic Impact Assessment must be adhered to. ■ All bare areas must be rehabilitated via a Revegetation Method Statement of the Aquatic Impact Assessment. ■ Vehicles must use already developed roads as far as possible. 	

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		<ul style="list-style-type: none"> ■ Dust control mechanisms must be implemented during the construction phase. ■ All stockpiles must be stored outside of wetland buffers. ■ Stockpiles must be covered in periods high wind and rain. 	
<p>GROUND COVER</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 to control all invasive plant species on site in terms of NEM:BA, 2004 and CARA, 1983. ■ Keep all stockpiles (topsoil) if any 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. ■ Areas around the footprint that fall within a CBA or Other Natural Area must be adequately rehabilitated if exposed to any disturbance. ■ Drilling should be done in stages to allow for rehabilitation measures to be implemented at disturbed sites. ■ Areas within the Critical Biodiverse Areas must be avoided as far as practically possible. ■ A search and rescue operations be conducted prior to commencement of the project during the spring (July-November) when most species in the vegetation will be in flower. ■ Should any threatened species be located within the footprint, these must be translocated to a suitable location outside of the footprint. o Translocation methodology and suitable areas must be detailed in a Translocation Method Statement compiled by an Environmental Compliance Officer. This method statement must be reviewed and signed-off by a Botanical Specialist. 	<ul style="list-style-type: none"> ■ Prospecting area is kept free of invasive plant species.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		<ul style="list-style-type: none"> ■ Should any protected or threatened species be removed from the footprint, a Plant Removal Permit must be obtained from Cape Nature prior to any being removed. ■ An Ordinance Plant Removal Permit must be obtained for the removal of provincially protected species. ■ No plants may be removed that have not been specifically earmarked as part of the demarcated footprint. ■ 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. 	
<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. ■ 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. ■ Seashore areas must be declared No-go areas, they must be demarcated to ensure no vehicles or people move into these areas. ■ All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limit (20 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.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		<ul style="list-style-type: none"> ■ The duration of the prospecting should be kept to a minimum to avoid disturbing avifauna, but also outside prime activity hours of avifauna ■ No prospecting from Sunrise until 09:00 and 16:00 and Sunset to minimise noise disturbance during their peak activity times. Allowing for vocalisation ■ All areas to be developed must be walked through prior to any activity to ensure no nests or avifauna species are found in the area. Should any Species of Conservation Concern be found and not move out of the area, or their nest be found in the area a suitably qualified specialist must be consulted to advise on the correct actions to be taken. ■ Implement an avifauna monitoring program during the prospecting. This is of utmost importance to implement this due to the very high sensitivity of the PAOI and will provide valuable information for any future prospecting activities in the areas. However, this should be conducted by an avifauna specialist. 	
<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. ■ 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 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. ▪ Outcrops of sensitive fossiliferous strata in the Project Area that require protection as NO-GO sites. 	<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"> ▪ 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, as described in this document. ▪ 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. ▪ Geologists' supervision is required during the drilling sampling and the personnel carrying out the subsequent processing of the samples. ▪ 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. 	
<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"> ➤ Restrict vehicular movement to the existing access road to prevent crisscrossing of tracks through undisturbed areas. ➤ 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>	<ul style="list-style-type: none"> ➤ Ensure regular vehicle maintenance, repairs and services takes place at the off-site workshop and service area of the right holder, and that none of the above is allowed in the on the farms. When a breakdown occurs in the prospecting 	<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
	Compliance to be monitored by the Environmental Control Officer.	<p>area, arrange for the removal of the machine within 6 hours to a recognised workshop where it can be mended.</p> <ul style="list-style-type: none"> ■ Proper toilet facilities must be available during constructional. Chemical toilets must be provided which should always be well serviced and spaced as per occupational health and safety laws and placed outside the 1:100 year flood lines. ■ 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. ■ 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. 	

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		<ul style="list-style-type: none"> ■ 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. ■ All safe disposal certificates, including hazardous waste and waste from the chemical ablution facilities, should be retained for a minimum period of five years. Waste registers, as described in the Draft BAR and EMPr, must be made available for review upon request by any relevant authority. ■ 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. ■ 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, auger drilling and air-core drilling over the 3970 ha area. The calculation of the quantum for financial provision was according to Section B of the working manual. The calculation was based on the total number of areas that will be open (250 holes of 50m² each = 1.25ha), 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 58,186.83**.

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).

Mineral Sands Resources (Pty) 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 attached as Appendix H to this report.

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 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 adjacent property. The distance of the proposed prospecting area from residential infrastructure further lessens the potential noise impact.

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

The proposed labour component of the activity will be six 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.

(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).

The prospecting programme will consist of invasive prospecting activities which includes surface sampling, auger drilling and air core drilling. The project is expected to have a negligible impact in this regard as prospecting activities will include surface sampling, auger drilling and air-core drilling over the 3970 ha area of Portion 1,2, 3 and the Remainder of the farm Klipvley Karoo Kop 153, West Coast District Municipality, Western Cape Province.

Prior to moving to the next drill holes 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 Land access and site visit will be communicated prior to commencement of activities. Access to the proposed prospecting area will be via the R363, making use of the existing internal/haul roads to access the prospecting area.

Heritage Western Cape will be contacted for their perusal and commenting. Should artefacts archaeological items be observed during the prospecting activities, then all activity should cease immediately, the area marked off activity and a specialists consulted prior to any further activity. This also includes if any graves are observed on site during activity progress then all activity should have ceased and the area demarcated as a no-go zone.

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 (Preferred and Only Site Alternative going forward):

Site Alternative 1, which entails the prospecting area with a footprint of approximately 3970 ha over Portion 1,2, 3 and the Remainder of the farm Klipvley Karoo Kop 153, West Coast District Municipality, Western Cape Province (hereafter referred to as the application property) and will involve invasive prospecting activities which includes surface sampling, auger drilling and air core drilling.

Prospecting sites can be moved to various area depending on sensitivity and accessibility. However, the proposed prospecting area was identified as the preferred and only viable site alternative. S1 was identified during the assessment phase of the environmental impact assessment, by the Applicant and project team due to the following:

- The area being well known for its heavy mineral concentrations.
- Availability of all forms of mineral resource will only be determined should the prospecting right be granted and prospecting activities can take place.

Site Alternative 2 (Not viable and will not be further assessed and excluded from the application):

Site Alternative 2, which entails the prospecting area with a footprint of approximately 3970 ha over Portion 1,2, 3 and the Remainder of the farm Klipvley Karoo Kop 153, West Coast District Municipality, Western Cape Province. Prospecting will involve exploration within the prospecting area without excluding areas of sensitivity and accessibility. However, the proposed prospecting area was not found viable for the proposed prospecting as it was not found environmentally and practically suitable., S2 was not found viable to be assessed during the assessment phase of the environmental impact assessment by the Applicant and project team. Although the position of Site Alternative 2 will still allow the prospecting on the property, it is believed that the impact associated with this site alternative is of higher significance without the need or motivation justifying it.

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 mineral resource;

- The application, if approved, would allow the applicant to determine the available mineral resource 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. DRAFT 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 Sonette Smit of Greenmined Environmental that acts as EAP on this project has been included in Part A Section 1(a) as well as Appendix M 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 draft 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 draft 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.

The decommissioning activities will consist of the following:

- Removal of all prospecting equipment from site.
- Capping of all the boreholes with sand material from around the boreholes; and
- Landscaping of any/all compacted areas (if needed).
- Controlling the invasive plant species.

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

■ Rehabilitation of the Prospecting Area:

Upon closure of the prospecting activities the Applicant will remove the site office container and drilling machinery from the area. 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 (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.

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

No water will be required during this operation.

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.

iv) Impacts to be mitigated in their respective phases

Table 25: 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 phase	1.25 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 the mineral resource 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 / Site establishment 	Planning and surface sampling phase / Site establishment & Operational Phase	1.25 ha	<p><u>Visual Mitigation</u></p> <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. 	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 -, 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"> ■ The 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. 		
<ul style="list-style-type: none"> ■ Planning and surface sampling phase / Site establishment 	Planning and surface sampling phase / Site establishment phase	1.25 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. ■ The invasive plant species management plan attached as Appendix N must be implemented on site to control weeds and invasive plants on denuded areas, topsoil heaps and reinstated areas. ■ Establish a 17 m buffers around the rivers and 15 m around the wetlands and consider this area as no-go area. ■ Implement suitable erosion prevention measures during all phases. ■ Soil erosion must be controlled as an ongoing management strategy throughout the various phases of the proposed development activities. ■ Make use of surface erosion control measures within disturbed areas to avoid erosion in times of high risk (e.g. rain season and time of high wind speeds). 	Natural vegetated areas must be managed in accordance with the: <ul style="list-style-type: none"> ■ NEM:BA 2004 ■ Western Cape Biodiversity Plan 	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"> ■ Stormwater management should prevent excessive sediment to be carried into drainage channels and the natural environment. ■ Removal of debris and other obstructing materials from the site must take place and erosion preventing structures must be constructed. This is done to prevent damming of water and increasing flooding danger. ■ Disturbed areas, that will not form part of the footprint but which were disturbed as part of the construction activities, should be rehabilitated and re-vegetated using site-appropriate vegetation and/or seed mixes, to prevent gulley erosion. ■ Sheet runoff from cleared areas needs to be curtailed. ■ No materials of any kind are allowed to be stored in the stormwater channels. ■ Areas around the proposed project footprint, must be adequately rehabilitated to prevent significant erosion. ■ Avoid the use of concrete lined channels for storm water management as this can increase the speed of water. This in turn increases erosion potential that can cause erosion on site and in watercourse banks and increase siltation downstream. If concrete-lined channels are used; they should end in silt traps. ■ Soil disturbance must be kept to a minimum within and around the footprints. ■ The development footprint must remain as small as practically possible. 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<ul style="list-style-type: none"> ■ All buffers as stated in Section 6.4 must be adhered to. ■ All bare areas must be rehabilitated via a Revegetation Method Statement of the Aquatic Impact Assessment. ■ Vehicles must use already developed roads as far as possible. ■ Dust control mechanisms must be implemented during the construction phase. ■ All stockpiles must be stored outside of wetland buffers. ■ Stockpiles must be covered in periods high wind and rain. ■ A search and rescue operations be conducted prior to commencement of the project during the spring (July-November) when most species in the vegetation will be in flower. ■ Should any threatened species be located within the footprint, these must be translocated to a suitable location outside of the footprint. o Translocation methodology and suitable areas must be detailed in a Translocation Method Statement compiled by an Environmental Compliance Officer. This method statement must be reviewed and signed-off by a Botanical Specialist. ■ Should any protected or threatened species be removed from the footprint, a Plant Removal Permit must be obtained from Cape Nature prior to any being removed. ■ An Ordinance Plant Removal Permit must be obtained for the removal of provincially protected species. ■ No plants may be removed that have not been specifically earmarked as part of the demarcated footprint. ■ 		

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 / Site establishment. ■ Closing of drill holes and landscaping upon closure of the prospecting area 	<p>Planning and surface sampling phase / Site establishment - and Decommissioning phase</p>	<p>1.25 ha</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 and approximately 2 - 3 boreholes are planned to be operated per day. 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. ■ 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 (if applicable) to prevent erosion. 	<p>Topsoil must be managed in accordance with the:</p> <ul style="list-style-type: none"> ■ CARA, 1983 ■ NEM:BA, 2004 ■ MPRDA, 2008 	<p>Throughout the Planning and surface sampling phase / Site establishment -, operational, and decommissioning phase.</p>

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<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 / Site establishment. ■ Prospecting activities / drilling.. ■ Closing of drill holes and landscaping upon closure of the prospecting area 	<p>Planning and surface sampling phase / Site establishment -, Operational- and Decommissioning phase</p>	<p>1.25 ha</p>	<p><u>Management of Invader Plant Species:</u></p> <ul style="list-style-type: none"> ■ An invasive plant species management plan (Appendix N) 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 	<p>Invader plants must be managed in accordance with the:</p> <ul style="list-style-type: none"> ■ CARA, 1983 ■ NEM:BA 2004 ■ Invasive Plant Species Management Plan (Appendix N) 	<p>Throughout the Planning and surface sampling phase / site establishment -, operational, and decommissioning phase.</p>

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>on the rehabilitated areas. The following control methods can be used:</p> <ul style="list-style-type: none"> ▪ The plants can be uprooted, felled or cut off and can be destroyed completely. ▪ 		
<ul style="list-style-type: none"> ■ Planning and surface sampling phase / Site establishment. ■ Prospecting activities / drilling. 	<p>Planning and surface sampling phase / Site establishment - and Operational phase</p>	<p>1.25 ha</p>	<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. ■ 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. ■ Seashore areas must be declared No-go areas, they must be demarcated to ensure no vehicles or people move into these areas. ■ All construction and maintenance motor vehicle operators should undergo an environmental induction that includes 	<p>Fauna must be managed in accordance with the:</p> <ul style="list-style-type: none"> ■ NEM:BA 2004 	<p>Throughout the Planning and surface sampling phase / site establishment -, and operational phase.</p>

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>instruction on the need to comply with speed limit (20 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 duration of the prospecting should be kept to a minimum to avoid disturbing avifauna, but also outside prime activity hours of avifauna. ■ No prospecting from Sunrise until 09:00 and 16:00 and Sunset to minimise noise disturbance during their peak activity times. Allowing for vocalisation ■ All areas to be developed must be walked through prior to any activity to ensure no nests or avifauna species are found in the area. Should any Species of Conservation Concern be found and not move out of the area, or their nest be found in the area a suitably qualified specialist must be consulted to advise on the correct actions to be taken. ■ Implement an avifauna monitoring program during the prospecting. This is of utmost importance to implement this due to the very high sensitivity of the PAOI and will provide valuable information for any future prospecting activities in the areas. However, this should be conducted by an avifauna specialist. 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<ul style="list-style-type: none"> ■ Site establishment. ■ Prospecting activities / drilling. 	Site Establishment-, Operational Phase	1.25 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 20 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. ■ Loads must be flattened and covered to ensure that minimal spillage of material takes place during transportation, also preventing windblown dust. ■ 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>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 / 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"> ■ Site establishment. ■ Prospecting activities / drilling.. ■ Closing of drill holes and landscaping upon closure of the prospecting area 	Site Establishment-, Operational-, and Decommissioning Phase	1.25 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. ■ No prospecting from Sunrise until 09:00 and 16:00 and Sunset to minimise noise disturbance during their peak activity times. Allowing for vocalisation ■ 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 Western 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"> ■ Prospecting activities / drilling. ■ Closing of drill holes and landscaping upon closure of the prospecting area 	Site Establishment-, Operational-, and Decommissioning Phase	1.25 ha	<p><u>Waste Management:</u></p> <ul style="list-style-type: none"> ■ Regular vehicle maintenance, repairs and services may only take place at the off-site workshop and service area of the prospecting right holder, and none of the above may be allowed on the prospecting right area. When a breakdown occurs in the prospecting right area, the right holder must arrange for the removal of the machine, within 6 hours, to a recognised workshop where it can be mended. 	<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
			<ul style="list-style-type: none"> ■ 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. ■ If a diesel bowser is used on site, it must be equipped with a drip tray at all times. Drip trays must be used during each and every refuelling event. The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling. ■ 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. 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<ul style="list-style-type: none"> ■ 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 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: 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>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.</p>		
<ul style="list-style-type: none"> ■ Prospecting of the mineral resource. 	Operational Phase	1.25 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. ■ 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 excavated material. In the event of such discoveries the Fossil Finds Procedure. 	<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
			<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 / Site establishment. ■ Prospecting activities / drilling. ■ Closing of drill holes and landscaping upon closure of the prospecting area 	<p>Planning and surface sampling phase / Site establishment -, Operational-, and Decommissioning phase</p>	<p>2.8 ha</p>	<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). ■ Regular toolbox talks must be conducted by the designated safety officer 	<p>Health and safety aspects must be managed in accordance with the:</p> <ul style="list-style-type: none"> ■ MHSA, 1996 ■ OHSAS, 1993 ■ OHSAS, 18001 	<p>Throughout the Planning and surface sampling phase / site establishment -, operational and decommissioning phase.</p>

e) Impact Management Outcomes

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

Table 26: 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 / Site establishment phase	Control through management and monitoring.	Prospecting of all forms of Marble (Dimension Stone), Limestone, Dimension Stone (General) 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 ➤ Prospecting activities ➤ 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 ➤ Visual intrusion as a result of prospecting activities 	The visual impact may affect the aesthetics of the landscape.	Planning and design, Operational and Decommissioning Phase	<u>Control & Stop:</u> Implementing good management practices, as well as the chance-find protocol.	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"> ➤ Visual intrusion as a result of Closing of drill holes and landscaping upon closure of the prospecting area 				
<ul style="list-style-type: none"> ➤ Prospecting activities ➤ Closing of drill holes and landscaping upon closure of the prospecting area. 	<ul style="list-style-type: none"> ➤ Loss of topsoil and fertility during prospecting activities ➤ Erosion after rehabilitation 	<p>Loss of topsoil will affect the rehabilitation success upon closure of the prospecting area.</p>	<p>Operational and Decommissioning Phase</p>	<p><u>Control & Stop:</u> Implementing good management practices, as well as the chance-find protocol.</p>	<p>Topsoil must be managed in accordance with the:</p> <ul style="list-style-type: none"> ➤ CARA, 1983 ➤ NEM:BA, 2004 ➤ MPRDA, 2008
<ul style="list-style-type: none"> ➤ Prospecting activities ➤ Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> ➤ Infestation of denuded areas with invader plant species ➤ Infestation of denuded areas with invader plant species 	<p>This will impact on the biodiversity of the receiving environment.</p>	<p>Operational and Decommissioning Phase</p>	<p><u>Control & Stop:</u> Implementing good management practices, as well as the chance-find protocol.</p>	<p>Invader plants must be managed in accordance with the:</p> <ul style="list-style-type: none"> ➤ CARA, 1983 ➤ NEM:BA 2004 <p>Invasive Plant Species Management Plan (Appendix N)</p>
<ul style="list-style-type: none"> ➤ Planning and surface sampling phase ➤ Prospecting activities ➤ 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. ➤ Disturbance to fauna within the footprint area ➤ Disturbance to fauna within the footprint area during decommissioning activities 	<p>This will impact on the biodiversity of the receiving environment.</p>	<p>Planning and design, Operational and Decommissioning Phase</p>	<p><u>Control & Stop:</u> Implementing good management practices, as well as the chance-find protocol.</p>	<p>Fauna must be managed in accordance with the:</p> <ul style="list-style-type: none"> ➤ NEM:BA 2004 ➤ Western Cape Biodiversity Plan

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
	<ul style="list-style-type: none"> Loss of habitat within the footprint. 				
<ul style="list-style-type: none"> Planning and surface sampling phase Prospecting activities Closing of drill holes and landscaping upon closure of the prospecting area. 	<ul style="list-style-type: none"> Dust nuisance as a result of the planning and surface sampling phase. Dust nuisance as a result of the prospecting activities. Dust nuisance as a result of the decommissioning activities 	<p>Increased dust generation will impact on the air quality of the receiving environment.</p>	<p>Planning and design, Operational and Decommissioning Phase</p>	<p><u>Control & Stop:</u> Implementing good management practices, as well as the chance-find protocol.</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 <p>ASTM D1739 (SANS 1137:2012)</p>
<ul style="list-style-type: none"> Planning and surface sampling phase Prospecting activities Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> Noise nuisance as a result of the result of planning and surface sampling phase Noise nuisance as a result of the prospecting activities. Noise nuisance as a result of the decommissioning activities. 	<p>Should noise levels become excessive it may have an impact on the noise ambiance of the receiving environment.</p>	<p>Planning and design, Operational and Decommissioning Phase</p>	<p><u>Control & Stop:</u> Implementing good management practices, as well as the chance-find protocol.</p>	<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
<ul style="list-style-type: none"> Planning and surface sampling phase Prospecting activities 	<ul style="list-style-type: none"> Potential hydrocarbon contamination from leaks or spills 	<p>Contamination of the footprint area will negatively impact the soil, surface runoff and potentially the groundwater. It will</p>	<p>Planning and design, Operational and Decommissioning Phase</p>	<p><u>Control & Stop:</u> Implementing good management practices, as well as the chance-find protocol.</p>	<p>Prospecting related waste must be managed in accordance with the:</p> <ul style="list-style-type: none"> NWA, 1998 NEM:WA, 2008

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
<ul style="list-style-type: none"> ➤ Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> leeching into the water table ➤ Potential impact associated with littering and hydrocarbon spills. ➤ Potential impact associated with litter left at the prospecting area. 	<p>also incur additional costs to the prospecting right holder.</p>			<ul style="list-style-type: none"> ➤ 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 ➤ Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> ➤ Deterioration of the access road to the prospecting area. ➤ Deterioration of the access road to the decommissioning activities 	<p>Collapse of the road infrastructure will affect the landowner.</p>	<p>Operational and Decommissioning Phase</p>	<p><u>Control & Stop:</u> Implementing good management practices, as well as the chance-find protocol.</p>	<p>The access road must be managed in accordance with the:</p> <ul style="list-style-type: none"> ➤ NRTA, 1996
<ul style="list-style-type: none"> ➤ Planning and surface sampling phase ➤ Prospecting activities ➤ Closing of drill holes and landscaping upon closure of the prospecting area. 	<ul style="list-style-type: none"> ➤ Safety and security on properties due to trespassing of contractors / workers. 	<p>Trespassing will negatively affect the landowner due to possible loss of fauna.</p>	<p>Planning and design, Operational and Decommissioning Phase</p>	<p><u>Control & Stop:</u> Implementing good management practices, as well as the chance-find protocol.</p>	<p>Health and safety aspects must be managed in accordance with the:</p> <ul style="list-style-type: none"> ➤ MHSA, 1996 ➤ OHSA, 1993 <p>OHSAS, 18001</p>
<ul style="list-style-type: none"> ➤ Prospecting activities 	<ul style="list-style-type: none"> ➤ Potential impact on area/infrastructure of heritage or cultural concern. 	<p>This could impact on the cultural and heritage legacy of the receiving environment.</p>	<p>Operational Phase</p>	<p><u>Control & Stop:</u> Implementing good management practices, as well as the chance-find protocol.</p>	<p>Cultural/heritage aspects must be managed in accordance with the:</p> <p>NHRA, 1999</p>

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
<ul style="list-style-type: none"> ➤ Prospecting activities 	<ul style="list-style-type: none"> ➤ Changing local fire regime from wildfires from alien species invasion ➤ Establishment and operations of the drilling may result in erosion on site and within 500m of wetlands and 100m of a river. 	<p>This will impact on the biodiversity of the receiving environment.</p>	<p>Operational /Drilling Phase</p>	<p><u>Control & Stop:</u> Implementing good management practices, as well as the chance-find protocol.</p>	<p>Natural vegetated areas must be managed in accordance with the:</p> <ul style="list-style-type: none"> ➤ NEM:BA 2004 ➤ Western Cape Biodiversity Plan

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 27: 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 prospectin 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
<ul style="list-style-type: none"> ■ Planning and surface sampling phase ■ Prospecting activities ■ 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 ■ Visual intrusion as a result of prospecting activities 	<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 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. 	<p>Throughout the site establishment-, 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 ■ Invasive Plant Species Management Plan (Appendix N)

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
	<ul style="list-style-type: none"> Visual intrusion as a result of Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> Upon closure the stockpile area must be rehabilitated and levelled to remove the visual impact on the aesthetic value of the area. 		
<ul style="list-style-type: none"> Prospecting activities Closing of drill holes and landscaping upon closure of the prospecting area. 	<ul style="list-style-type: none"> Loss of topsoil and fertility during prospecting activities Erosion after rehabilitation 	<p>As mentioned earlier, the applicant will not remove any topsoil due to the fast mobility of the drill rig and approximately 2 - 3 boreholes are planned to be operated per day. 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:</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. 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 (if applicable) to prevent erosion. 	Throughout the operational and decommissioning phase.	<p>Topsoil & erosion must be managed in accordance with the:</p> <ul style="list-style-type: none"> MPRDA, 2008 NEM:BA 2004

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		<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"> ■ Prospecting activities ■ Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> ■ Infestation of denuded areas with invader plant species ■ Infestation of denuded areas with invader plant species 	<ul style="list-style-type: none"> ■ An invasive plant species management plan (Appendix N) 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 rehabilitated areas. The following control methods can be used: 	<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 ■ Invasive Plant Species Management Plan (Appendix N)

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		<ul style="list-style-type: none"> ■ The plants can be uprooted, felled or cut off and can be destroyed completely. ■ 		
<ul style="list-style-type: none"> ■ Planning and surface sampling phase ■ Prospecting activities ■ 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. ■ Disturbance to fauna within the footprint area ■ Disturbance to fauna within the footprint area during decommissioning activities ■ Loss of habitat within the footprint. 	<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. ■ 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. ■ Seashore areas must be declared No-go areas, they must be demarcated to ensure no vehicles or people move into these areas. ■ All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limit (20 km/h), to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings and erosion is limited. ■ The duration of the prospecting should be kept to a minimum to avoid disturbing avifauna, but also outside prime activity hours of avifauna 	<p>Throughout the site establishment-, operational-, and decommissioning phase.</p>	<p>Fauna must be managed in accordance with the:</p> <ul style="list-style-type: none"> ■ NEM:BA 2004

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		<ul style="list-style-type: none"> ■ No prospecting from Sunrise until 09:00 and 16:00 and Sunset to minimise noise disturbance during their peak activity times. Allowing for vocalisation ■ All areas to be developed must be walked through prior to any activity to ensure no nests or avifauna species are found in the area. Should any Species of Conservation Concern be found and not move out of the area, or their nest be found in the area a suitably qualified specialist must be consulted to advise on the correct actions to be taken. ■ Implement an avifauna monitoring program during the prospecting. This is of utmost importance to implement this due to the very high sensitivity of the PAOI and will provide valuable information for any future prospecting activities in the areas. However, this should be conducted by an avifauna specialist. 		
<ul style="list-style-type: none"> ■ Planning and surface sampling phase ■ Prospecting activities ■ Closing of drill holes and landscaping upon closure of the prospecting area. 	<ul style="list-style-type: none"> ■ Dust nuisance as a result of the planning and surface sampling phase. ■ Dust nuisance as a result of the prospecting activities. ■ Dust nuisance as a result of the decommissioning activities 	<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. 	<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"> ■ Speed on the access road must be limited to 20 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. ■ Loads must be flattened and covered to ensure that minimal spillage of material takes place during transportation, also preventing windblown dust. ■ 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). 		
<ul style="list-style-type: none"> ■ Planning and surface sampling phase ■ Prospecting activities ■ Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> ■ Noise nuisance as a result of the result of planning and surface sampling phase ■ Noise nuisance as a result of the prospecting activities. ■ Noise nuisance as a result of the decommissioning activities. 	<ul style="list-style-type: none"> ■ Noise Handling: ■ 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. ■ No prospecting from Sunrise until 09:00 and 16:00 and Sunset to minimise noise disturbance during their peak activity times. Allowing for vocalisation ■ 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). 	Throughout the site establishment-, operational and decommissioning phase.	Noise generation must be managed in accordance with the: <ul style="list-style-type: none"> ■ NEM:AQA. 2004 Regulation 6(1) ■ NRTA, 1996 ■ Western Cape Noise Control Regulations Provincial Notice 200/2013.

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		<ul style="list-style-type: none"> ■ 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 Western Cape Noise Control Regulations Provincial Notice 200/2013. 		
<ul style="list-style-type: none"> ■ Planning and surface sampling phase ■ Prospecting activities ■ 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 leeching into the water table ■ Potential impact associated with littering and hydrocarbon spills. ■ Potential impact associated with litter left at the prospecting area. 	<ul style="list-style-type: none"> ■ Regular vehicle maintenance, repairs and services may only take place at the off-site workshop and service area of the prospecting right holder, and none of the above may be allowed on the prospecting right area. When a breakdown occurs in the prospecting right area, the right holder must arrange for the removal of the machine, within 6 hours, to a recognised workshop where it can be mended. ■ 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 	<ul style="list-style-type: none"> ■ Throughout the site establishment-, operational and decommissioning phase. 	<p>Storm water must be managed in accordance with the:</p> <ul style="list-style-type: none"> ■ CARA, 1983 ■ NEMA, 1998 ■ NWA, 1998

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		<p>the above are to be addressed immediately by the prospecting right holder.</p> <ul style="list-style-type: none"> ■ If a diesel bowser is used on site, it must be equipped with a drip tray at all times. Drip trays must be used during each and every refuelling event. The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling. ■ 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. <p>■ 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</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: 		

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		<p>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.</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. ■ All safe disposal certificates, including hazardous waste and waste from the chemical ablution facilities, should be retained for a minimum period of five years. Waste registers, as described in the Draft BAR and EMPr, must be made available for review upon request by any relevant authority. ■ To lower the risk of accidental hydrocarbon spillages all machinery must be parked at the prospecting area with drip trays placed underneath stationary vehicles. 		

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
<ul style="list-style-type: none"> ■ Prospecting activities ■ Closing of drill holes and landscaping upon closure of the prospecting area 	<ul style="list-style-type: none"> ■ Deterioration of the access road to the prospecting area. ■ Deterioration of the access road to the decommissioning activities 	<ul style="list-style-type: none"> ■ Storm water must be diverted around the access road to prevent erosion. ■ Vehicular movement must be restricted to the existing access road to prevent crisscrossing of tracks through undisturbed and inactive areas. ■ Rutting and erosion of the access road caused as a direct result of the prospecting activities must be repaired by the permit holder. ■ Overloading of the truck must be prevented, and proof of load weights must be filed for auditing purposes. 	<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
<ul style="list-style-type: none"> ■ Planning and surface sampling phase ■ Prospecting activities ■ Closing of drill holes and landscaping upon closure of the prospecting area. 	<ul style="list-style-type: none"> ■ Safety and security on properties due to trespassing of contractors / workers. 	<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). 	<p>Throughout the site establishment-, operational and decommissioning phase.</p>	<p>Health and safety aspects must be managed in accordance with the:</p> <ul style="list-style-type: none"> ■ MHSA, 1996 ■ OHSA, 1993 ■ OHSAS, 18001
<ul style="list-style-type: none"> ■ Prospecting activities ■ 	<ul style="list-style-type: none"> ■ Potential impact on areas/infrastructure of heritage / cultural concern. 	<ul style="list-style-type: none"> ■ Confine all prospecting to the approved footprint area. ■ 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 	<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>at the site of the find and report this find to their immediate 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. ▪ Outcrops of sensitive fossiliferous strata in the Project Area that require protection as NO-GO sites. ▪ 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, as described in this document. ▪ 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. ▪ Geologists' supervision is required during the drilling sampling and the personnel carrying out the subsequent processing of the samples. <p>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,</p>		

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		<p>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.</p>		
<ul style="list-style-type: none"> ■ Prospecting activities 	<ul style="list-style-type: none"> ■ Changing local fire regime from wildfires from alien species invasion ■ Establishment and operations of the drilling may result in erosion on site and within 500m of wetlands and 100m of a river. 	<ul style="list-style-type: none"> ■ 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. ■ Areas around the footprint that fall within a CBA or Other Natural Area must be adequately rehabilitated if exposed to any disturbance. ■ Drilling should be done in stages to allow for rehabilitation measures to be implemented at disturbed sites. ■ Areas within the Critical Biodiverse Areas must be avoided as far as practically possible ■ Establish a 17 m buffers around the rivers and 15 m around the wetlands and consider this area as no-go area. ■ Implement suitable erosion prevention measures during all phases. ■ Soil erosion must be controlled as an ongoing management strategy throughout the various phases of the proposed development activities. ■ Make use of surface erosion control measures within disturbed areas to avoid erosion in times of high risk (e.g. rain season and time of high wind speeds). 	<p>Throughout the operational phase.</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"> ■ Stormwater management should prevent excessive sediment to be carried into drainage channels and the natural environment. ■ Removal of debris and other obstructing materials from the site must take place and erosion preventing structures must be constructed. This is done to prevent damming of water and increasing flooding danger. ■ Disturbed areas, that will not form part of the footprint but which were disturbed as part of the construction activities, should be rehabilitated and re-vegetated using site-appropriate vegetation and/or seed mixes, to prevent gulley erosion. ■ Sheet runoff from cleared areas needs to be curtailed. ■ No materials of any kind are allowed to be stored in the stormwater channels. ■ Areas around the proposed project footprint, must be adequately rehabilitated to prevent significant erosion. ■ Avoid the use of concrete lined channels for storm water management as this can increase the speed of water. This in turn increases erosion potential that can cause erosion on site and in watercourse banks and increase siltation downstream. If concrete-lined channels are used; they should end in silt traps. ■ Soil disturbance must be kept to a minimum within and around the footprints. ■ The development footprint must remain as small as practically possible. 		

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		<ul style="list-style-type: none"> ➤ All buffers as stated in Section 6.4 of the Aquatic Impact Assessment must be adhered to. ➤ All bare areas must be rehabilitated via a Revegetation Method Statement of the Aquatic Impact Assessment. ➤ Vehicles must use already developed roads as far as possible. ➤ Dust control mechanisms must be implemented during the construction phase. ➤ All stockpiles must be stored outside of wetland buffers. ➤ Stockpiles must be covered in periods high wind and rain. 		

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 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;
- Clear all carbonaceous material from site;
- Remove all waste from site;
- Any wetlands in the area should not 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 applicable) will be spread over the disturbed area to a depth of at least 300 mm;
- Make safe any dangerous excavations or subsidence on the surface;
- Rehabilitate all disturbed areas in compliance with the EMPr and of the Provincial Department of Mineral Regulation;
- 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;
- Site management will implement an alien invasive plant management plan during the 12 months' aftercare period to address germination of problem plants in the 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; 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 Draft Basic Assessment Report, includes all the environmental objectives in relation to closure and will be made available for perusal by the landowner, registered I&AP's 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 need 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. The calculation was based on the total number of areas that will be open (250 holes of 50m² each = 1.25ha), if the applicant would not comply with the progressive rehabilitation procedure.

Prospecting type and saleable mineral by-product

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

Prospecting type	Garnet (Abbrasive), Heavy Minerals (General) Leucoxene, (Heavy Mineral) Monazite (Heavy Mineral), Rare Eaths, Rutile (Heavy Mineral), Zirconium Ore, Ilmenite.
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)	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	-	NO
2(A)	Demolition of steel buildings and structures	-	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	YES	-
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	-	NO
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	-

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	-	-

Component No.	Main description	Master rate	Multiplication factor
4(B)	Demolition and rehabilitation of non-electrified railway lines	-	-
5	Demolition of housing and facilities	-	-
6	Opencast rehabilitation including final voids and ramps	301350	0.04
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	-	-
11	River diversions	-	-
12	Fencing	-	-
13	Water management (Separating clean and dirty water, managing polluted water and managing the impact on groundwater)	-	-
14	2 to 3 years of maintenance and aftercare	21 179	1.00

Determine weighting factors

According to Tables B.7 and B.8

Weighting factor 1: Nature of terrain/accessibility	1.00 (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 28: Calculation of closure cost

CALCULATION OF THE QUANTUM							
Mine:	Mineral Sands Resources(Pty) Ltd			Location:	Lutzville		
Evaluators:	Sonette Smit			Date:	31 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	1.00	1.00	R 0.00
2(A)	Demolition of steel buildings and structures	m ²	0	287	1.00	1.00	R 0.00
2(B)	Demolition of reinforced concrete buildings and structures	m ²	0	424	1.00	1.00	R 0.00
3	Rehabilitation of access roads	m ²	0	51	1.00	1.00	R 0.00
4(A)	Demolition and rehabilitation of electrified railway lines	m	0	499	1.00	1.00	R 0.00
4(B)	Demolition and rehabilitations of non-electrified railway lines	m	0	272	1.00	1.00	R 0.00
5	Demolition of housing and/or administration facilities	m ²	0	575	1.00	1.00	R 0.00
6	Opencast rehabilitation including final voids and ramps	ha	1.25	301350	0.04	1.00	R 15,067.50
7	Sealing of shaft, audits and inclines	m ³	0	154	1.00	1.00	R 0.00
8(A)	Rehabilitation of overburden and spoils	ha	0	200900	1.00	1.00	R 0.00
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing waste)	ha	0	250217	1.00	1.00	R 0.00
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)	ha	0	726749	0.51	1.00	R 0.00
9	Rehabilitation of subsided areas	ha	0	168223	1.00	1.00	R 0.00
10	General surface rehabilitation	ha	0	159147	1.00	1.00	R 0.00
11	River diversions	ha	0	159147	1.00	1.00	R 0.00

12	Fencing	m	0	182	1.00	1.00	R 0.00
13	Water Management	ha	0	60512	0.17	1.00	R 0.00
14	2 to 3 years of maintenance and aftercare	ha	1.25	21179	1.00	1.00	R 26,473.75
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							R 41,541.25
Multiply Sum of 1-15 by Weighting factor 2 (Step 4.4)		1.05				Sub Total 1	R 43,618.31

1	Preliminary and General	6% of Subtotal 1 if Subtotal 1 <R100 000 000.00					R 2,617.10
		12% of Subtotal 1 if Subtotal 1 >R100 000 000.00					-
2	Contingency	10.0% of Subtotal 1					R 4,361.83
Sub Total 2							
(Subtotal 1 plus management and contingency)						R 50,597.24	
Vat (15%)						R 7,589.59	
GRAND TOTAL							
(Subtotal 3 plus VAT)						R 58,186.83	

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 58,186.83**

(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 29: 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 / Site establishment -, 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 / Site establishment 	<p><u>Visual Characteristics:</u></p> <ul style="list-style-type: none"> Visual intrusion as a result of planing and surface sampling 	<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><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. 	<p>Applicable throughout Planning and surface sampling phase / Site establishment -, 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"> ■ 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"> ■ Planning and surface sampling phase / Site establishment ■ Prospecting activities / drilling. ■ 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"> ■ Loss of topsoil and fertility during prospecting ■ Erosion after rehabilitation (stockpile area). 	<ul style="list-style-type: none"> ■ Earthmoving equipment to reinstate boreholes. ■ 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 and approximately 2 - 3 boreholes are planned to be operated per day. 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: ■ 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. 	<p>Applicable throughout Planning and surface sampling phase / Site establishment -, 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 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 (if applicable) 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. ■ 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 / Site establishment ■ Prospecting activities / drilling. ■ Closing of drill holes and landscaping 	<p><u>Groundcover:</u></p> <ul style="list-style-type: none"> ■ Infestateion of denuded areas with invader plant species. ■ Infestation of the reinstated area with invader plant species. 	<ul style="list-style-type: none"> ■ 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>	<p>Applicable throughout Planning and surface sampling phase / Site establishment -, 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
<p>upon closure of the prospecting area.</p>			<ul style="list-style-type: none"> ■ Implement an invasive plant species management plan to control all invasive plant species on site in terms of NEM:BA, 2004 and CARA, 1983. ■ Keep all stockpiles (topsoil) free of invasive plant species. ■ Control declared invader or exotic species on the rehabilitated areas. ■ 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. ■ Areas around the footprint that fall within a CBA or Other Natural Area must be adequately rehabilitated if exposed to any disturbance. ■ Drilling should be done in stages to allow for rehabilitation measures to be implemented at disturbed sites. ■ Areas within the Critical Biodiverse Areas must be avoided as far as practically possible. ■ A search and rescue operations be conducted prior to commencement of the project during the spring (July-November) when most species in the vegetation will be in flower. 	
<ul style="list-style-type: none"> ■ Planning and surface sampling phase / Site establishment. ■ Prospecting activities / drilling.. 	<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 	<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 / Site establishment -, 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
		<p>minimise additional noise disturbance.</p> <ul style="list-style-type: none"> ■ Implement an avifauna monitoring program during the prospecting 	<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 land owner 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. ■ Seashore areas must be declared No-go areas, they must be demarcated to ensure no vehicles or people move into these areas. ■ All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limit (20 km/h), to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings and erosion is limited. ■ The duration of the prospecting should be kept to a minimum to avoid disturbing avifauna, but also outside prime activity hours of avifauna. ■ No prospecting from Sunrise until 09:00 and 16:00 and Sunset to minimise noise disturbance during their peak activity times. Allowing for vocalisation 	

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"> ■ All areas to be developed must be walked through prior to any activity to ensure no nests or avifauna species are found in the area. Should any Species of Conservation Concern be found and not move out of the area, or their nest be found in the area a suitably qualified specialist must be consulted to advise on the correct actions to be taken. ■ Implement an avifauna monitoring program during the prospecting. This is of utmost importance to implement this due to the very high sensitivity of the PAOI and will provide valuable information for any future prospecting activities in the areas. However, this should be conducted by an avifauna specialist. ■ Noise generated on-site from all the proposed activities must comply with the Western Cape Noise Control Regulations Provincial Notice 200/2013. 	
<ul style="list-style-type: none"> ■ Planning and surface sampling phase / Site establishment ■ Prospecting activities / drilling. 	<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. 	<p>Applicable throughout Planning and surface sampling phase / Site establishment -, 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"> ■ Limit speed on the haul roads to 20 km/h to prevent the generation of excess dust. ■ Minimise areas devoid of vegetation. ■ Flatten and cover loads to prevent spillage and windblown dust during transportation. ■ 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. 	
<ul style="list-style-type: none"> ■ Planning and surface sampling phase / Site establishment ■ Prospecting activities / drilling. ■ Closing of drill holes and landscaping upon closure of the prospecting area. 	<p><u>Noise Ambiance:</u></p> <ul style="list-style-type: none"> ■ Noise nuisance as a result of the prospecting activities. ■ Noise nuisance as a result of the decommissioning activities. 	<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. ■ No prospecting from Sunrise until 09:00 and 16:00 and Sunset to minimise noise disturbance during their peak activity times. Allowing for vocalisation 	<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. 	<p>Applicable throughout Planning and surface sampling phase / Site establishment -, 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"> ■ Implement best practice measures to minimise potential noise impacts.. ■ Noise generated on-site from all the proposed activities must comply with the Western Cape Noise Control Regulations Provincial Notice 200/2013. 	
<ul style="list-style-type: none"> ■ Prospecting activities / drilling.. ■ Prospecting activities / drilling. ■ Closing of drill holes and landscaping upon closure of the prospecting area. 	<p><u>Waste Management:</u></p> <ul style="list-style-type: none"> ■ Soil contamination from hydrocarbon spills. ■ Potential impact associated with littering and hydrocarbon spills. ■ Potential impact associated with litter left at the prospecting area. 	<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> <ul style="list-style-type: none"> ■ Ensure regular vehicle maintenance, repairs and services takes place at the off-site workshop and service area. When a breakdown occurs, arrange for the removal of the machine within 6 hours to a recognised workshop where it can be mended. ■ Provide ablution facilities in the form of a chemical toilet that is placed outside the 1:100 year floodline 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. 	<p>Applicable throughout Planning and surface sampling phase / Site establishment -, 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"> ■ 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. ■ All safe disposal certificates, including hazardous waste and waste from the chemical ablution facilities, should be retained for a minimum period of five years. Waste registers, as described in the Draft BAR and EMPr, must be made available for review upon request by any relevant authority. 	

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"> ■ Prospecting activities / drilling. 	<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. ■ Implement the following chance find procedure when discoveries are made on site: ■ 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. ■ Outcrops of sensitive fossiliferous strata in the Project Area that require protection as NO-GO sites ■ 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 	<p>Applicable throughout Planning and surface sampling phase / site establishment -, 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
			<p>prospecting excavations, or exposed in the adjacent spoil heaps of excavated material. In the event of such discoveries the Fossil Finds Procedure.</p> <ul style="list-style-type: none"> ▪ 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. ▪ 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. ▪ Geologists' supervision is required during the drilling sampling and the personnel carrying out the subsequent processing of the samples. ▪ 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 	

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<ul style="list-style-type: none"> ■ Prospecting activities / drilling. 	<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"> ■ Control drainage to ensure that runoff from the stockpile area does not culminate in off-site pollution, flooding or result in damage to properties downstream or storm water discharge points. ■ Divert storm water around the topsoil heaps to prevent erosion. ■ Conduct activity in terms of the Best Practice Guidelines for small-scale mining as developed by DWS. ■ Establish a 17 m buffers around the rivers and 15 m around the wetlands and consider this area as no-go area. ■ Implement suitable erosion prevention measures during all phases. ■ Soil erosion must be controlled as an ongoing management strategy throughout the various phases of the proposed development activities. ■ Make use of surface erosion control measures within disturbed areas to avoid erosion in times of high risk (e.g. rain season and time of high wind speeds). ■ Stormwater management should prevent excessive sediment to be carried into drainage channels and the natural environment. ■ Removal of debris and other obstructing materials from the site must take place and erosion preventing structures must be 	<p>Applicable throughout Planning and surface sampling phase / site establishment -, 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
			<p>constructed. This is done to prevent damming of water and increasing flooding danger.</p> <ul style="list-style-type: none"> ■ Disturbed areas, that will not form part of the footprint but which were disturbed as part of the construction activities, should be rehabilitated and re-vegetated using site-appropriate vegetation and/or seed mixes, to prevent gully erosion. ■ Sheet runoff from cleared areas needs to be curtailed. ■ No materials of any kind are allowed to be stored in the stormwater channels. ■ Areas around the proposed project footprint, must be adequately rehabilitated to prevent significant erosion. ■ Avoid the use of concrete lined channels for storm water management as this can increase the speed of water. This in turn increases erosion potential that can cause erosion on site and in watercourse banks and increase siltation downstream. If concrete-lined channels are used; they should end in silt traps. ■ Soil disturbance must be kept to a minimum within and around the footprints. ■ The development footprint must remain as small as practically possible. ■ All buffers as stated in Section 6.4 of the Aquatic Impact Assessment must be adhered to. ■ All bare areas must be rehabilitated via a Revegetation Method Statement of the Aquatic Impact Assessment. ■ Vehicles must use already developed roads as far as possible. ■ Dust control mechanisms must be implemented during the construction phase. ■ All stockpiles must be stored outside of wetland buffers. 	

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"> ■ Stockpiles must be covered in periods high wind and rain. 	
<ul style="list-style-type: none"> ■ Prospecting activities / drilling. 	<p>Existing Infrastructure:</p> <ul style="list-style-type: none"> ■ Deterioration of the access road to the prospecting area. ■ Deterioration of the access road to the decommissioning activities. 	<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"> ■ Restrict vehicular movement to the existing access road to prevent crisscrossing of tracks through undisturbed areas. ■ 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 / Site establishment. ■ Prospecting activities / drilling. ■ Closing of drill holes and landscaping upon closure of the prospecting area. 	<ul style="list-style-type: none"> ■ Potential health and safety risks to employees. 	<ul style="list-style-type: none"> ■ 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 design / site establishment, 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 project manager for his / her perusal. Issues such as the prospecting boundaries, fire principals and waste handling will be discussed.

An induction meeting will be held with all the field 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 project 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.

■ **Waste Management:**

- Take care of your own waste
- Remove any waste materials from site on a daily basis.
- 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 project manager/supervisor.
- Includes – archaeological finds, cultural artefacts, contaminated water, pipes, containers, tanks and drums, any buried structures.

■ **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.

- A search and rescue operations be conducted prior to commencement of the project during the spring (July-November) when most species in the vegetation will be in flower.
- Should any threatened species be located within the footprint, these must be translocated to a suitable location outside of the footprint. o Translocation methodology and suitable areas must be detailed in a Translocation Method Statement compiled by an Environmental Compliance Officer. This method statement must be reviewed and signed-off by a Botanical Specialist.
- Should any protected or threatened species be removed from the footprint, a Plant Removal Permit must be obtained from Cape Nature prior to any being removed.
- 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.
- 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.
- An Ordinance Plant Removal Permit must be obtained for the removal of provincially protected species.
- No plants may be removed that have not been specifically earmarked as part of the demarcated footprint.

Fire Management:

- No open fires are permitted within or around the proposed development site.
- Smoking should only take place in designated areas away from the natural vegetation and cigarette buds must be disposed of properly in an ashtray.
- At least one (1) construction personnel must be trained in firefighting and the remaining personnel should be briefed on the emergency procedures during a veld fire.
- Fire extinguishers should be present within vehicles and on site.
- The emergency contact details of the local firefighting department should be present at the Transnet office.

- 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

Sonette Smit



Zoe Norval



Signature of the environmental assessment practitioners:

Greenmined Environmental (Pty) Ltd

Name of Company:

03 July 2023

Date:

-END-

APPENDIX A

REGULATION 2(2) MINE MAP



APPENDIX B

LOCALITY & LAND USE MAP



APPENDIX C

SITE ACTIVITIES MAP



APPENDIX D

REHABILITATION / CLOSURE PLAN



APPENDIX E

PROOF OF PUBLIC PARTICIPATION

The comments received on the Draft Basic Assessment Report (DBAR), as part of this process, will be incorporated into the Final Basic Assessment Report (FBAR), which 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.



APPENDIX F

SUPPORTING IMPACT ASSESSMENT



APPENDIX G

PHOTOGRAPHS OF THE SITE



APPENDIX H

PROSPECTING WORK PROGRAMME



APPENDIX I

DMRE ACCEPTANCE AND ACKNOWLEDGEMENT LETTERS



APPENDIX J

CV AND EXPERIENCE RECORD OF EAP



APPENDIX K

SCREENING REPORT



APPENDIX L

SITE SENSITIVITY REPORT

APPENDIX M1

TERRESTRIAL IMPACT ASSESSMENT



APPENDIX M2

AQUATIC IMPACT ASSESSMENT



APPENDIX M3

SOIL IMPACT ASSESSMENT



APPENDIX M4 PALAEOLOGICAL IMPACT ASSESSMENT



APPENDIX M5 AVIFAUNAL ASSESSMENT



APPENDIX M6

APPENDIX M6 NID



APPENDIX M7

HERITAGE IMPACT ASSESSMENT



APPENDIX N INVASIVE PLANT SPECIES MANAGEMENT PLAN



APPENDIX O

CLOSURE REHABILITATION PLAN

