



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

DRAFT BASIC ASSESSMENT REPORT
AND
ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

NAME OF APPLICANT: Monnapula Mining (Pty) Ltd

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FILE REFERENCE NUMBER SAMRAD: NC 30/5/1/1/2/13728 PR

APRIL 2024

Monnapula Mining (Pty) Ltd

1. IMPORTANT NOTICE

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

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

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

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

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

2. OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

- (a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;
- (b) identify the alternatives considered, including the activity, location, and technology alternatives;
- (c) describe the need and desirability of the proposed alternatives,
- (d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine:
 - (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
 - (ii) the degree to which these impacts—
 - (aa) can be reversed;
 - (bb) may cause irreplaceable loss of resources; and
 - (cc) can be managed, avoided or mitigated.
- (e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—
 - (i) identify and motivate a preferred site, activity and technology alternative;
 - (ii) identify suitable measures to manage, avoid or mitigate identified impacts; and
 - (iii) identify residual risks that need to be managed and monitored.

ACRONYMS

AEL	Atmospheric Emission Licence
AIP	Alien and Invasive Plant
BAR	Basic Assessment Report
CA	Competent Authority
CBA	Critical Biodiversity Area
CR	Critically Endangered
CRR	Comments and Response Report
DEA / DFFE	Department of Environmental Affairs/ Department of Forestry, Fisheries and Environment
DMR/ DMRE	Department of Mineral Resources / Department of Mineral Resources and Energy
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EMPr	Environmental Management Programme
EN	Endangered
ESA	Ecological Support Area
ESR	Environmental Sensitivity Report
GIS	Geographic Information System
IAPs	Interested and Affected Parties
IDP	Integrated Development Plan
MEC	Member of the Executive Council
MM	Monnapula Mining (Pty) Ltd
MPRDA	Minerals and Petroleum Resources Development Act, No. 28 of 2002
NBA	National Biodiversity Assessment (2018)
NC DENC	Northern Cape Department of Environment and Nature Conservation
NCHRA	Northern Cape Heritage Resources Authority
NCNCA	Northern Cape Nature Conservation Act, No. 9 of 2009
NEMA	National Environmental Management Act, No. 107 of 1998
NEMAQA	National Environmental Management Air Quality Act, No. 39 of 2004
NEMBA	National Environmental Management: Biodiversity Act, No. 10 of 2004
NEMPAA	National Environmental Management Protected Areas Amendment Act, No. 31 of 2004
NEMWA	National Environmental Management Waste Act, No. 59 of 2008
NFEPA	National Freshwater Ecosystem Priority Areas (2011)
NHRA	National Heritage Resources Act, No. 25 of 1999
NNRA	National Nuclear Regulator Act, No. 47 of 1999
NPAES	National Protected Area Expansion Strategy
NWA	National Water Act, No. 36 of 1998
ONA	Other Natural Areas
PES	Present Ecological State
RE	Remaining Extent
RSDF	Regional Spatial Development Framework
SAHRA	South African Heritage Resources Association
SAHRIS	South African Heritage Resources Information System
SANS	South African National Standards
SCC	Species of Conservation Concern
TDS	Total Dissolved Solids
TOPS	NEMBA Threatened or Protected Species
VU	Vulnerable
WMA	Water Management Area
WUL	Water Use Licence
WULA	Water Use Licence Application

PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

3. CONTACT PERSON AND CORRESPONDENCE ADDRESS

a) Details

i) Details of the EAP

EAP:	Prime Resources (Pty) Ltd – Louise Jones (EAPASA, Reg no. 2019/1367)		
Professional affiliation / registration:	Prime Resources has affiliations / is registered with: EAPASA, SACNASP, ECSA, SAICE, IAIAA		
Contact person (if different from EAP):	N/A		
Company:	Prime Resources (Pty) Ltd		
Physical address:	The Workshop, No. 70 – 7th Ave, Parktown North, 2193		
Postal address:	Postnet suite 002, Private bag x1, Woodhill		
Postal code:	0076	Cell:	072 375 1779
Telephone:	011 447 4888	Fax:	N/A
E-mail:	louise@resources.co.za		

ii) Expertise of the EAP

1) The qualifications of the EAP (with evidence)

Prime Resources (Pty) Ltd is a specialist environmental consulting firm providing environmental, social, and related services, which was established in 2003. Prime Resources was founded by Peter Theron (PrEng 950329), the Managing Director and Principal Environmental Consultant of the firm. Peter has a GDE Environmental Engineering from the University of Witwatersrand and over 35 years' experience in the field of environmental science and engineering.

Louise Jones (EAPASA registered 2019/1367) is a Principal Environmental Scientist with 11 years of experience in the field of environmental science. Her expertise includes environmental impact assessments and management planning, financial liability assessments associated with mine closure and rehabilitation as well as environmental compliance auditing.

Dr Bronwyn Grover is a Senior Environmental Scientist / Chemist (SACNASP 116334) with 8 years of experience in water monitoring, geochemical assessments of waste, water use and waste management licensing, and environmental impact assessments.

Key Prime Resources Personnel CVs are attached as Appendix 1.

2) Summary of the EAP's past experience (in carrying out the Environmental Impact Assessment procedure)

The EAP's past experience is fully described in the Prime Resources Company Profile (attached as Appendix 2) when read together with the personnel CVs in Appendix 1.

b) Location of the overall activity

Farm Name	Farm Gappepin Reserve 670 (Portion 0)
Application area (Ha)	2614.53 hectares (Prospecting Right (PR) Area) 2 hectares (approximate area for invasive prospecting activities)
Magisterial district	ZF Mgcawu Magisterial District (Postmasburg Sub District)
Distance and direction from nearest town	Approximately 19 km east of Olifantshoek, 26 km south-west of Kathu and 35 km north-west of Postmasburg in the Northern Cape Province (refer to Figure 1 and Figure 2)
21-digit Surveyor General Code for each farm portion	C0410000000067000000

c) Locality map (show nearest town, scale not smaller than 1:250000)

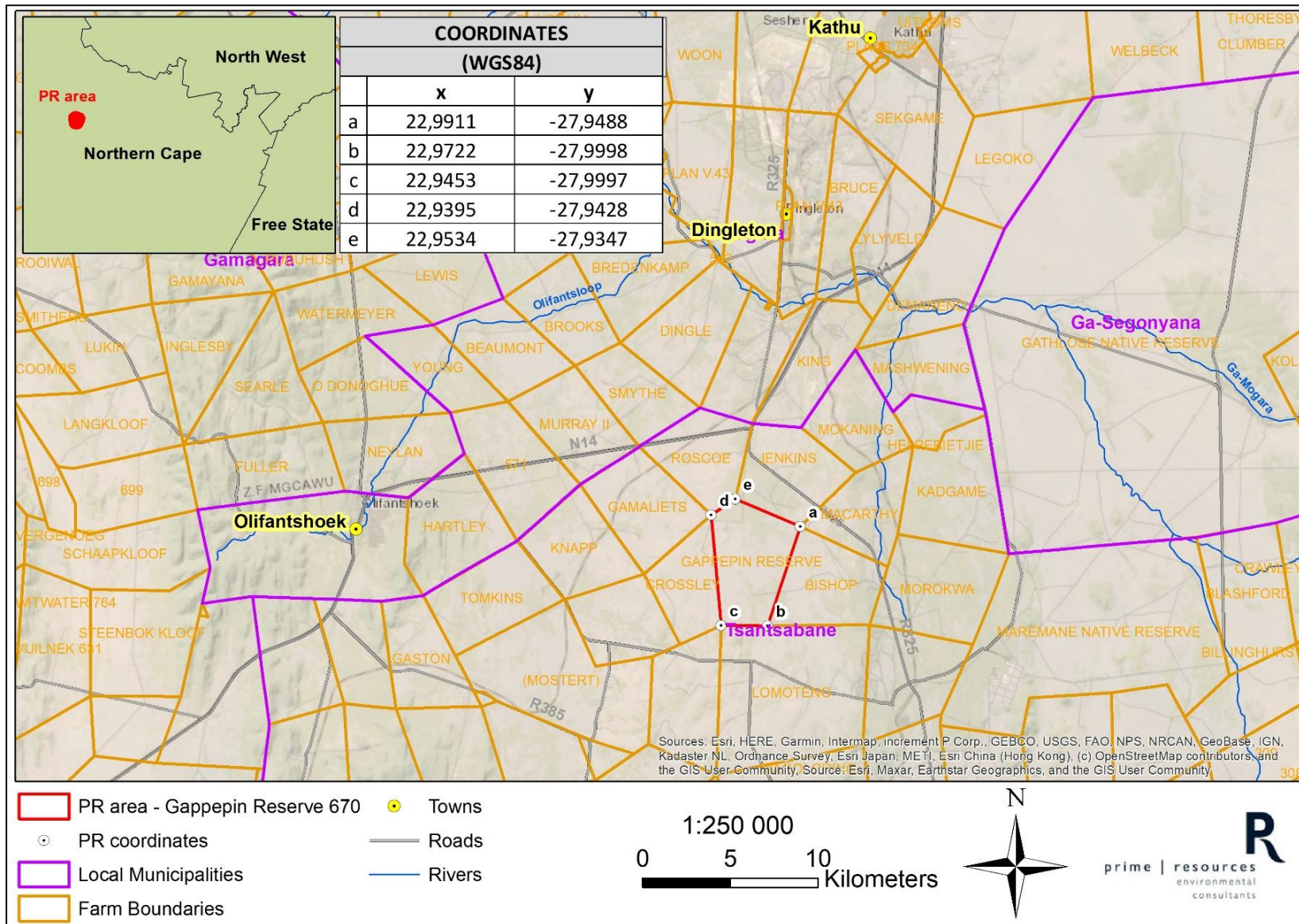


Figure 1. Locality map of the proposed PR application area (1:250 000)

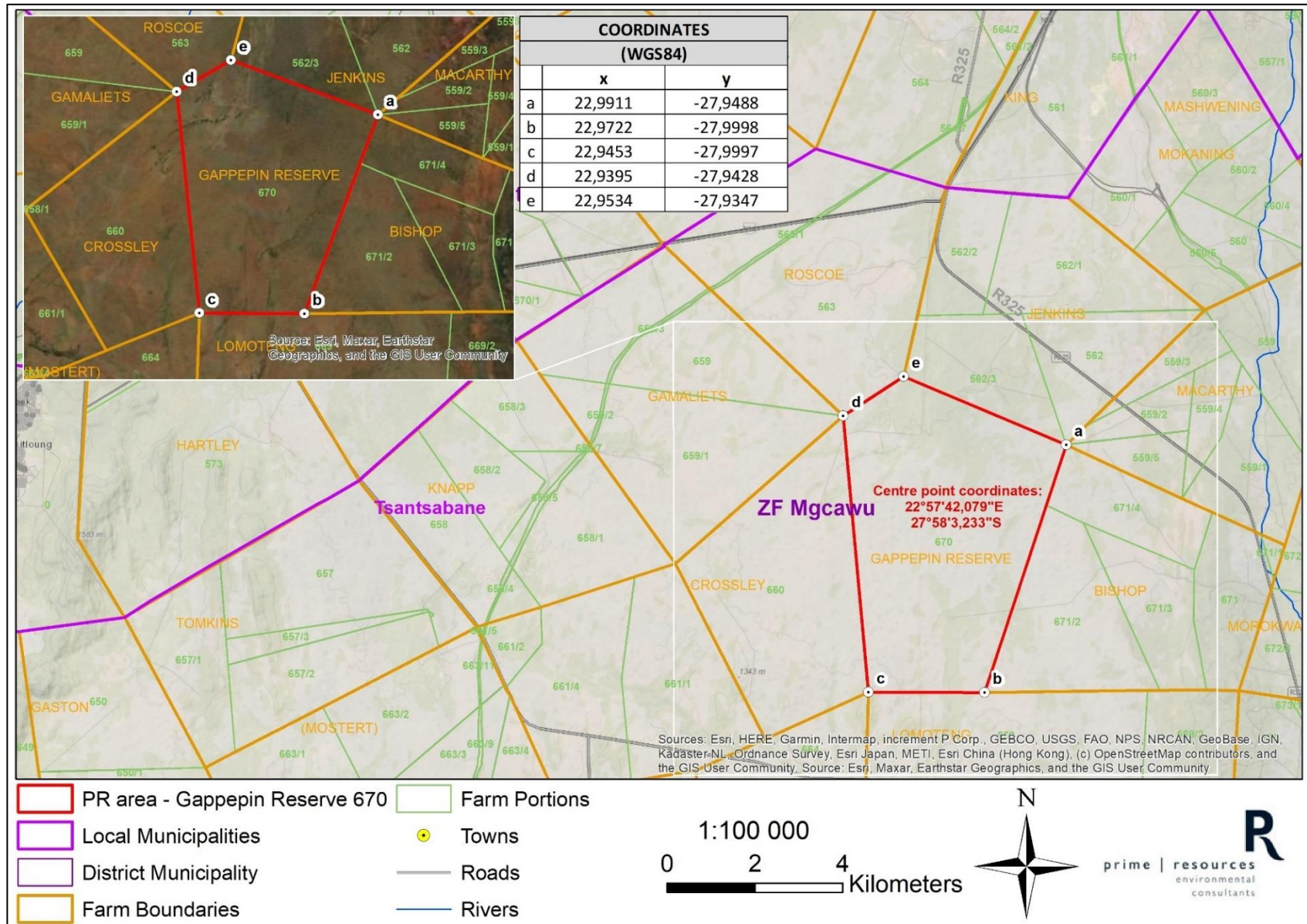


Figure 2. Locality map of the proposed PR application area (1:100 000)

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

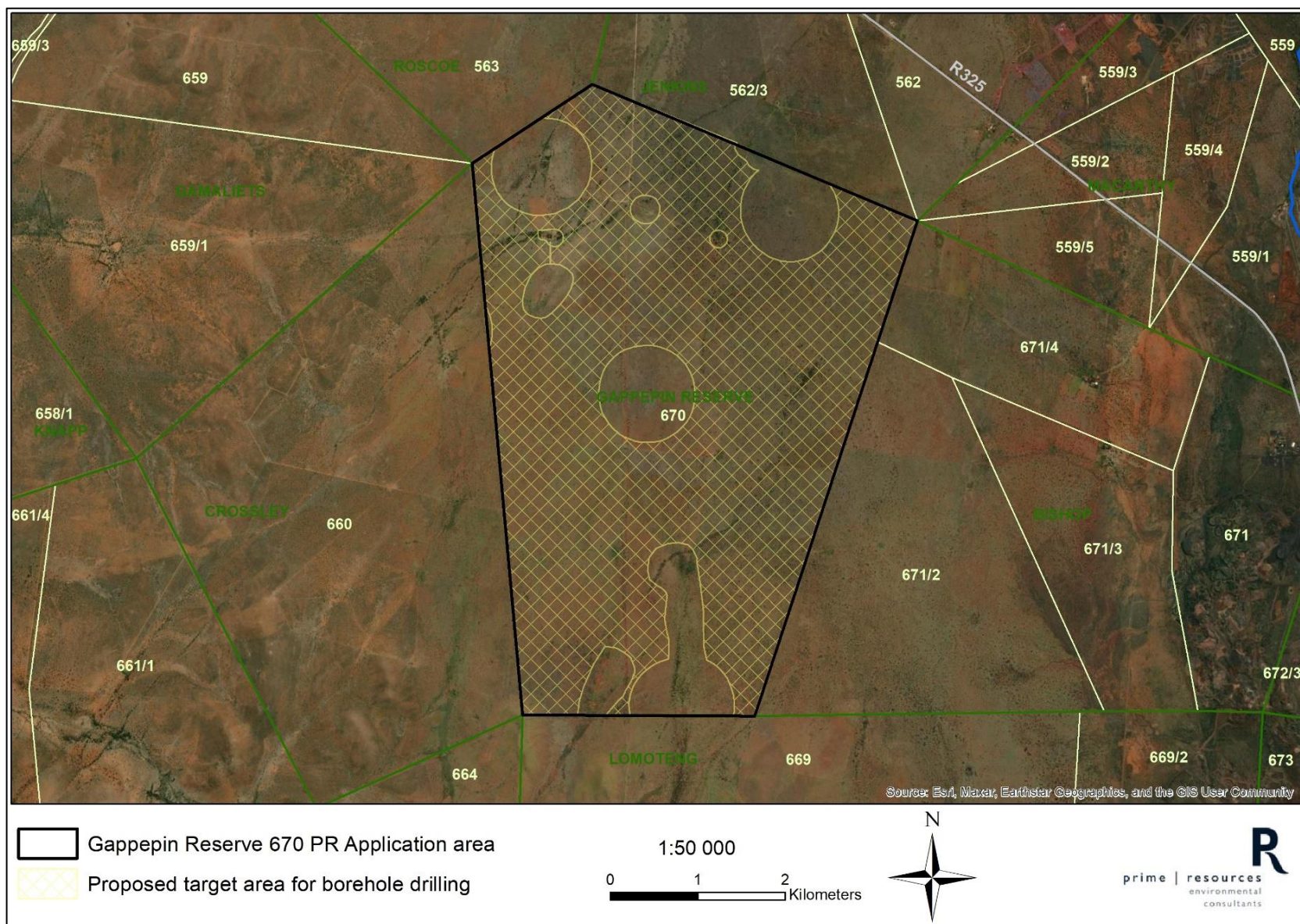


Figure 3. Preliminary site plan showing the target area for exploration activities

i) Listed and specified activities

Name of activity	Aerial extent of the activity Ha or m ²	Listed activity	Applicable listing notice
Listed activities identified in terms of the National Environmental Management Act (No. 107 of 1998)			
PR Application (without bulk sampling)	2614.53 Ha	X	Listing Notice 1 (GNR 983 of 2014) (As amended) Activity 20 Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required to exercise the prospecting right.
Non-invasive activities: <ul style="list-style-type: none"> • Desktop research and literature reviews. • Surface geological mapping. • Geophysical surveys (ground magnetic and ground gravity techniques). • Development of geological models. • Resource estimation. • Should the initial studies show that the resource estimate may be positive and that further drilling is required, the project will proceed with the below invasive activities within the proposed target area for borehole drilling. 	Not applicable		Encompassed within LN 1 Activity 20 above.
Invasive activities: <ul style="list-style-type: none"> • Up to 20 boreholes may be drilled across the site. Boreholes will be drilled to a depth of 50 -100 m. • The positions of exploration boreholes (i.e., the drilling grid) will be confirmed once the initial, non-invasive desktop studies (geological mapping) and geophysical surveys have been completed. In addition to the underlying geology, drillhole locations will take into account the sensitive environmental features and proximity to existing roads/ access tracks. • Access tracks to the drill sites will be determined in consultation with the landowner. Where possible available access roads and tracks will be used. New access tracks may possibly be required. Any new access roads developed must be less than 4 m wide and less than 1 km long. • A 10 m x 10 m drill pad will be required per drill site for the drilling rig and sump. Drill pads will be cordoned off with danger tape or fences if required. • Small volumes of consumables required for drilling will be stored at the drill pad. This may include biodegradable drilling fluid, portable diesel bowser and any required lubricants. Storage and handling of dangerous goods with a combined capacity of less than 30 m³ i.e. hydrocarbon storage (including diesel storage). • Water and diesel required for borehole drilling activities will be sourced off-site. • Cores will be taken to a temporary storage yard for logging, sampling and storage. 	<2 Ha in total (20 borehole sites with access tracks)	X	Listing Notice 1 (GNR 983 of 2014) (As amended) Activity 27 The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan. AND Listing Notice 3 (GNR 985 of 2014) (As amended) Activity 12(g) The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. g. Northern Cape i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within critical biodiversity areas identified in bioregional plans; iii. Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuary, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas; or

BAR AND EMPR – MM GAPPEPIN RESERVE PROSPECTING RIGHT APPLICATION – APRIL 2024

Name of activity	Aerial extent of the activity Ha or m ²	Listed activity	Applicable listing notice
<i>Listed activities identified in terms of the National Environmental Management Act (No. 107 of 1998)</i>			
<ul style="list-style-type: none"> • Portable chemical toilets will be used for the management of sewage waste generated on site. • Drill pads will be rehabilitated following the completion of exploration drilling at that position. 			<p style="text-align: right;">iv. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.</p> <p>AND</p> <p>LN 1 Activity 20, as discussed above.</p>

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

Monnapula Mining (Pty) Ltd (MM) has applied for a Prospecting Right (PR) from the Department of Mineral Resources and Energy (DMRE) in terms of Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (MPRDA). The PR application area is 2614.53 ha and is located on Portion 0 of the Gappepin Reserve 670 within the Tstantsabane Local Municipality and the ZF Mgcawu District Municipality, Northern Cape Province. The PR application area is located approximately 19 km east of Olifantshoek, 26 km south-west of Kathu and 35 km north-west of Postmasburg (refer to Figure 1 and Figure 2).

The overall objective of the prospecting programme is to determine the presence and economic potential of mineralisation of the area under application. MM intends to prospect for manganese, iron, lead, barium, and tin ore.

The PR application area is located within the Griqua Fold Belt which hosts the low Gamagara ridge between Postmasburg and Sishen. This area is considered economically important because of the presence of iron and manganese deposits. The proposed prospecting activities will take place in the form of both non-invasive and invasive prospecting activities over the three-year period of the PR (if granted).

Non-invasive activities:

- Desktop research and literature reviews.
- Surface geological mapping.
- Geophysical surveys (ground magnetic and ground gravity techniques).
- Development of geological models.
- Resource estimation.

Should the non-invasive studies show that the resource potential may be positive, and that exploration drilling is required, the project will proceed with the below invasive activities within the proposed target area for borehole drilling.

Invasive activities:

- Up to 20 boreholes may be drilled across the site. Boreholes will be drilled to a depth of 50 -100 m.
- The positions of the exploration boreholes (i.e., the drilling grid) will be confirmed once the initial, non-invasive desktop studies (geological mapping) and geophysical surveys have been completed. In addition to the underlying geology, drillhole locations will take into account the sensitive environmental features and proximity to existing roads/ access tracks.
- Access tracks to the drill sites will be determined in consultation with the landowner. Where possible available access roads and tracks will be used. Potentially new access tracks may be required. A realistic estimate is creation of access road of +/- 1 km from an existing road. Any new access roads developed must be less than 4 m wide and less than 1 km long.
- A 10 m x 10 m drill pad will be required per drill site for the drilling rig and sump. Drill pads will be cordoned off with danger tape or fences if required.
- Small volumes of consumables required for drilling will be stored at the drill pad. This may include biodegradable drilling fluid, portable diesel bowser and any required lubricants. Storage and handling of dangerous goods with a combined capacity of less than 30 m³ i.e. hydrocarbon storage (including diesel storage).
- Water and diesel required for borehole drilling activities will be sourced off site.
- Cores will be taken to a temporary storage yard for logging, sampling and storage.
- Portable chemical toilets will be used for the management of sewage waste generated on site.
- Accommodation for the drillers will be off site.
- Drill pads will be rehabilitated following the completion of exploration drilling at that position.

e) Policy and legislative context

<p>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)</p>	<p>REFERENCE WHERE APPLIED</p>	<p>HOW DOES THIS DEVELOPMENT COMPLY WITH 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)</p>
<p>The Mineral and Petroleum Resources Development Act, No. 28 of 2002 (MPRDA) is the key legislation governing mining activities within South Africa. The Department of Mineral Resources and Energy (DMRE) is the competent authority that deals with all mining related applications.</p> <p>Section 16(4)(a) of the MPRDA requires that the Applicant addresses the requirements of Chapter 5 of NEMA following the acceptance of its application by the Regional Manager.</p>	<p>The requirements of Chapter 5 of NEMA are addressed throughout this report. See below for further information.</p>	<p>An application for a PR was accepted by the DMRE on 11 September 2023 (Ref. NC 30/5/1/1/2/13728 PR). On 23 February 2024, a request for an extension to the timeframe for the submission of the Basic Assessment Report (BAR) was requested and approved.</p> <p>Any activity including the operation of that activity which requires a PR in terms of Section 16 of the MPRDA is a listed activity in terms of Section 24 of NEMA which therefore requires that an Environmental Authorisation process entailing a BAR / Environmental Management Programme (EMPr) and public consultation as specified in the EIA Regulations of 2014, promulgated under NEMA, is undertaken. The purpose of this BAR / EMPr is to fulfil these requirements.</p>
<p>The National Environmental Management Act, No. 107 of 1998 (NEMA) is enabling legislation intended to provide a framework for integrating environmental management into all developmental activities to promote co-operative environmental governance with regard to decision making by state organs on matters affecting the environment.</p> <p>The EIA Regulations of GNR982, December 2014 as <i>amended</i> serve to regulate the procedure and criteria for submitting, processing and considering decisions for applications for Environmental Authorisation. These Regulations provide details on the process to be followed for the consultation of stakeholders and Interested and Affected Parties (IAPs), the identification of the Competent Authority, and the various timeframes and application requirements for Environmental Authorisation. A further three Regulations, GNR983, GNR984, and GNR985 (all of 2014 as <i>amended</i>), provide lists of activities for which Environmental Authorisation, either in the form of a Basic Assessment process or Scoping and Environmental Impact Assessment Report (EIAR) / EMPr, is required before the activity can commence.</p> <p>Since the enactment of the “One Environmental System” on 8 December 2014, the Environmental Authorisation process in terms of the NEMA must be followed for any mining activities requiring a right or permit in terms of the MPRDA to fulfil the requirements of Section 5A(a) of the Act. In instances where Environmental Authorisation is required for a mining project, the DMRE is identified as the Competent Authority.</p>	<p>This BAR and EMPr have been prepared to meet the requirements of the EIA Regulations (GNR982 of 2014 as <i>amended</i>).</p> <p>Refer to Section 3d)i) for the listed activities applicable to the proposed project.</p>	<p>An application for Environmental Authorisation in terms of NEMA was submitted to the DMRE for the NEMA listed activities triggered by the proposed project. The DMRE accepted the application on 11 September 2023.</p> <p>In accordance with the EIA Regulations (2014) this BAR / EMPr, together with the results of consultation with IAPs and State Departments, will be submitted to the DMRE in support of the application for Environmental Authorisation.</p>
<p>The National Screening Tool is a geographically based web-enabled application that allows the proponent seeking environmental authorization, in terms of EIA Regulations 2014, to screen their proposed site for any environmental sensitivity. The tool also provides site-specific EIA process and review information, and identifies related exclusions and/or specific requirements, including specialist studies applicable to the proposed site and/or development, based on the national sector classification and the environmental sensitivity of the site.</p> <p>As per GN960 of 2019, read with Section 24(5)(a) of the NEMA, an Environmental Screening Report (ESR) must be generated for</p>	<p>Refer to: ESR in Appendix 3 Site Sensitivity Verification Report in Appendix 4</p> <p>Refer to: Section 3h)iv)1)(j) where the</p>	<p>The ESR (refer to Appendix 3) indicates several approved solar developments within 30 km of the project area, although none on the proposed footprint. The project area is located within the Siyanda District Municipality Environmental Management Framework (EMF). PR application area is located within the Northern Strategic Transmission Corridor. There are 18 approved solar developments and 1 wind development within a 30 km</p>

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 WITH 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)
<p>the Environmental Authorisation application using the National Web-based Screening Tool. As per the requirement of GN320 and GN1150, prior to commencing with a specialist assessment, the current use of the land and the environmental sensitivity of the site under consideration identified by the National Web-based Screening Tool, must be confirmed by undertaking a site sensitivity verification.</p> <p>The application classification for this report is: Mining => Prospecting Rights.</p> <p>GN320 and GN1150 prescribes the following for the site sensitivity verification:</p> <ol style="list-style-type: none"> 1. The Site Sensitivity Verification must be undertaken by an environmental assessment practitioner or a specialist. 2. The Site Sensitivity Verification must be undertaken through the use of <ol style="list-style-type: none"> a. a desktop analysis, using satellite imagery. b. a preliminary on-site inspection; and c. any other available information. 3. The outcome of the Site Sensitivity Verification must be recorded in the form of a report that: <ol style="list-style-type: none"> a. confirms or disputes the current use of the land and the environmental sensitivity as identified by the screening tool, such as new developments or infrastructure, the change in vegetation cover or status etc. b. contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity; and c. is submitted together with the relevant reports prepared in accordance with the requirements of the NEMA EIA Regulations (2014). 	<p>baseline conditions are described.</p> <p>Section 3h)v) where the potential impacts of the proposed activities on all aspects of the physical and socio-economic environment are assessed.</p>	<p>radius of the PR application area.</p> <p>The following Environmental Sensitivities were identified for the <u>footprint</u> on which prospecting activities are proposed (footprint identifies the target area for borehole drilling and avoids the potential high sensitivity wetland/ pan areas with a 500 m no-go buffer around the sensitive areas):</p> <ul style="list-style-type: none"> • Agriculture Theme – medium sensitivity • Animal Species Theme – medium sensitivity • Aquatic Biodiversity Theme – low sensitivity (high sensitivity pans with the overall PR application area are demarcated as no-go areas in the PR site plan) • Archaeological and Cultural Heritage Theme – low sensitivity • Civil Aviation Theme – low sensitivity • Defence Theme – low sensitivity • Palaeontology Theme – high sensitivity • Plant Species Theme – low sensitivity • Terrestrial Biodiversity Theme – low sensitivity (high sensitivity pans with the overall PR application area are demarcated as no-go areas in the PR site plan) <p>A Site Sensitivity Verification Report (refer to Appendix 4) was compiled to verify the sensitivity of the environmental themes raised in the ESR.</p>
<p>The National Environmental Management Air Quality Act, No. 39 of 2004 (NEMAQA) has placed the responsibility for air quality management on local authorities that will be tasked with baseline characterisation, management and operation of ambient monitoring networks, licensing of listed activities, and emissions reduction strategies. GN893 of 2013 provides the list of activities in terms of Section 21(1)(a) for which an Atmospheric Emission Licence (AEL) is required in terms of Chapter 5 of the Act. This notice further establishes minimum emission standards for the listed activities. The proposed project does not trigger any listed activities in terms of GN893.</p> <p>The National Dust Control Regulations (GNR827 of 2013) prescribe general measures for the control of dust in all areas, including residential and light commercial areas.</p>	<p>Refer to: Section 3h)iv)1)(a) where the current air quality in the PR application area is characterised.</p>	<p>No listed activities in terms of the NEMAQA are triggered by the proposed project. Therefore, an AEL is not required.</p> <p>Activities associated with the proposed prospecting are unlikely to result in exceedances in the air quality standards. Measures for the management and control of dust arising from exploration activities are described in the EMPr (Part B of this document).</p>
<p>The National Heritage Resources Act, No. 25 of 1999 (NHRA) serves to protect and manage South African heritage and cultural resources, which include places, buildings, structures and equipment of cultural significance, historical settlements and townscapes, archaeological and paleontological sites, graves and burial grounds. The Act protects any heritage resources from</p>	<p>Refer to: Section 3h)iv)1)(j) where the current heritage landscape in</p>	<p>The construction of access roads to drilling sites may require that an overall length of more than 300 m is constructed. SAHRA will be notified of the project with the uploading of the relevant</p>

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 WITH 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)
<p>damage by developments by stipulating in Section 38 that any person intending on undertaking any form of development which involves the activities listed below must, at the earliest stage of initiation, notify the South African Heritage Resources Association (SAHRA) specifically the Northern Cape Heritage Resources Authority (NCHRA), also called Ngwao Boswa Jwa Kapa Bokone:</p> <ul style="list-style-type: none"> A. the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length; B. the construction of a bridge or similar structure exceeding 50 m in length; C. any development or other activity which will change the character of a site— <ul style="list-style-type: none"> i. exceeding 5 000 m² in extent; or ii. involving three or more existing erven or subdivisions thereof; or iii. involving three or more erven or divisions thereof which have been consolidated within the past five years; or iv. the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority. D. the re-zoning of a site exceeding 10 000 m² in extent; or E. any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority. <p>Section 38(8) of the Act states that if heritage considerations are taken into account as part of an application process undertaken in terms of NEMA and the EIA process, there is no need to undertake a separate application in terms of the NHRA. Heritage considerations will form part of this environmental process.</p>	<p>the PR application area is characterised.</p>	<p>documentation to SAHRIS for their comment during the public participation process.</p> <p>Although there are currently no identified/ known heritage sites on the PR application area, other sites have been identified in the wider region. Therefore, there is a potential for the presence of Stone Age sites, graves and historical buildings and features in the PR application area.</p> <p>Mitigation measures for potential chance finds are included in the EMPr (Part B of this document).</p>
<p>The National Water Act, No. 36 of 1998 (NWA) regulates all matters relating to inland water resources. It thus operates as a management instrument with the lead authority being the Department of Water and Sanitation (DWS). This Act provides mechanisms for the prevention of the pollution of water resources to support the management of water as a renewable resource. Section 21 of the NWA lists water uses for which authorisation is required from the DWS.</p> <p>Regulation GN704 of 1999 provides regulations for the use of water for mining and related activities and is aimed to further protect water resources. These regulations describe how mining activities should be managed to protect water resources. The Act thus plays a crucial role in the mining process as many mining-related activities use water as listed in Section 21, thereby requiring approval from DWS.</p>	<p>Refer to: Section 3h)iv)1)(g) where the current water resources in the PR application area are characterised.</p>	<p>According to the National Wetland Map 5 (2020), there are 4 small wetland areas within the PR application area and an additional wetland on the boundary. The 500 m regulated areas around the wetlands have been demarcated as no-go areas for invasive prospecting activities (Figure 3).</p> <p>Limited intake water will be required for prospecting activities. MM will make use of service and potable water obtained off site from an existing, licenced or permissible source. Water from any private borehole not owned by MM will not be utilised.</p> <p>There are no water uses required in terms of Section 21 of the NWA in order to exercise the PR applied for. Therefore, a Water Use Licence (WUL) / General Authorisation (GA) is not required.</p>
<p>The National Environmental Management Waste Act, No. 59 of 2008 (NEMWA) serves to reform the laws regulating waste management in order to protect public and environmental health by providing measures for the prevention of pollution and ecological degradation and to provide defining requirements for the licensing and control of waste management activities. GN921 of 2013 provides definitions for activities which require a Waste Management Licence (WML) and identifies the relevant environmental</p>	<p>A commitment to abide by the Act and Regulations has been included in the EMPr (Part B of this document).</p>	<p>No listed activities in terms of the GN921 to NEMWA will be undertaken in order to exercise the PR applied for. Therefore, a WML is not required.</p> <p>Activities associated with the proposed project will not result in</p>

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<p>authorisations which are further required for said activities.</p> <p>The Waste Classification and Management Regulations (GN634 of 2013) and the related National Norms and Standards (GN635- and GN636 of 2013) provide the requirements by which waste is to be classified, labelled and the requirements related to the disposal thereof depending on the classification.</p> <p>The storage of waste above the specific thresholds (in excess of 100 m³ of general waste or 80 m³ of hazardous waste) for a period of more than 90 days triggers a Category C activity which requires compliance with the National Norms and Standards for the Storage of Waste (GN926 of 2013).</p>		<p>exceedances in the thresholds for waste storage.</p> <p>A commitment to abide by the Norms and Standards is included in the EMPr (Part B of this document), in the unlikely event that waste needs to be stored in excess of threshold values and for longer than 90 days.</p>
<p>The Hazardous Substances Act, No. 15 of 1973 aims to control substances that may cause injury, ill-health, or death through their toxic, corrosive, irritant, strongly sensitising or flammable nature, or by the generation of pressure. The Act provides for the division of such substances or products into groups in relation to the degree of danger as well as the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances and products.</p>	<p>A commitment to abide by the Act and Regulations has been included in the EMPr (Part B of this document).</p>	<p>Hazardous materials such hydrocarbons will be handled on site. MM will ensure that any hazardous materials on site are handled in a manner in line with that described in the Act.</p>
<p>The Mine Health and Safety Act, No. 29 of 1996 and Regulations provide for protection of the health and safety of staff and other persons at mines and, for that purpose to promote a culture of health and safety; to provide for the enforcement of health and safety measures; to provide for appropriate systems of employee, employer and State participation in health and safety matters; to establish representative tripartite institutions to review legislation, promote health and enhance properly targeted research; to provide for effective monitoring systems and inspections, investigations and inquiries to improve health and safety; to promote training and human resources development; to regulate employers' and staff' duties to identify hazards and eliminate, control and minimise the risk to health and safety; to entrench the right to refuse to work in dangerous conditions; and to give effect to the public international law obligations relating to mining health and safety.</p>	<p>A commitment to abide by the Act and Regulations has been included in the EMPr (Part B of this document).</p>	<p>MM will ensure that operations are in line with the requirements of the Act and Regulations.</p>
<p>The purpose of the National Environmental Management: Biodiversity Act, No. 10 of 2004 (NEMBA) is to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA. This includes, among others, the protection of species and ecosystems.</p> <p>Section 52 of the Act provides for listing of threatened or protected ecosystems, in one of four categories: Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Protected. The main purpose of listing threatened ecosystems is to reduce the rate of ecosystem and species extinction and includes the prevention of further degradation and loss of structure, function and composition of threatened ecosystems. Threatened terrestrial ecosystems have been delineated based on the South African Vegetation Map, national forest types and priority areas identified in a provincial systematic biodiversity plan.</p> <p>Section 53 of the Act goes on to provide the Minister with power to publish a list of threatening activities within a Section 52 listed ecosystem for which EA is required and this activity becomes triggered. While the Minister has published a list of ecosystems in need of protection, no list of threatening activities has been published to-date.</p> <p>Chapter 4, Part 2 of the Act provides for listing of species as threatened or protected. If a species is listed as threatened, it should be further classified as critically endangered, endangered or vulnerable (GNR151 of 2007). The Act also defines restricted activities in relation to a specimen of a listed threatened or protected species (GNR152 of 2007).</p>	<p>Refer to: Section 30 where the current biodiversity in the PR application area is characterised.</p>	<p>In terms of the National Biodiversity Assessment 2018, the northern portion of the PR application area is classified as Kathu Bushveld [Threat Status: Least Concern (LC); Protection Level: Poorly Protected (PP)], the southern portion as Olifantshoek Plains Thornveld [LC; PP]; and south-western corner as Kuruman Thornveld [LC; Not Protected].</p> <p>According to the ESR, there is a low sensitivity for the plant species theme and a medium sensitivity for the animal species theme. Areas associated with higher sensitivities are located over the wetland areas, these areas are demarcated as no-go areas and have a further 500 m buffer zone which is also demarcated as a no-go area for prospecting activities.</p> <p>The PR application area does not fall within a threatened ecosystem in need of protection as per the Revised National List of Threatened Terrestrial Ecosystems (GNR2747 of 2022).</p>

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 WITH 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)
<p>The National Environmental Management: Protected Areas Act , No. 57 of 2003 (NEMPAA) was promulgated in order to provide for (among other things) the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes; for the establishment of a national Register of Protected Areas, and for the management of those areas in accordance with national norms and standards.</p> <p>The South African Protected Areas Database (SAPAD) and South African Conservation Areas Database (SACAD) are Geographic Information System (GIS) inventories of all Protected and Conservation areas in South Africa.</p> <p>The National Protected Areas Expansion Strategy (NPAES; 2018) are focus areas for land-based protected area expansion are large, intact and unfragmented areas of high importance for biodiversity representation and ecological persistence, suitable for the creation or expansion of large, protected areas. The focus areas were identified through a systematic biodiversity planning process undertaken as part of the development of the National Protected Area Expansion Strategy (2008). The 2018 NPAES includes the Northern Cape Protected Area Expansion Strategy which was released in 2017.</p>	<p>Refer to: Section 30 where the current biodiversity in the PR application area is characterised.</p>	<p>Refer to commitments in the EMPr (Part B of this document).</p> <p>According to the SAPAD and SACAD databases, the PR application area is not located within any formally protected areas such as national parks, nature reserves or other conservation areas.</p> <p>According to the Protected Areas Register, the closest protected area is the Bredenkamp Nature Reserve located approximately 11 km north-west of the PR. The PR application area does not overlap with any protected area buffers.</p>
<p>The Conservation of Agricultural Resources Act, No. 43 of 1983 (CARA) provides for the conservation of the natural agricultural resources through the maintenance of the production potential of land, through combating and prevention of erosion and weakening or destruction of the water sources, and through the protection of the vegetation and the combating of weeds and invader plants.</p> <p>Amendments to regulations under the CARA (Act No. 43 of 1983) provide for the declaration of weeds and invader plants, with weeds regarded as alien plants with no known useful economic purpose, while invader plants may serve useful purposes as ornamentals, as sources of timber and may provide many other benefits, despite their aggressive nature. Declared weeds are described as Category 1 plants, while declared invader plants with a commercial or utility value are described as Category 2 plants and ornamental species as Category 3 plants. CARA indicates that Category 1 weeds are prohibited, and that Category 2 and 3 plants must be controlled.</p>	<p>Refer to: Section 30 where the current biodiversity in the PR application area is characterised.</p>	<p>The study area is not situated within a Northern Cape Protected Agricultural Area. No field crop boundaries are recorded in the study area.</p> <p>According to the specialist (DSA, 2024, Appendix 6) the overall land capability was classed as low.</p> <p>Refer to commitments in the EMPr (Part B of this document) to conserve topsoil and the regular control of alien and invasive plant (AIP) species.</p>
<p>The National Forests Act, No. 84 of 1998 is enabling legislation providing for sustainable forest use and management and provides special measures to protect trees and forests by prohibiting the destruction of natural forests, protecting areas and individual tree species and further providing measures to control and remedy deforestation. The Department of Forestry, Fisheries and the Environment, and (DFEE) are the custodians of the National Forests Act. The list of protected tree species is contained in Regulation GNR690 of 2017 to the Act.</p> <p>The Act applies to the aspects proposed project pertaining to land clearance in that that no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated.</p>	<p>Refer to commitments in the EMPr (Part B of this document)</p>	<p>Refer to commitments in the EMPr (Part B of this document) which prohibit the removal of protected trees without the necessary authorisations in place.</p>
<p>The Northern Cape Nature Conservation Act, No. 9 of 2009 (NCNCA) provides for the sustainable utilisation of wild animals, aquatic biota and plants as well as permitting and trade regulations regarding wild fauna and flora within the province.</p> <p>The Act also lists invasive species in Schedule 6, specially Protected plant and animal species in Schedule 1, Protected plant and</p>	<p>Refer to: Section 3h)iv)1)(j) where the baseline conditions are described</p>	<p>The PR application area has a medium animal theme sensitivity according to the Screening Report, due to the presence of the white-backed vulture (<i>Aves-Gyps africanus</i>). Specialists were appointed to identify the likely potential for the presence of TOPS</p>

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animal species in Schedule 2 and common plant and animal species in Schedule 3. A permit is required to undertake restricted activities involving species listed in Schedule 1 and 2 which include hunting, importing, exporting, transporting, keeping, possessing (unless occurring naturally), breeding or trading in with respect to animal species listed and picking, importing, exporting, transporting, possessing (unless occurring naturally), cultivating and trading in with respect to plant species listed. A permit would therefore be required from the Northern Cape Department of Environmental Affairs and Nature Conservation (NC DENC) to destroy, remove or relocate any provincially listed Specially Protected or Protected species from the PR application area.		and SCC species. Refer to commitments in the EMPr (Part B of this document).
The Northern Cape Critical Biodiversity Area (CBA) Map (2016) identifies biodiversity priority areas, namely Protected areas, Critical Biodiversity Areas (CBAs 1 and 2), Ecological Support Areas (ESAs) and Other Natural Areas (ONAs), which are important for the persistence of a viable representative sample of all ecosystem types and species as well as the long-term ecological functioning of a landscape as a whole.	Refer to: Section 3h)iv)1)(j) where the baseline conditions are described	According to the Northern Cape CBA Map (2016), the PR application area contains small wetland ESAs. These areas are avoided with the inclusion of a 500 m no-go buffer zone. The remaining area in which prospecting activities will take place is designated as ONA.
The ZF Mgcawu District Municipality (ZFMDM) was previously the Siyanda District Municipality. The Siyanda District Municipality Environmental Management Framework (EMF, 2008) sought to integrate municipal and provincial decision-making to allow for a sustainable development path. The objectives of the EMF included i) providing strategic guidance in the EMF area; ii) assisting in the identification of “identified geographical areas” in terms of NEMA; iii) assisting in the identification of “specified activities” within “identified geographical areas” in terms of NEMA, and iv) providing a decision support system in respect to environmental attributes, issues and priorities in the EMF area.	The EMF has been taken into consideration in determining the need and desirability of the project (refer to Section 3f).	The EMF discusses the decline of mining activities in the region as well as the role of mining in the transformation of the landscape and usage of groundwater resources. The importance of the landscape to the tourism sector is highlighted. According to the EMF, the PR application area is located within a low-medium conservation priority area and is not located within proposed conservation area. The PR application area is located within a low Environmental Control Zone, this zone has relatively less sensitivity than the other zones and no special parameters, except those already implemented or required by law, are proposed for this zone. The PR application area is located to the north of a Potential Wind Erosion Control Zone. Mining in this zone may be compatible providing that impact has been assessed and mitigated.
The Northern Cape Provincial Spatial Development Framework (PSDF) (2020) provides the framework for building a prosperous, sustainable growing provincial economy to eradicate poverty and improve social development. The ZFMDM Spatial Development Framework (SDF) (2023) is intended to guide the orderly and desirable spatial development of the district municipality by guiding development strategies. The SDF should provide direction to guide decision making on an ongoing basis, aiming at the creation of integrated, sustainable, and habitable regions, cities and towns. The National Spatial Development Perspective (NSDP) classified ZF Mgcawu District area as a “medium” importance area and according to the ZFMDM SDF there is no significant investment is concentrated in the region. The NSDP identifies six Categories of Development Potential according to which the national space economy is conceptualized.	The SDFs has been taken into consideration in determining the need and desirability of the project (refer to Section 3f).	Postmasburg is identified as a Rural Service Centre in the SDFs. The PR application area is located near the border of the Gamagara Mining Corridor and also within the corridor identified in the SDF as the “Forgotten Highway Main Route”. The PR application area is located in close proximity to the west of the proposed Boegebaai – Postmasburg Rail Link Route. The PR application area is not located within a sensitive tourist area according to the SDF. The PR application area is located near the border of a Mining Focus Area and to the east of an area demarcated for an Industrial Parks Revitalisation Programme.

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 WITH 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)
<p>The final ZFMDM 2023/2024 Integrated Development Plan (IDP) for 2022 – 2027 and Tstantsabane Local Municipality (TLM) Revised 2020/2021 IDP</p> <p>The IDP is a strategic plan for the municipality, according to the ZFMDM IDP, it seeks to provide an opportunity for shared analysis and planning between the range of stakeholders such as the community, political leadership, administrative leadership, parastatals, organized business interest groups (i.e. CBOs) and NGOs in order to draft a strategy and set the tone for a meaningful development agenda and participation governance. The TLM IDP is used in strategic planning in the municipality and guides planning, development, and decision making. The TLM IDP addresses the municipal financial planning, management and targets.</p> <p>The ZFMDM IDP describes the objectives for the development of the municipality, discusses the key priorities and projects for each of the local municipalities (including the TLM where the project is located).</p>	<p>Refer to the social baseline in Section 3h)iv).</p> <p>This has also been taken into consideration in the determining the need and desirability of the project (refer to Section 3f).</p>	<p>The IDPs have been considered in determining the need and desirability of the project.</p>

f) Need and desirability of the proposed activities (motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of the preferred location)

- Prospecting activities in the area seek to understand the presence and economic potential of the minerals applied for. If the presence of such mineralisation is confirmed, the ability to extract the mineral resources economically and sustainably according to the principles of Section 2.3 of NEMA would be the subject of mining and economic feasibility assessments as well as environmental studies forming part of any future applications made in terms of Section 22 of the MPRDA.
- In terms of economic and social development, the National Development Plan 2030 as well as relative IDPs, highlight the need to create employment on a large scale. There is opportunity to sustainably develop this within South Africa's core sectors, which include mining, while conserving natural capital (ecosystems and ecological resources).
- Prospecting and related activities seek to progress mining sector development. According to the PSDF, the area under application is situated on the edge of the Gamagara Mining Corridor. The development of new mining ventures in the province will provide market for the proposed rail infrastructure as described in the SDF.
- Globally, Asia is by far the largest consumer market for manganese lumpy and fines ore produced by South African Manganese mines. There is a need for manganese resources in the global market, both at present and in future.
- In terms of securing ecological sustainable development and use of natural resources, the invasive activities associated with the PR may temporarily disturb the ecosystem due to localised habitat / ecosystem transformation / loss. However, the PR application area falls within the Kathu Bushveld, Olifantshoek Plains Thornveld and Kuruman Thornveld ecosystem types which are considered to be of least concern in terms of threatened ecosystems in terms of Section 52 of NEMBA. Biodiversity within the PR application area is anticipated to be associated with the pans and a 500 m protective buffer around the pans has been implemented to minimise disruption. A loss of biodiversity as a result of the activities to be undertaken is not expected and measures to avoid, minimise and remedy potential negative biophysical and ecological impacts are included in this BAR/ EMPr.
- The current socio-economic context of the area is characterised in Section 3.1)(j) and includes a description of the provincial, regional and local context and the receiving socio-economic environment. The latest IDP of the district and local municipalities and associated LED strategies were also consulted in characterising the socio-economic context of the area. The public participation process will meet the requirements of Chapter 6 of the NEMA EIA Regulations, (GNR982 of 2014 *as amended*) as described in Section 3.i)ii).
- According to the EMF for the district municipality, there are significant undeveloped mineral resources left in the area that can contribute to future economic growth in the area depending on the future viability of exploiting the minerals. However, the EMF identified that large areas of un-rehabilitated or poorly rehabilitated mining activities (current and closed) have a significant negative effect on the scenic environment in the district, especially in the mountainous areas. The EMF identifies a desired state for the municipality in which mining activities are to be rehabilitated to the extent that their negative impact on the visual environment does not affect the tourism potential of the area negatively.

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

The PR application area has been selected based on the anticipated geology of the area. Therefore, no alternatives to the PR application area have been identified. There is flexibility in terms of the positions of the boreholes, which will be determined after non-invasive exploration has taken place. Various alternative positions and drilling grid configurations can be considered at that stage to take cognisance of specific geological and sensitive environmental and socio-economic features.

The technology that will be employed during prospecting is standard to the industry and utilising these techniques will assist in assessing the presence of the target resources and the viability for further development.

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 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.

- a) The site has been selected based on the geological understanding of the area as determined from existing geological maps and institutional knowledge.
- b) The type of activity is prospecting and is limited by the geology, potential for prospecting right applications and the business interest of MM. There are no alternatives to the type of activity (prospecting activities) as prospecting is required to characterise the mineral resources in the area. Non-invasive activities are undertaken first in order to identify and assess the need for further invasive (drilling) prospecting activities.
- c) The target area for borehole drilling within the PR application area will be determined based on the findings of the non-invasive prospecting activities. Selection and refinement of the drilling grid will consider the sensitive environmental and socio-economic features and management measures as described in this BAR / EMPr.
- d) The technology involved in prospecting includes GIS, geological mapping, geophysical surveys, borehole drilling, logging and resource modelling. The use of geophysical surveying is considered to be non-invasive and is used to identify sites for borehole drilling, this reduces the need for extensive explorative drilling and trenching. There is little scope for using alternative drilling methods during prospecting. Trenching activities have **not** been considered in the application for the PR. Trenching can be more environmentally disruptive and requires further rehabilitation measures.
- e) The operational aspects are limited to the prospecting methods, as per d) above.
- f) If the project is not implemented, the potential mineralisation will not be further characterised. Any potential impacts identified (both positive and negative) will not be realised. The site would likely continue to exhibit the current land-use and baseline features as described in this report.

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)

The public participation process seeks to conduct meaningful consultation with landowners, lawful occupiers, owners and occupiers of adjacent land, municipal councillor of the ward, organisation of ratepayers that represent the community in the area, the municipality, organs of state having jurisdiction in respect of any aspect of the activity and other IAPs.

The 30-day public participation commenting period will run from 25 April to 27 May 2024.

IAP Registration

An IAP register will be maintained through public participation and include representatives from the organs of state which have jurisdiction applicable to the project were included therein along with the landowner-, adjacent landowners- and any representatives thereof. During the public participation period, any IAPs who submit written comments or request to register, will be included into the database. The database will be provided to the Competent Authority upon submission of the final documentation and will not be disclosed to the public, in order to align with the Protection of Personal Information Act, No. of 2013 (POPI Act).

Written notification

Written notice, as required by NEMA Regulations Section 41(2)(b), will be provided to the following recipients:

- Lawful occupant / landowner on the site over which the application has been submitted.
- Landowners, lawful occupiers and persons in control of land adjacent to the site.
- The municipality and municipal councillor of the ward in which the site is situated.
- Organs of state having jurisdiction in respect of any aspect of the activity.
- Any other parties identified by the Competent Authority as requiring notification.

In terms of Section 41(2)(b) of the NEMA Regulations, notices will be provided to the above-mentioned parties via email and, where applicable, by hand or via text message.

The current landowner of the farm subject to the PR application was provided with written notification of the project via email on 8 March 2024. Communication was provided in the landowner's preferred language (Afrikaans). Due to personal information within the notification, proof of notification will be provided to the Competent Authority and will not be disclosed to the public, in order to align with the POPI Act.

Proof of distribution of notification to adjacent landowners and organisations will be provided to the Competent Authority.

Media Notice

A media notice will be published in a local newspaper (Noordkaap Bulletin). The media notice was prepared in accordance with Section 41(2)(c) of the NEMA EIA Regulations. The notice indicates that a Basic Assessment process is being undertaken in terms of NEMA, the nature and location of the activity to which the application relates, the process to follow to register as an IAP and otherwise make representations regarding the proposed application, where the BAR / EMPr can be attained for review, and contact details of the EAP from whom more information can be obtained. The timeframes for the public commenting period and deadlines for submission of comments will be clearly indicated (refer to Appendix 5).

Noordkaap Bulletin is a local newspaper published in Afrikaans and English that is distributed free of charge in the area. The distribution network includes Olifantshoek, Postmasburg and Upington which are located close to the PR application area.

Site Notices

Site notices will be displayed on-site and at conspicuous locations within the surrounding area during the public participation period. The site notice was prepared in accordance with Section 41(3) of the NEMA EIA Regulations and provides a brief project description, that a Basic Assessment process is being undertaken in terms of NEMA, the nature and location of the activity to which the application relates, the process to follow to register as an IAP and otherwise make representations regarding the proposed application, where the BAR / EMPr can be attained for review, and contact details of the EAP from whom more information can be obtained. The timeframes for the public commenting period and deadlines for submission of comments are clearly indicated (refer to Appendix 5).

Provision of reports and documents

The BAR / EMPr and any other relevant document (“information containing all relevant facts in respect of the application”) for review and comment by IAPs, stakeholders and the relevant State Departments will be provided via an email containing a link to a download platform (on the Prime Resources website: www.resources.co.za) during the 30-day commenting periods. A copy of the report will be available in the Postdene Library in Postmasburg (Corner of Acacia & Plein St) for public review.

Reports will be uploaded to SAMRAD and hard copies of the Final BAR / EMPr will be submitted to the Northern Cape DMRE Regional Office.

Comments and Response Report

A Comments and Responses Report (see Table 1 below) will be prepared, containing all comments received and responded to and any other representations made during the 30-day commenting period. Copies of comments received and responses will be included as an appendix in the final BAR/EMPr submitted to the DMRE for consideration.

In order to fulfil the requirements for meaningful public consultation in terms of the MPRDA, NEMA and the EIA Regulations, Prime Resources is required to process the personal information (as defined in the POPI Act) of IAPs and relevant Stakeholders. Such personal information may include full names, addresses, designations and any comments or representations. This data will be captured either through wilful disclosure by IAPs and Stakeholder, or, where necessary, from data published on the internet (for example, contact information for employees at Government Departments). This data will be retained on the IAP database for the duration of the Environmental Authorisation application process- and, if the activities are authorised, the duration of the Environmental Authorisation, after which it will be destroyed. In order to uphold the interests of IAPs and Stakeholders, certain elements of the data processed will be disclosed in the reports produced by the EAP, however, full names and contact information will only be disclosed to the Competent Authority.

iii) Summary of issues raised by IAPS (complete the table summarising comments and issues raised, and reaction to those responses)

The table below was updated during the public participation period to record all comments provided by IAPs and the responses thereto (provided in Appendix 5.6). The table is also referred to as the Comments and Response Report.

Table 1. Comments and Response Report

INTERESTED AND AFFECTED PARTIES	DATE NOTIFIED AND COMMENTS RECEIVED	ISSUES RAISED	(DATE & METHOD OF RESPONSE) EAP'S RESPONSE TO ISSUES AS MANDATED BY THE APPLICANT	CONSULTATION STATUS
Landowner/s and lawful occupier/s of the land where the activity will take place				
Gappepin Reserve 670 – Mr G. Maritz				
Landowners or lawful occupiers on adjacent properties				
Jenkins 562				
Jenkins 562/3				
Macarthy 559/2				
Macarthy 559/3				
Macarthy 559/5				
Bishop 671/4				
Bishop 671/2				
Lomoteng 669				
Hilliard 664				
Crossley 660				
Gamaliets 659				
Gamaliets 659/1				
Roscoe 563				
Municipal ward councillor				
Hermanus Deyoungs Miennies – ward councillor of ward 30805006, NC085 - Tsantsabane, Northern Cape				
Municipality				
Tsantsabane Local Municipality				
ZF Mgcauwa Gaetsewe District Municipality				
Organs of state (responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWS etc.)				
Department of Water and Sanitation				
Eskom				
Transet				
Department Land Affairs				
Northern Cape Province Department: Agriculture, Environmental Affairs, Land Reform and Rural Development				
Department of Agriculture, Land Reform and Rural Development				
Traditional Leaders				
According to the Co-operative Governance and Traditional Affairs Report of the Profile and Analysis District Development Model - there is no tribal land in the ZF Mgcauwa district and no Traditional Councils				
Department Environmental Affairs				
Department of Forestry, Fisheries and the Environment				
Other Competent Authorities affected				
Northern Cape Department Economic Development and Tourism				
Department of Labour				
Northern Cape Heritage Resources Authority (NCHRA)				

BAR AND EMPR – MM GAPPEPIN RESERVE PROSPECTING RIGHT APPLICATION – APRIL 2024

INTERESTED AND AFFECTED PARTIES	DATE NOTIFIED AND COMMENTS RECEIVED	ISSUES RAISED	(DATE & METHOD OF RESPONSE) EAP'S RESPONSE TO ISSUES AS MANDATED BY THE APPLICANT	CONSULTATION STATUS
Organisations and additional IAPs				
Agri Northern Cape				

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

The description below is applicable to the area under application, inclusive of the borehole drills sites associated with the drilling grid to be defined after the completion of non-invasive exploration activities, and any alternative sites within the target area which may be further identified.

1) Baseline environment

(a) Air Quality and Climate

The information presented in this section was obtained from following reports:

- Air Quality Management Plan (AQMP) for the Northern Cape: Air Quality Baseline Assessment Report developed by uMoya-NILU (December 2017)
- Agricultural Compliance Statement for the Gappepin Reserve Prospecting Right Application compiled by Digital Soils Africa (Pty) Ltd (DSA) (April 2024) (refer to Appendix 6)
- Internal Strategic Perspectives (ISP) for the Lower Vaal Water Management Area (WMA) (No 10, 2004).

The Northern Cape is generally hot and dry. Maximum temperatures are experienced in December/ January and minimum temperatures usually occur in July. Maximum summer temperatures often exceed 40°C. During winter, the average daytime temperatures are mild and nighttime temperatures may drop below 0°C.

The PR application area falls within the summer rainfall region of South Africa, in which more than 80% of the annual rainfall occurs from October to April, during the summer months although it also rains during spring and autumn while the winter months are dry even though the relative humidity is greater during the winter period than other seasons. As described in the Soil Compliance Statement (appendix 6, DSA, 2024), the climate in the local area is considered a local steppe climate. The Köppen-Geiger climate classification is BSh. The average annual temperature is 18.8 °C. During the year, there is very low rainfall, with an annual precipitation of about 374 mm. The site has an arid climate.

Humidity is generally highest in February (the daily mean over the WMA area ranges from 66 % in the east to 62 % in the west) and lowest in August (the daily mean over the study area ranges from 53 % in the east to 57 % in the west). Average gross potential mean annual evaporation (as measured by Class A-pan) ranges from 2 646 mm to 2 690 mm in the Lower Vaal WMA. The highest A-pan evaporation occurs in December and ranges between 300 mm and 380 mm.

Existing emissions sources

In accordance with Section 15(2) of the NEM: AQA, the Northern Cape Department of Environment and Nature Conservation developed an Air Quality Management Plan (AQMP). The following information was obtained from the AQMP for the Northern Cape: Air Quality Baseline Assessment Report developed by uMoya-NILU (Final, December 2017). The main sources of air pollution in the Northern Cape are biomass burning and mining, followed by industry and motor vehicles. Biomass burning is a major contributor of carbon monoxide (CO) whereas mining contributes particulate matter (PM₁₀, PM_{2.5}) and total suspended particles (TSP). Long range atmospheric transport of air pollutants from the industrialised Highveld and biomass burning in southern and central Africa may influence ambient air quality over parts of the Northern Cape. Emissions within the Northern Cape in 2015 are summarised in Table 2.

Table 2. Estimated emissions (tons/annum) during 2015 in the Northern Cape (uMoya-NILU, 2017)

	PM ₁₀	PM _{2.5}	TSP	SO ₂	NO _x	CO	VOC
Industrial sources	1452		133	289	333	79	24
Mining	32248	22315	61453				
Residential fuels	42			2	6	315	
Biomass burning			15978	695	3917	115525	
Motor vehicles	517			253	6574	15433	3067
Airports				3	11	9988	158
Total	34259	22315	77564	1242	10841	141340	3249

On a more local scale, the majority of emissions are expected to be from unpaved roads, the nearby mining developments, and erosion from exposed surfaces. Dust emissions from paved roads are significantly less than those originating from unpaved roads, however they do contribute to the particulate load of the atmosphere. Emissions generated by wind erosion are dependent on the frequency of disturbance of the erodible surface.

(b) Noise

The typical noise rating in the area is expected to be that for rural districts with little road traffic. According to SANS 10103:2008, the continuous noise rating level is thus likely between 35 dB(A) at night to 45 dB(A) during the day.

Potential sources and contributors to the soundscape of the area under application include vehicles travelling along the gravel roads, the mining development located on the adjacent farm (Bishop farm to the east of the PR application area), farming type noise, livestock, birds, insects and wind noise. The landowner also mentioned that he can sometimes hear trains from the nearby railway.

(c) Geology

Information for this section has been sourced from:

- Palaeontological Impact Assessment for a Prospecting Right Application on Gappepin Reserve, between Olifantshoek and Kathu, Northern Cape Province (March 2024, Prof Marion Bamford) (refer to Appendix 5).
- A critical review on previous geohydrological studies at Sishen Iron Ore Mine (prepared by Mine Water Consultants, 2013)

According to the Mine Water Consultants (2013) report, the PR application area is underlain by the lava of the Ongeluk Group, with large areas covered by a few meters thick unconsolidated wind-blown sands of the Gordonia Formation of the Kalahari Group. A number of cut-off dykes are present on this farm, on which two boreholes were drilled by the mine.

The PR application area lies in the Griqualand West Basin where the rocks of the Transvaal Supergroup are exposed. Younger transported sediments of Quaternary age unconformably overlie the older basin rocks (Figure 4, Appendix 5).

The Late Archaean to early Proterozoic Transvaal Supergroup is preserved in three structural basins on the Kaapvaal Craton; the Transvaal and Griqualand West Basins in South Africa, and the Kanye Basin is in southern Botswana (Eriksson et al., 2006). The Griqualand West Basin is divided into the Ghaap Plateau sub-basin and the Prieska sub-basin. Sediments in the lower parts of the basins are very similar but they differ somewhat higher up the sequences. Several tectonic events have greatly deformed the southwestern portion of the Griqualand West Basin between the two sub-basins.

The Transvaal Supergroup comprises one of world's earliest carbonate platform successions (Beukes, 1987; Eriksson et al., 2006; Zeh et al., 2020). In some areas there are well preserved stromatolites that are evidence of the photosynthetic activity of blue green bacteria and green algae. These microbes formed colonies in warm, shallow seas.

In the Griqualand West Basin, the Ghaap Group of the Transvaal Supergroup, is divided into four subgroups, from the oldest ((Eriksson et al., 2006):

- Schmidtsdrift Subgroup – comprised of two formations; the lower Boomplaas Formation is composed of stromatolitic and oolitic platform carbonates; and the upper Clearwater Formation is comprised of shales, tuffites and BIF-like cherts.
- Campbell Rand Subgroup – comprised of nine formations that form a stromatolitic carbonate platform. Platform margin and lagoonal dolomites are manganese-rich, whereas basinal dolomites are iron-rich, and intertidal to supratidal deposits are virtually free of iron and manganese.
- Asbestos Hills Subgroup – comprised of three formations, the Kliphuis, Kuruman and Danielskuil (or Griquatown) Formations, with all noting iron-formation.
- Koegas Subgroup

Tertiary calcretes cover large parts of the Northern Cape. Overlying many of these rocks are loose sands and sand dunes of the Gordonia Formation, Kalahari Group of Neogene Age. The Gordonia Formation is the youngest of six formations and is the most extensive, stretching from the northern Karoo, Botswana, Namibia to the Congo River (Partridge et al., 2006). It is considered to be the biggest paleo-erg in the world. The sands have been derived from local sources with some additional material transported into the basin (Partridge et al., 2006). Much of the Gordonia Formation comprises linear dunes that were reworked a number of times before being stabilised by vegetation.

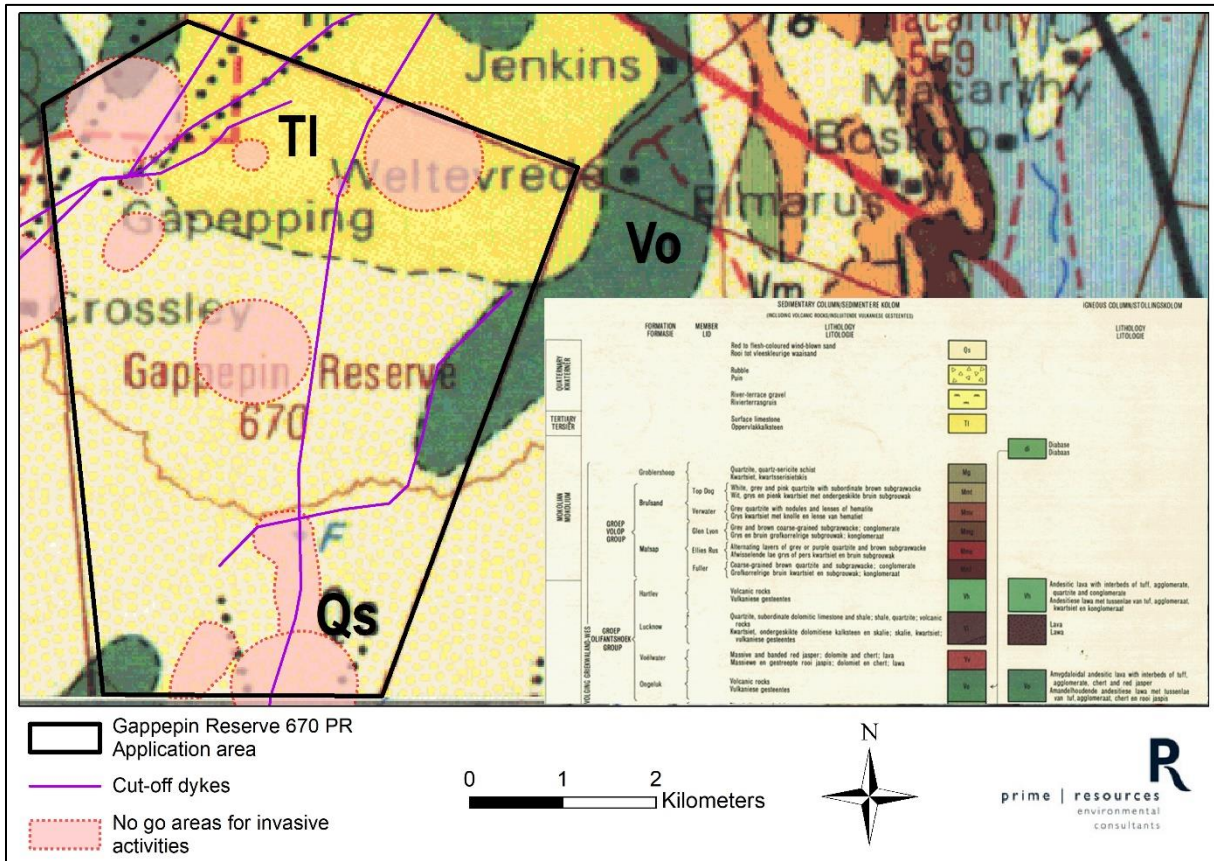


Figure 4. Geological map (updated to include cut-off dykes from Mine Water Consultants, 2013)

(d) Palaeontology

Information for this section has been sourced from:

- Palaeontological Impact Assessment for a Prospecting Right Application on Gappepin Reserve, between Olifantshoek and Kathu, Northern Cape Province (March 2024, Prof Marion Bamford) (refer to Appendix 5).

The SAHRIS palaeosensitivity map for the PR application area identified the northern portion as high sensitivity and the majority of the area as moderate sensitivity. The site for prospecting is covered by Quaternary sands and limestone but the target rocks for prospecting are the deeper buried iron and or manganese ores. According to the specialist, although banded iron was formed by the seasonal oxidation of iron in solution by the oxygen released by the ancient algal colonies, converting ferrous iron to haematite, there are no fossil microbes preserved in the banded iron. Therefore, it is not considered to contain any trace fossils or fossils.

As discussed in the specialist report (refer to Appendix 5):

- The Tertiary calcretes can host fossils and artefacts when associated with palaeo-pans or palaeo-springs (Partridge et al., 2006). Where deflation has occurred, for example along the west coast of South Africa, any trapped materials in the different levels can be concentrated in the depo-centre of the pan or dune and thus it can be challenging to interpret the deposit (Felix-Henningsen et al., 2003).
- The Aeolian sands of the Gordonia Formation do not preserve fossils because they have been transported and reworked. Conditions required for the preservation of organic material and formation of fossils are burial in a low energy, anoxic environment such as overbank deposits, lake muds or clays (Briggs and McMahon, 2016). Aeolian sands are high energy, well oxygenated environments. In some regions the sands may have covered pan or spring deposits and these can trap fossils, and more frequently archaeological artefacts. Usually, these geomorphological features can be detected using satellite imagery. No such features are visible within the PR application area.

It is extremely unlikely that any fossils would be found in the loose soils and sands that cover the area or in the surficial limestone, or the iron or manganese ores below ground that will be drilled. A Fossil Chance Find Protocol has been added to the EMPr in the case that fossils are discovered.

(e) Soil, Land Capability and Agricultural Potential

Information for this section has been sourced from:

- Agricultural Compliance Statement for the Gappepin Reserve Prospecting Right Application compiled by Digital Soils Africa (Pty) Ltd (DSA) (April 2024) (refer to Appendix 6).
- Desktop Wetland Delineation and Impact Assessment for the Proposed Prospecting Right Application on Gappepin Reserve 670, near Kathu, Northern Cape Province (The Biodiversity Company, March 2024b, refer to Appendix 8).

According to the land type database (Land Type Survey Staff, 1972 - 2006), the PR application area is predominantly characterised by the Ag110 and Ae12 land types. In addition, a small portion (southwest corner) of the PR application area traverses the Ae7 and Ag109 land types (Figure 6). According to the land type database (Land Type Survey Staff, 1972 - 2006), the Ag land type consists of freely drained red or yellow brown apedal soils with red soils being dominant. These soils are characterised by a high base status and are likely to be less than 300 mm deep. The Ae land type consists of red, yellow apedal soils which are freely drained. The soils tend to have a high base status and are deeper than 300 mm. The Ae broad land type being predominantly deep, while the Ag broad land type being predominantly shallow (< 300 mm deep).

This region is predominantly characterised by aeolian red sand and surface calcrete, deep (>1.2 m) sandy soils of Hutton and Clovelly soils forms. Red aeolian sand of Tertiary to Recent age (Kalahari Group) with silcrete and calcrete and some andesitic and basaltic lava of the Griqualand West Supergroup also occurs predominantly within the PR application area. In addition, some Campbell Group dolomite and chert and mostly younger, superficial Kalahari Group sediments, with red wind-blown (0.3 – 1.2 m deep) sand also occurs in a small portion (southwestern corner) of the PR application area. Locally, rocky pavements are formed in places (Mucina and Rutherford, 2006).

The National Land Capability Classification was undertaken at a national scale, using the land type data on a scale of 1:250 000 (DAFF National land capability evaluation raster data layer, 2017). The National Land Capability has fifteen classes, as opposed to the eight classes described by Schoeman et al. (2002). Classes 1 to 7 are of low land capability and only suitable for wilderness or grazing. Classes 8 to 15 are considered to have arable land capability with the potential for high yields increasing with the land capability class number. The Land Capability values of the PR application area are between 4 (very low to low) and 7 (low to moderate), which is in the range of non-arable soils (1-7), with low land capability (Figure 5).

According to the specialist (refer to Appendix 6), there are no field crop boundaries located within the study area. Due to the arid conditions at the site, the cultivation of dry land crops would prove to be very difficult. The PR application area has a low to moderate grazing capacity of 14 ha/LSU (hectares per large stock unit).

The study area is not situated as a Protected Agricultural Area, as defined by the draft framework of the Preservation and Development of Agricultural Land Framework Act.

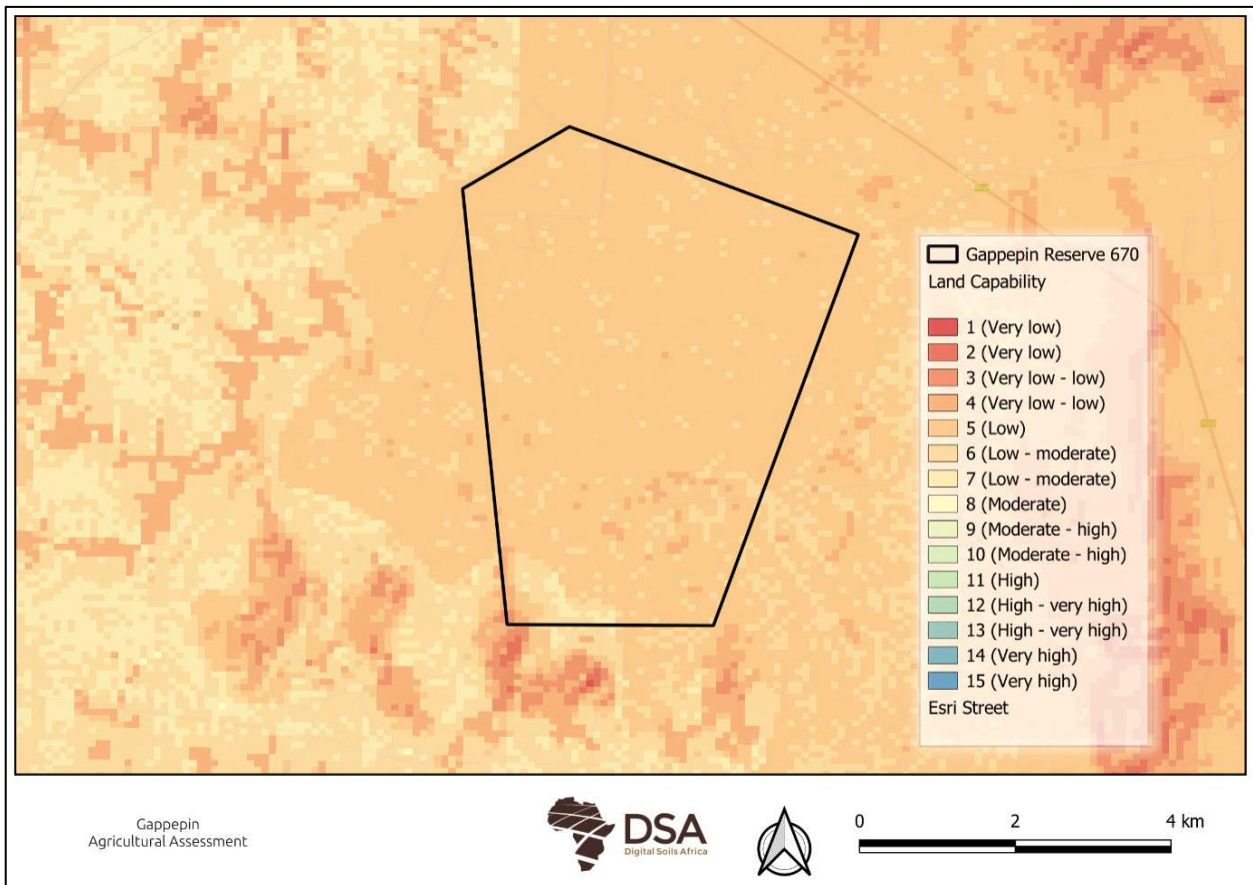


Figure 5: Land capability class (DAFF 2017, from DSA 2024, Appendix 6)

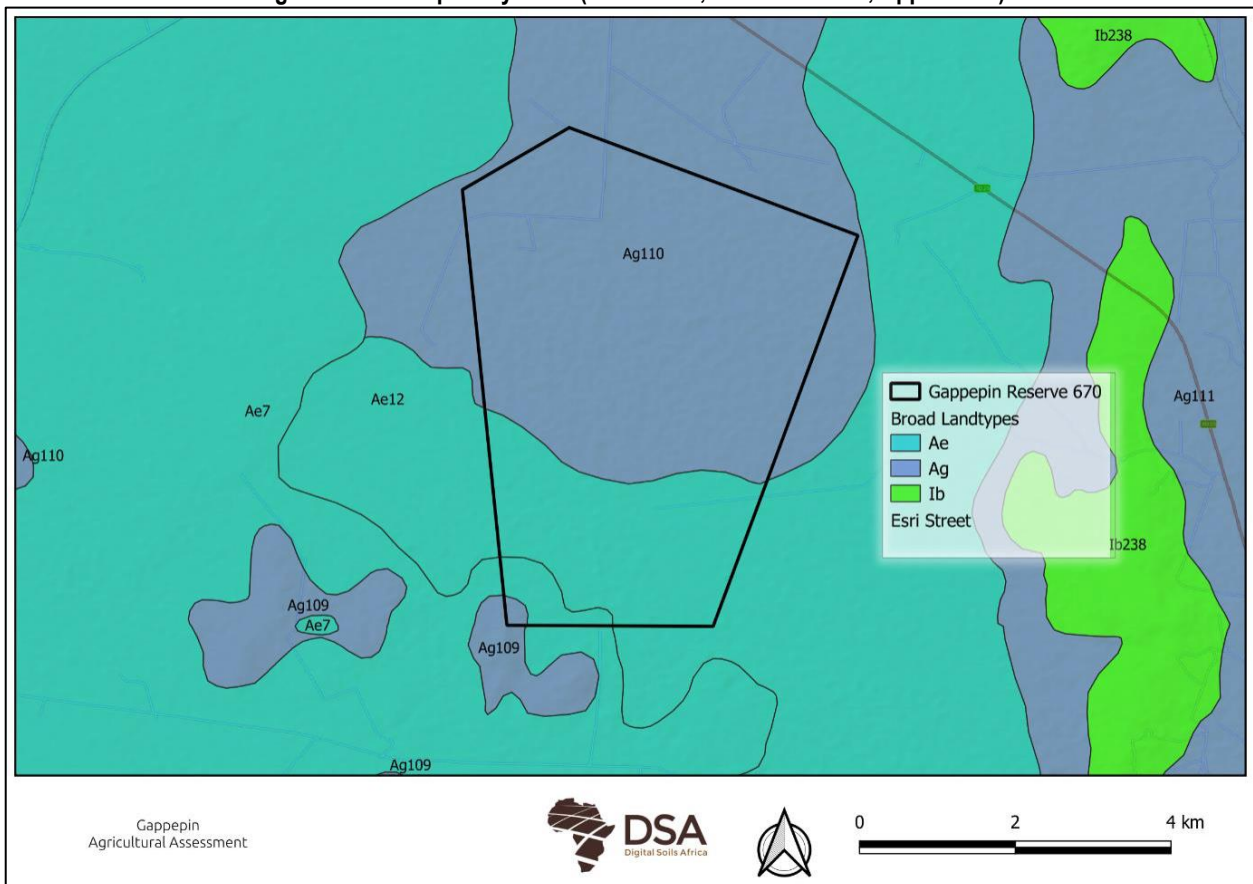


Figure 6. Land types occurring in the study area according to Land Type Survey Staff, 1972 – 2002 (DSA 2024, Appendix 6)

(f) Terrestrial Ecology

Information for this section was sourced from:

- Desktop Terrestrial Assessment for the Proposed Prospecting Right Application on Gappepin Reserve 670, near Kathu, Northern Cape Province (The Biodiversity Company, March 2024, refer to Appendix 7).

The National Biodiversity Assessment 2018 (NBA) (Skowno et al, 2019) assesses the state of South Africa's biodiversity based on best available science, with a view to understanding trends over time and informing policy and decision-making across a range of sectors. According to the NBA, the following indicators are relevant for the PR Application area (Figure 7):

- The Ecosystem Threat Status is an indicator of an ecosystem's wellbeing, based on the level of change in structure, function or composition. According to the spatial dataset the proposed project overlaps with Least Concern ecosystems.
- The Ecosystem Protection Level is an indicator of the extent to which ecosystems are adequately protected or under-protected. The proposed project overlaps with a Poorly Protected (PP) and Not Protected (NP) areas.

According to the Northern Cape Critical Biodiversity Areas (CBA) Map, the overall Prospecting Right area has small wetland Ecological Support Areas (ESAs), with the majority of the PR application area classified as Other Natural Areas (ONAs) (Figure 8).

According to the protected area spatial datasets from SAPAD (DFFE, 2021a), 'Brooks Nature Reserve' and 'Bredenkamp Nature Reserve' are situated approximately 12 km north-west of the project area (Figure 9).

The PR application area does not overlap with NPAES priority focus areas. These areas are typically important for regional conservation due to their status as important habitat or biodiversity areas and their proximity to formally protected areas or CBA's.

Land cover

Land cover according to the Thompson, 2019 classes identified that the dominant land use type in the project area was Low Shrubland (64.6%), located throughout the project area. The second most dominant land cover type was Natural grassland (34.1%), with Open woodland making up 1.020% of the land cover. From a freshwater perspective, Dry and Natural pans together comprise 0.2 % of the landcover.

Flora

The PR application area is situated in the Savanna biome. The savanna vegetation of South Africa represents the southernmost extension of the most widespread biome in Africa (Mucina & Rutherford, 2006). On a fine-scale vegetation type, the Project Footprint overlaps predominantly with the Kathu Bushveld and Olifantshoek Plains Thornveld vegetation types (Figure 7). A small portion (southwest corner) of the footprint traverse the Kuruman Thornveld vegetation type. Mucina and Rutherford, 2006 characterises the areas as follows:

- The Kathu Bushveld vegetation type is characterised by a medium tall tree layer with *Acacia erioloba* in places and predominantly includes the *Boscia albitrunca* as tree species. The dominant shrubs within this vegetation type are *A. mellifera*, *Lycium hirsutum* and *Diospyros lycioides*. This vegetation type is not conserved in any conservation areas and is characterised by a loss of 1% due to mining activities.
- The Olifantshoek Plains Thornveld is characterised as a very wide and diverse unit on plains with usually open tree and shrub layers with, for example, *Acacia luederitzii*, *Boscia albitrunca* and *Rhus tenuinervis* and with a usually sparse grass layer.
- The Kuruman Thornveld vegetation type is characterised with flat rocky plains and some sloping hills with a very well-developed, closed shrub layer and well-developed open tree stratum consisting of *Acacia erioloba*.

The Plants of Southern Africa (POSA) database indicates that 220 species of indigenous plants are expected to occur within the project area. No species of conservation concern (SCCs) were indicated by the screening tool.

Potential Fauna and Avifauna

According to the desktop specialist assessment (The Biodiversity Company, Appendix 7), based on the FrogMap, the amphibian species, *Kassina senegalensis* (Bubbling Kassina), is expected to occur within the project area. No amphibian SCCs are expected to occur within the project area. Based on the ReptileMAP database, 16 reptile species are expected to occur within the area. One species, *Psammodon leightoni* (Cape Sand Snake) is regarded as SCC and has a regional Vulnerable (VU) conservation status. The MammalMap lists 3 non-volant (land based) mammal species that could be expected to occur within the area. None of these expected species are regarded as threatened.

The SABAP2 Data lists 122 avifauna species that could be expected to occur within the area and none of these expected species are regarded as SCC. The screening tool indicates one sensitive avifauna species, *Gyps africanus* (White-backed vulture) occurs in the

project area. This species has a Critical Endangered Conservation Status. Important Bird & Biodiversity Areas (IBAs) are the sites of international significance for the conservation of the world's birds and other conservation significant species as identified by BirdLife International. The PR application area is not located within 100 km of any IBAs.

Alien Invasive Plants

The list of Alien Invasive Species was published in terms of the NEMBA in 2014. The Alien and Invasive Species Regulations were published in 2020. The legislation calls for the removal and / or control of alien invasive plant species (Category 1 species). In addition, unless authorised thereto in terms of the NWA, no land user shall allow Category 2 plants to occur within 30 m of the 1:50 year flood line of a river, stream, spring, natural channel in which water flows regularly or intermittently, lake, dam or wetland. Category 3 plants are also prohibited from occurring within proximity to a watercourse.

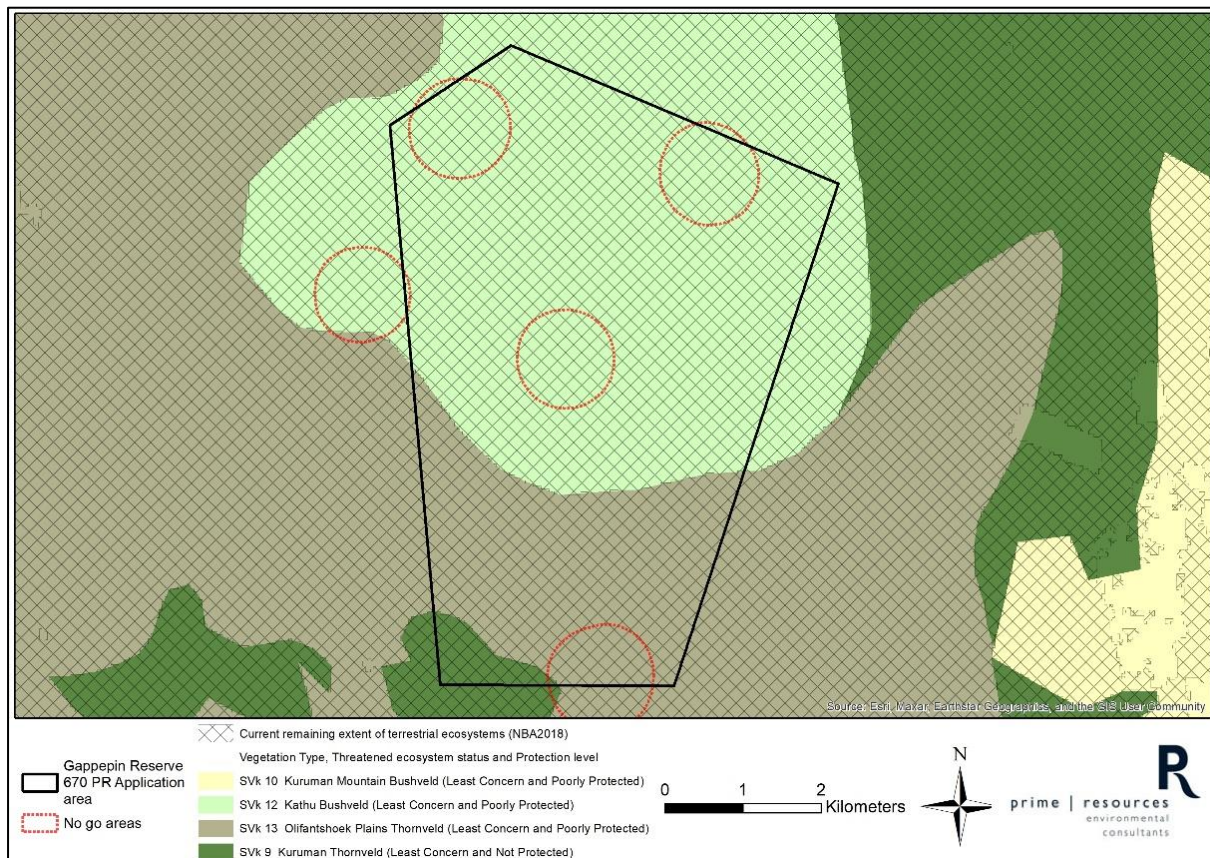


Figure 7. NBA: Terrestrial Remnant Vegetation (2018), Vegetation Type, Threatened ecosystem and Conservation Status for the proposed PR application area

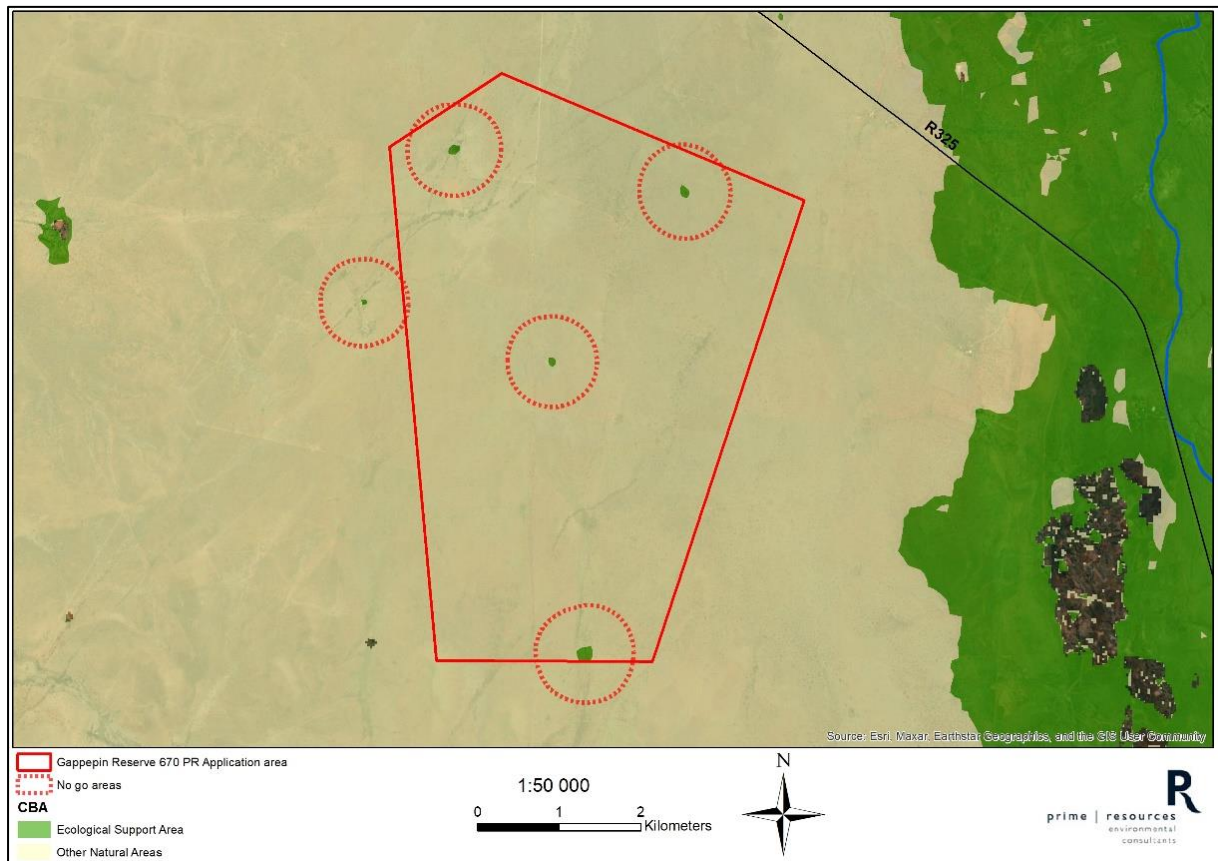


Figure 8. Northern Cape CBAs (2016) map for the proposed PR application area

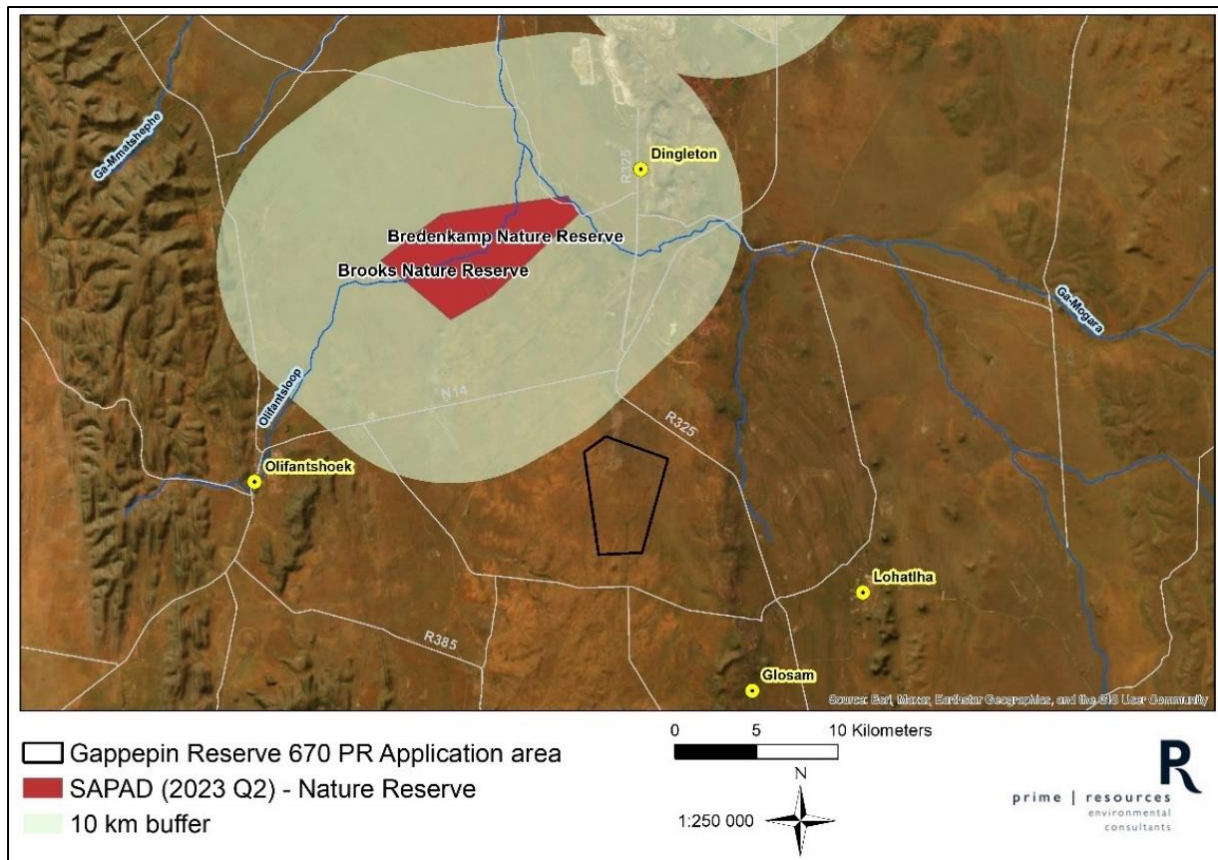


Figure 9. Protected Areas according to SAPAD

(g) Wetlands and Hydrology

Information for this section was sourced from:

- Desktop Wetland Delineation and Impact Assessment for the Proposed Prospecting Right Application on Gappepin Reserve 670, near Kathu, Northern Cape Province (The Biodiversity Company, March 2024b, refer to Appendix 8).

The PR application area is located within the Vaal Water Management Area (WMA) within the Southern Kalahari Ecoregion, within Quaternary Catchment D41K (Figure 10).

The Lower Vaal catchment area is less developed than the upper and middle catchment, with agriculture being the predominant land use. The significant development within the system includes both formal and informal urbanisation, industrial growth, agricultural activities and widespread mining activities. The river catchments are largely undeveloped, although significant iron ore and manganese deposits are being mined in the Ga-Mogara River catchment. The Kuruman River catchment comprises mostly agricultural activities. A tributary of the Ga-Mogara River is situated approximately 5 km to the east of the PR application area (Figure 11).

A few inland water areas, called dry pans, have been identified by the specialist within the proposed PR application area by means of the “2722” quarter degree square topographical river line data set (Figure 12, refer to Appendix 8). One non-perennial feature enters the area to the south. In addition, a few non-perennial features are located in close proximity of the PR application area (Figure 12). No perennial features were identified within the PR application area.

The South African Inventory of Inland Aquatic Ecosystems identified the pan areas as depression wetlands. The depression wetlands do not typically possess more than one of the key indicators typically associated with wetlands in South Africa, specifically, hydrophytic vegetation, they are nevertheless deemed to be potentially ecologically important and may play a significant role in the ecology of the area. The soils of temporary wetlands in arid regions, such as the project area, are often too temporarily inundated to exhibit typical wetland indicators. These temporary wetlands cannot reliably be identified or delineated using the wetland indicators.

The PR application area is not located within a Strategic Water Source Area (SWSA) for surface water (Lotter and Le Maitre, 2021), however, it is located within the SWSA for groundwater (Sishen/Kathu; Le Maitre et al., 2018).

The extent of the hydrogeomorphic (HGM) features on the site were assessed using current and historic Google imagery by The Biodiversity Company specialists (refer to Appendix 8). Historical imagery has shown potential signs of wetness that was not highlighted by the spatial datasets. These areas may be episodic drainage lines or potential wetlands (Figure 13). These areas have also been included as no-go areas for invasive prospecting activities, pending confirmation of the presence thereof during a site inspection.

The specialist determined the buffer requirements for the wetlands and drainage features which were calculated using the Site-Based Tool: Determination of buffer zone requirements for wetland ecosystems (refer to Appendix 8).

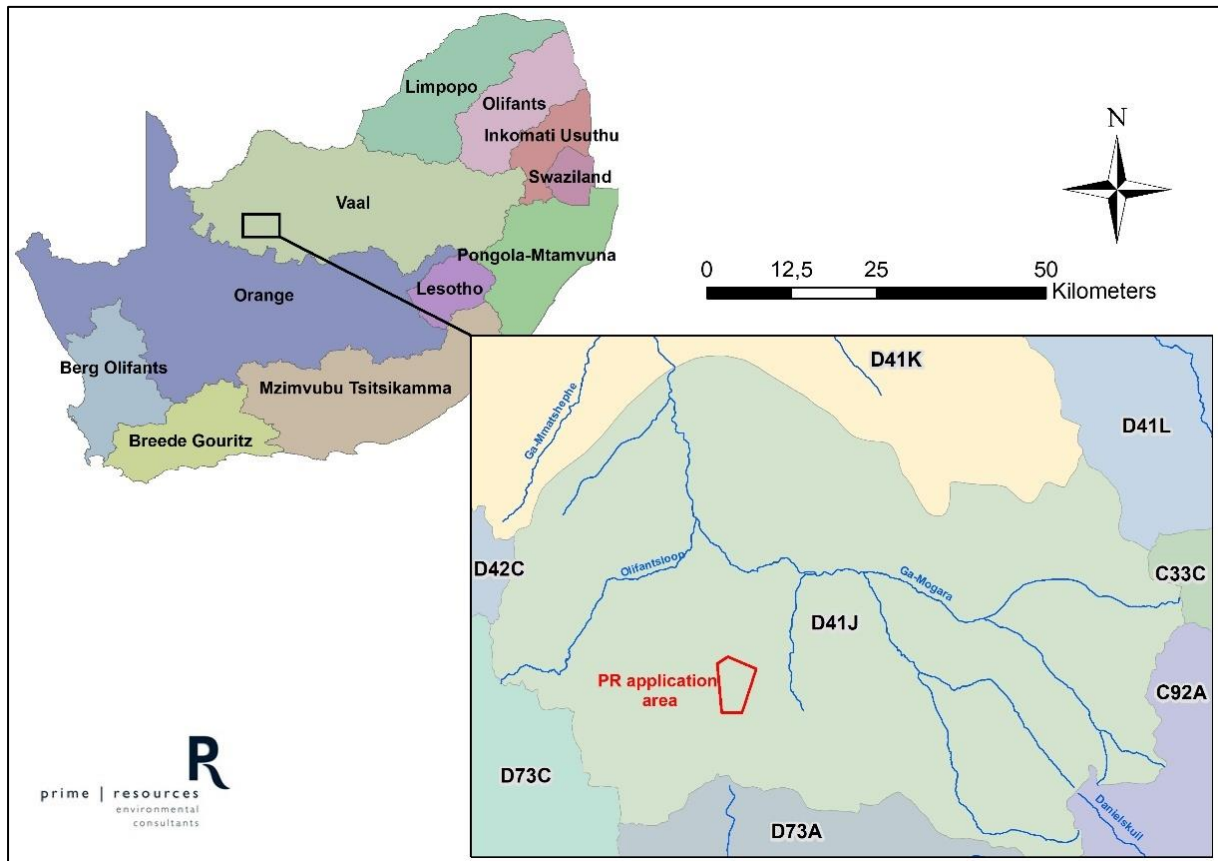


Figure 10. Water Management Area and Quaternary Catchment associated with the PR application area

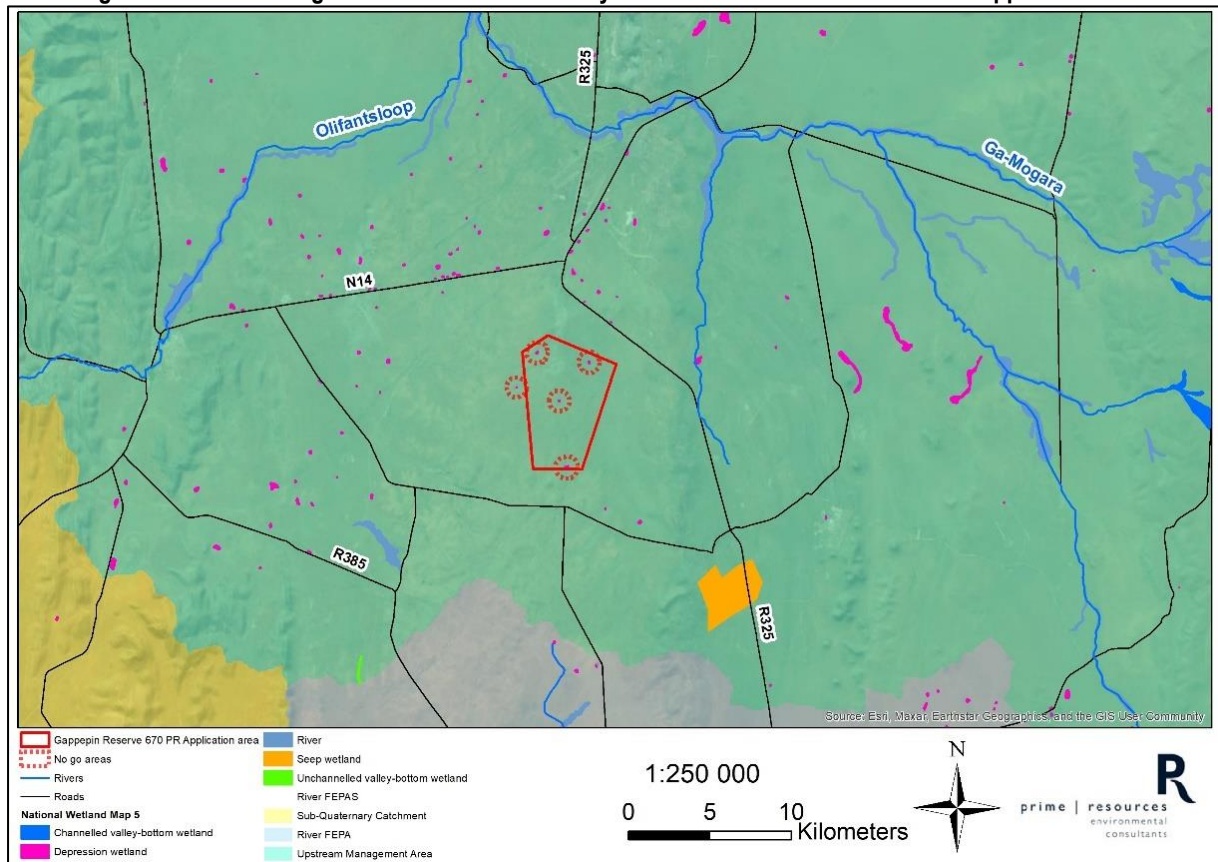


Figure 11. Watercourses in the region

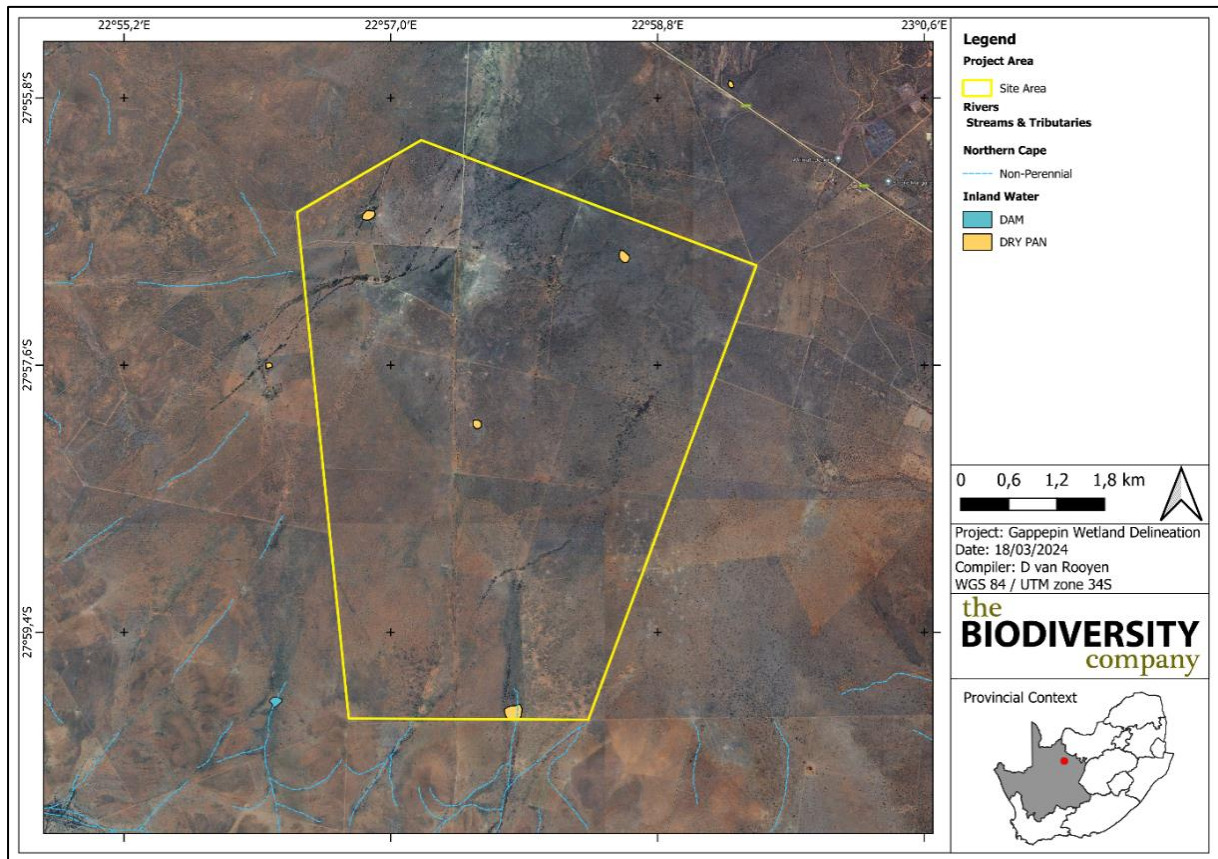


Figure 12. Topographical drainage lines and inland pans relative to the PR application area (The Biodiversity Company, 2024b)

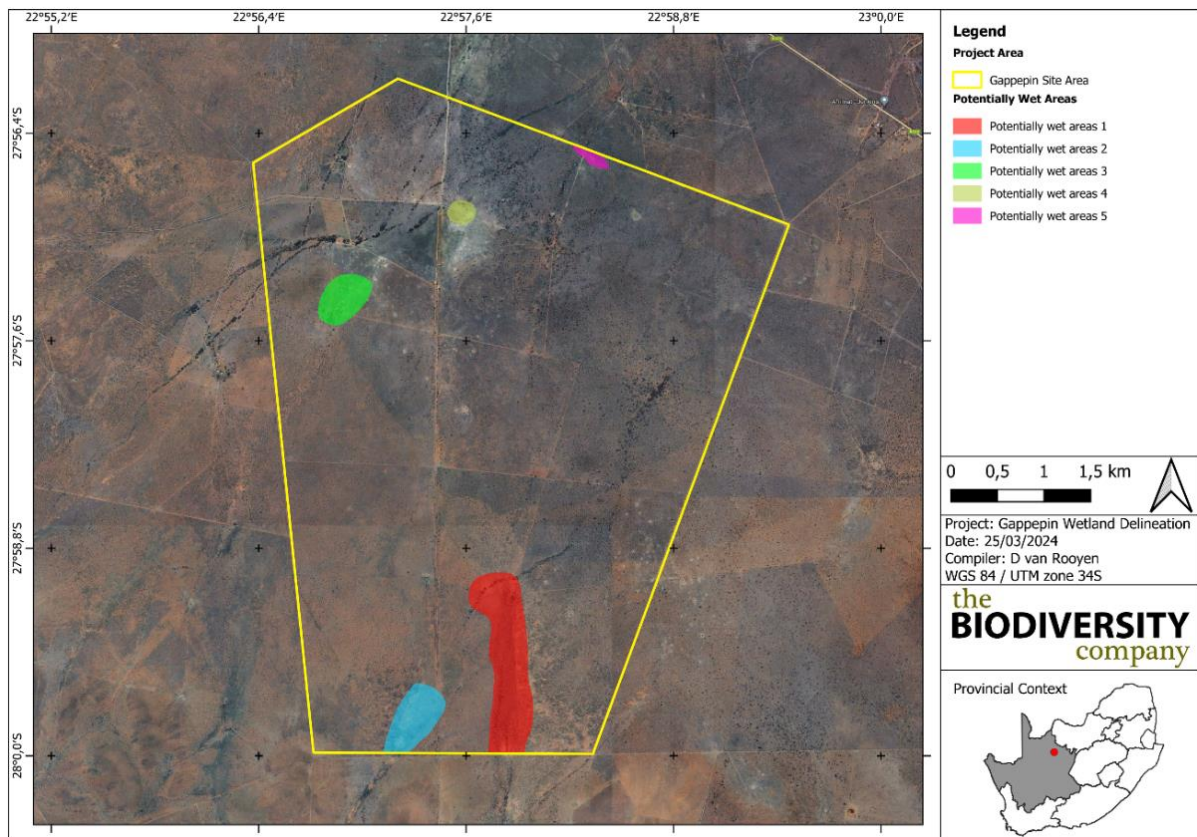


Figure 13. Additional potentially wet areas identified within the PR application area (The Biodiversity Company, 2024b)

(h) Aquatic Ecology

Information for this section was sourced from:

- Desktop Wetland Delineation and Impact Assessment for the Proposed Prospecting Right Application on Gappepin Reserve 670, near Kathu, Northern Cape Province (The Biodiversity Company, March 2024b, refer to Appendix 8).

There has been minimal research on wetland systems within arid areas, and little is known about the biodiversity associated with such systems. These temporary wetlands support plants and animals that are highly seasonal, most of which that are not visible outside of periods of inundation. These temporary waters may support an abundance of organisms ranging from bacteria to vertebrates. However, when there is water within the system, the most common inhabitants are usually invertebrates, particularly crustaceans and insects (mostly Branchiopods, but also Phyllopods). These invertebrates are considered keystone species of ephemeral pans globally, playing a pivotal role in the food web as prey.

(i) Hydrogeology

Information for this section was sourced from:

- WRC. The South African Mine Water Atlas (WRC Project No. K5/2234/3)
- Development of Internal Strategic Perspectives (ISP): Groundwater Overview for the Lower Vaal Catchment Management Area (prepared for Directorate Water Resource Planning, 2003)
- Internal Strategic Perspectives (ISP) for the Lower Vaal Management Area (WMA No 10, 2004)
- A critical review on previous geohydrological studies at Sishen Iron Ore Mine (prepared by Mine Water Consultants, 2013)
- MS Basson and JD Rossouw, 2003. Lower Vaal Water Management Area: Overview of Water Resources Availability and Utilisation.

The northern and western part of the Lower Vaal WMA is mainly underlain by sedimentary formations and covered by Kalahari sands. Three aquifer types are present in the WMA: Intergranular and fractured, karstic and fractured. The fractured rock aquifers are not high yielding, but the dolomitic karst aquifer is well known for its high potential (Van Dyk and Jones, 2006).

The PR application area is located within the Sishen/Kathu SWSA for groundwater (Le Maitre et al., 2018).

Monitoring boreholes were placed on the PR application area to monitoring potential groundwater impacts from the Sishen Iron Ore mine. A number of cut-off dykes are present in the area. The Mine Water Consultants (2013) report indicates that two boreholes were successfully drilled on the farm for monitoring and were yielding 15L/s.

Groundwater use

It is generally understood that most farms in the WMA are dependent on groundwater for domestic use and stock watering. Abstraction volumes are not available for the WMA. In terms of quantities of water, stock farming has a relatively small influence on the regional groundwater resource. Large-scale irrigation is developed where aquifer types are suitable. The lithologies from which abstraction for irrigation takes place vary between dolomitic/karstic aquifers, weathered granite and quartzite and at contact or faulting zones. Problems encountered at these irrigation areas are over utilisation of the resources with the associated lowering of water tables.

Some groundwater utilisation for small rural settlements takes place in the western portion of the WMA from primary or porous aquifers from the Kalahari group, but the quality and yields are often variable and not good.

Groundwater Quality

There are a total of approximately 180 monitoring points throughout the Lower Vaal WMA. The monitoring points serve both the National and Regional levels of groundwater monitoring. The monitoring includes water levels and ambient water quality. The natural occurring water quality in the WMA is generally good in the dolomitic/karstic and fractured/crystalline aquifers. In the western portion of the WMA in the Kalahari group primary (sand/gravel) aquifers and clay formations, the quality is often naturally poor with TDS values ranging from 1500 mg/l and higher.

(j) Archaeology and Cultural Heritage

Information for this section was sourced from:

- Heritage Compliant Statement: Prospecting Right Application for Monnapula Mining on the Farm Gappepin Reserve 670, Northern Cape Province (Archaetnos, 2024, refer to Appendix 9).

The heritage screening tool indicates the project area as being a low-risk area for containing heritage and archaeological sites. However, this likely is due no heritage studies having been undertaken on the footprint in the past. The tool indicates several areas nearby to the

PR application area that are of high and very high risk related to heritage. Therefore, the chances of finding similar sites are highly possible.

Heritage sites have been identified in areas near to the PR application area include Stone Age sites, graves and some historical buildings and features (according to the SAHRIS database; Archaetnos' database).

Stone Age sites are known to occur in the larger geographical area, including Wonderwerk Cave in the Kuruman Hills to the east, Tsantsabane, an ancient specularite working on the eastern side of Postmasburg, Doornfontein, another specularite working north of Beeshoek and a cluster of important Stone Age sites near Kathu. The Late Iron Age was accompanied by extensive stonewalled settlements, such as the Thlaping capital Dithakong, 40 km north of Kuruman.

Stone and Iron Age communities mined specularite associated with iron ores for cosmetic purposes at Blinkklipkop, Paling, Gloucester and other farms. A number of Stone Age sites and scattered finds of Stone Age material were identified on the nearby farm Paling.

The Heritage Statement provides a description of the historic trading, hunting, missionary and mining activities within the area. Prospecting started in the Postmasburg area during 1882 and manganese was discovered there during 1886. Mining by Union Manganese and South African Manganese started in earnest in 1927 in the Postmasburg field.

Typical historical sites to be found in the Northern Cape include graves, farm buildings and mining infrastructure.

There is a reasonably high chance of finding Stone Age sites or material on the property. According to the specialist, this will likely consist of stone tools, which may or may not be disturbed and one might even encounter rock engravings. It is less likely to find any Iron Age remains simply due to the site being on the fringe of Iron Age activities. Historical sites may include farm buildings and infrastructure, mining buildings and infrastructure as well as graves. A Chance Find Protocol has been added to the EMPr in the case that heritage resources are discovered.

(k) Socio-economic

The following information was obtained from:

- ZFMDM Final Integrated IDP Plan 2022/2023 for 2022 – 2027
- ZFMDM Framework Plan for the 2023/2024 review of the IDP
- Tstantsabane Local Municipality Revised 2020/2021 IDP
- Profile and Analysis District Development Model of ZF Mgcawu District
- Census 2022 data, Census 2011 data and Community Survey 2016 data, provided by Statistics South Africa (Stats SA).

The PR application area is located within the Tstantsabane Local Municipality of the ZFMDM, Northern Cape Province (Figure 14).

Provincial context

The Northern Cape is the largest of the South African provinces, covering an area of 372 889 km². The province is also the least populous of the country's provinces, with a total population of only 1 355 945 (Census 2022).

The capital city of the province is Kimberley. Other important towns include Upington, Springbok, Kuruman and De Aar. The Northern Cape is subdivided into five district municipalities: Francis Baard, John Taolo Gaetsewe, Namakwa, Pixley Ka Seme and ZFMDM. The proposed PR application area is located in the ZFMDM.

Mining and agriculture are the primary economic sectors of the province. There are alluvial diamonds, iron ore, copper, asbestos, manganese, fluorspar, semi-precious stones and marble resources which have been mined in the region. The province has fertile agricultural land in the Orange River Valley where grapes and fruit are cultivated intensively. Sheep farming takes place in the interior Karoo. Wheat, fruit, peanuts, maize and cotton are also produced at the Vaalharts Irrigation Scheme near Warrenton.

Regional context

The ZFMDM, previously Siyanda District Municipality, is located along the mid-northern section of the Northern Cape province, bordering Botswana. It covers an area of more than 100,000 km² (almost 30% of the entire Province). 65% of which is covered by the vast Kalahari Desert, Kgalagadi Tran frontier Park and the former Bushman Land (ZFMDM IDP, 2023). ZFMDM is comprised of five local municipalities; Kai !Garb; Dawid Kruiper; Tsantsabane, Kheis and Kgatelopele. The PR application area is located within the Tsantsabane Local Municipality (TLM).

The district noted an increase in population from 236 783 people in the 2011 Census to 283 624 in the 2022 Census.

The economy of the ZFMDM relies on the following four main sectors: agriculture, mining, tourism and manufacturing. The largest contributor to the district's Gross Value Added (GVA) in manufacturing is the food, beverages, and tobacco sub-sector, which

contributed slightly over 34% towards the district's manufacturing GVA. The second-largest contributor in 2016 was the other non-metal mineral products sub-sector.

The National Spatial Development Framework (2019) locates ZFMDM as part of the Arid Innovation Region. Key national roads (N10 and N14) traverse the district. Traffic flows through the region, linking the major industrial areas of the country. The region comprises the arid and sparsely populated central part of the country.

There is no tribal land in the ZFMDM. According to the Commission on the Restitution of Land Rights' 2018 annual report, ZFMDM has the highest number of all outstanding claims (1468 156) relative to other districts.

ZFMDM is located within the Gamagara Corridor which is the mining belt of the John Taolo Gaetsewe and Siyanda (ZFMDM) districts and runs from Lime Acres and Danielskuil to Hotazel in the north. The corridor focuses on the mining of iron and manganese.

The ZFMDM IDP, 2023 identifies the following as key challenges which the municipality faces:

- High levels of poverty, due to low skills and low levels of education.
- Economy is dominated by agriculture and mining activities. There is a lack of economic diversity.
- Decline and lack of support for agriculture sector.
- Inadequate infrastructural service provision in terms of electricity, potable water, sewage, waste management, roads and housing.

Proposed interventions for the municipality include:

- Creating sustainable local economic development programmes conducive for rural communities to thrive.
- Supporting and guiding the development of a diversified, resilient and sustainable district economy.
- Supporting infrastructure development projects, which will improve municipal service provision and enhance skills development.
- Supporting and strengthening the agricultural sector to allow a greater use of labour in the production process.

Local context and receiving environment

The TLM stretches over an area of 18 290 km² and accommodates the main towns of Postmasburg and Beeshoek. Economically, TLM is known for being rich in minerals, and for its mining, agriculture, manufacturing and farming sectors.

The major routes running the local municipality's major town of Postmasburg include the R385 that goes through to Kimberley and Beeshoek, the R309 and the R325 to Kathu. Postmasburg is situated 200 km from Kimberley and 240 km from Upington.

The municipal spatial vision is "to create a place of opportunities, in cooperation with the private sector, where the basic needs of all residents are met in a safe, healthy and sustainable environment". The Municipal SDF refers to the following spatial restructuring elements:

- Different nodes: CBD node, Sibilo shopping centre business node, Postdene business node
- Boichoko/Newton Business node
- Primary movement corridors (N14 and Sishen Saldanha Railways)
- Secondary movement corridors (R385 and R325)
- Gamagara mining corridor.

According to the TLM's IDP, 2021 and draft SDF, the Provincial Treasury (2014) indicated that during 2012 the primary sector contributed 76% of all the sectors' contribution to the GDP of TLM. Mining is the biggest contributor of all industries to the GDP. Mining contributed 74%, namely R3.9 billion, and tertiary sector contributed 4% and 20% respectively. The TLM IDP, 2021 further notes that "Mining activities have been rapidly on the increase in the last few years. Agriculture has never been a key feature of the local economy. There is no evident labour-intensive manufacturing. Manufacturing is in decline across the board."

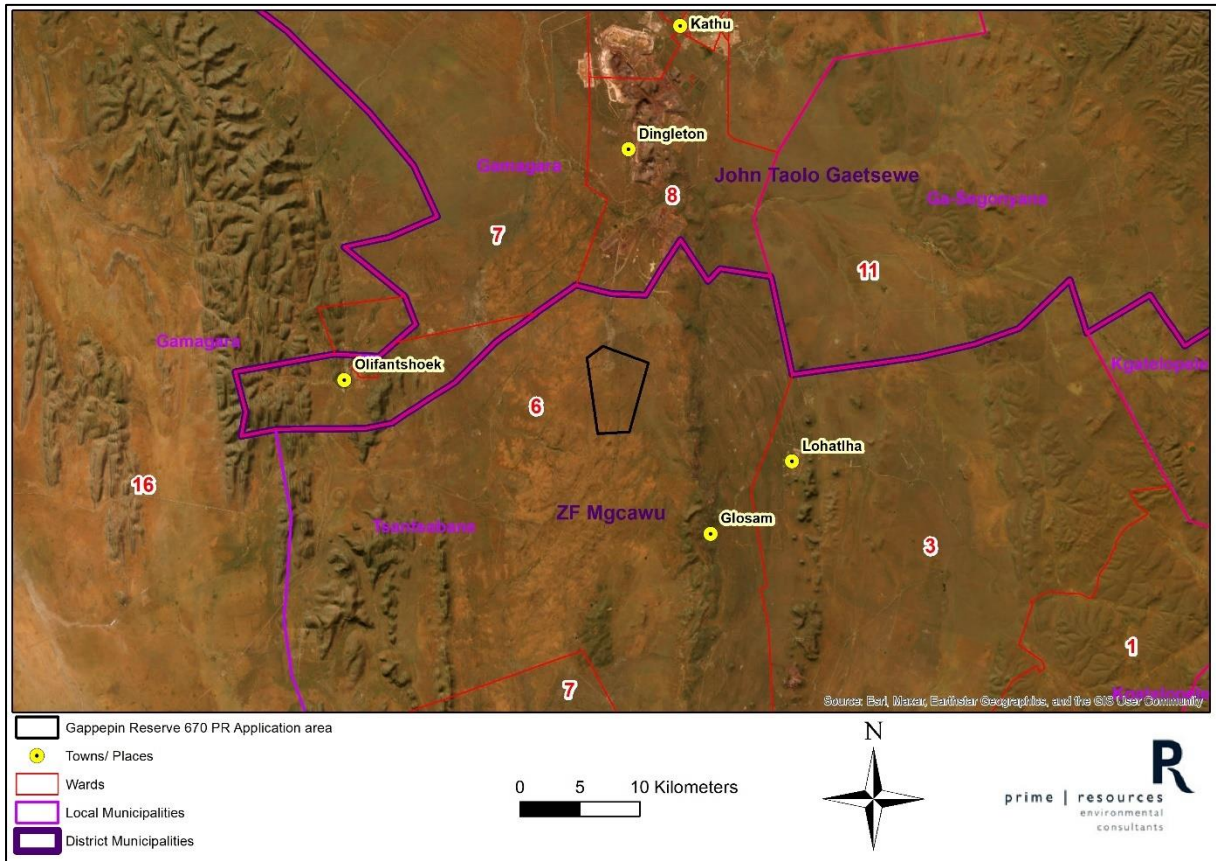


Figure 14. Surrounding settlements and wards

2) Description of the current land uses

According to the landowner, the farming activities on the Farm Gappepin Reserve 670 include the grazing of livestock (cattle, sheep and goats) and wild game. There are no crops grown for commercial purposes. The locations of dams, windmills, homesteads and graves were indicated by the landowner (Figure 15).

As a result of the dry climate, extensive livestock farming dominates the major land use in the Lower Vaal catchment area. Analysis of Google Earth satellite imagery shows that the land use in the vicinity of the PR application area is predominantly natural, sparsely populated, and largely undeveloped. Most neighbouring farms host only one or two homesteads. The PR application area is located within the "Gamagara Corridor," known for its iron ore and manganese mining activities in the John Taolo Gaetsewe and ZF Mgcawu districts. Although the area under application is currently not utilized for mining or related activities, nearby developments such as the PMG Mining Pty Ltd – Bishop Mine on the Bishop farm to the east, along with smaller mining operations like Afrimat – Jenkins, Salene Manganese Mine, and Boskop Manganese Mine, exist in close proximity. Land uses were confirmed during the on-site inspection undertaken on 23 April 2024 (refer to Figure 15 and Figure 16).

The PR application area is located within the Northern Strategic Transmission Corridor (Figure 17). There are 18 approved solar developments and 1 wind development within a 30 km radius of the PR application area.

According to the DFFE South African National Land Cover Map (SANLC) 2020, the land cover associated with the PR application area is largely classified low shrubland (64.6%), followed by natural grassland (34.1%) and open woodland (1%) (Figure 18).

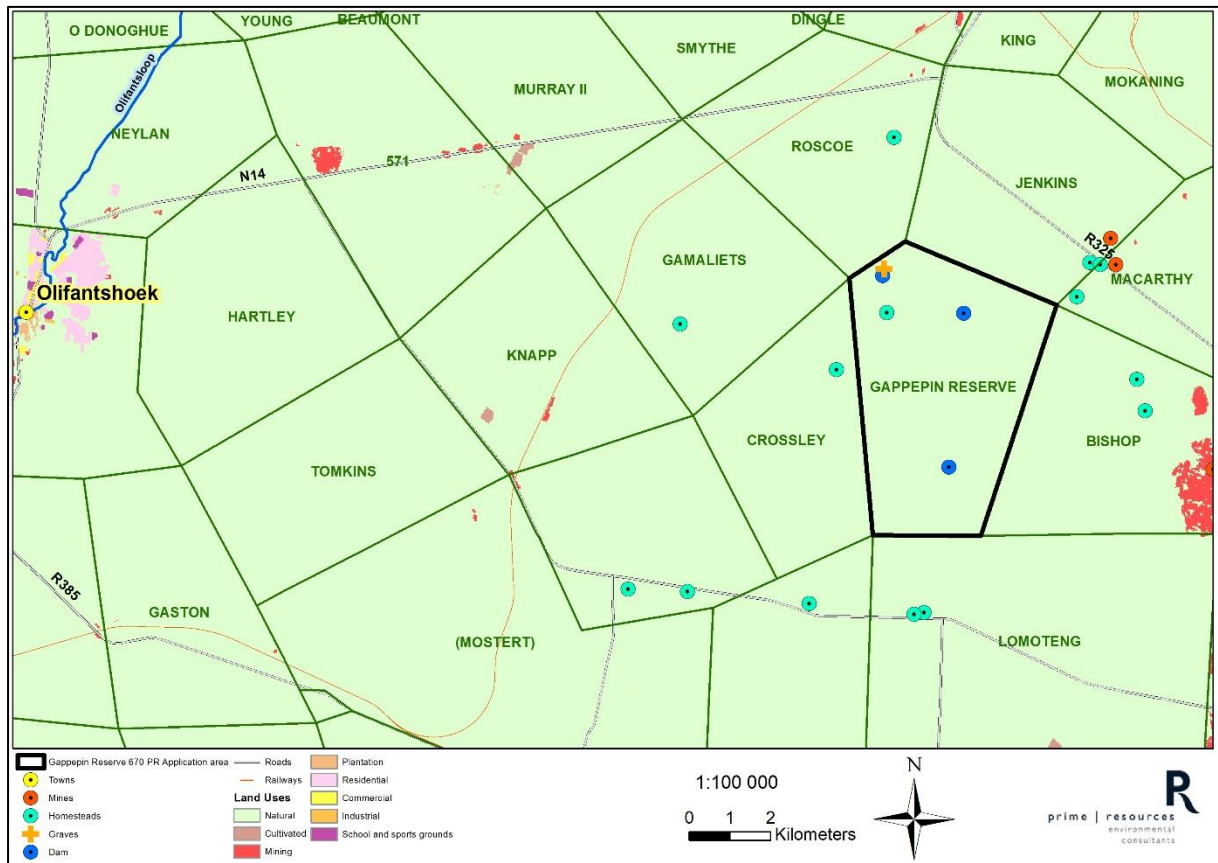
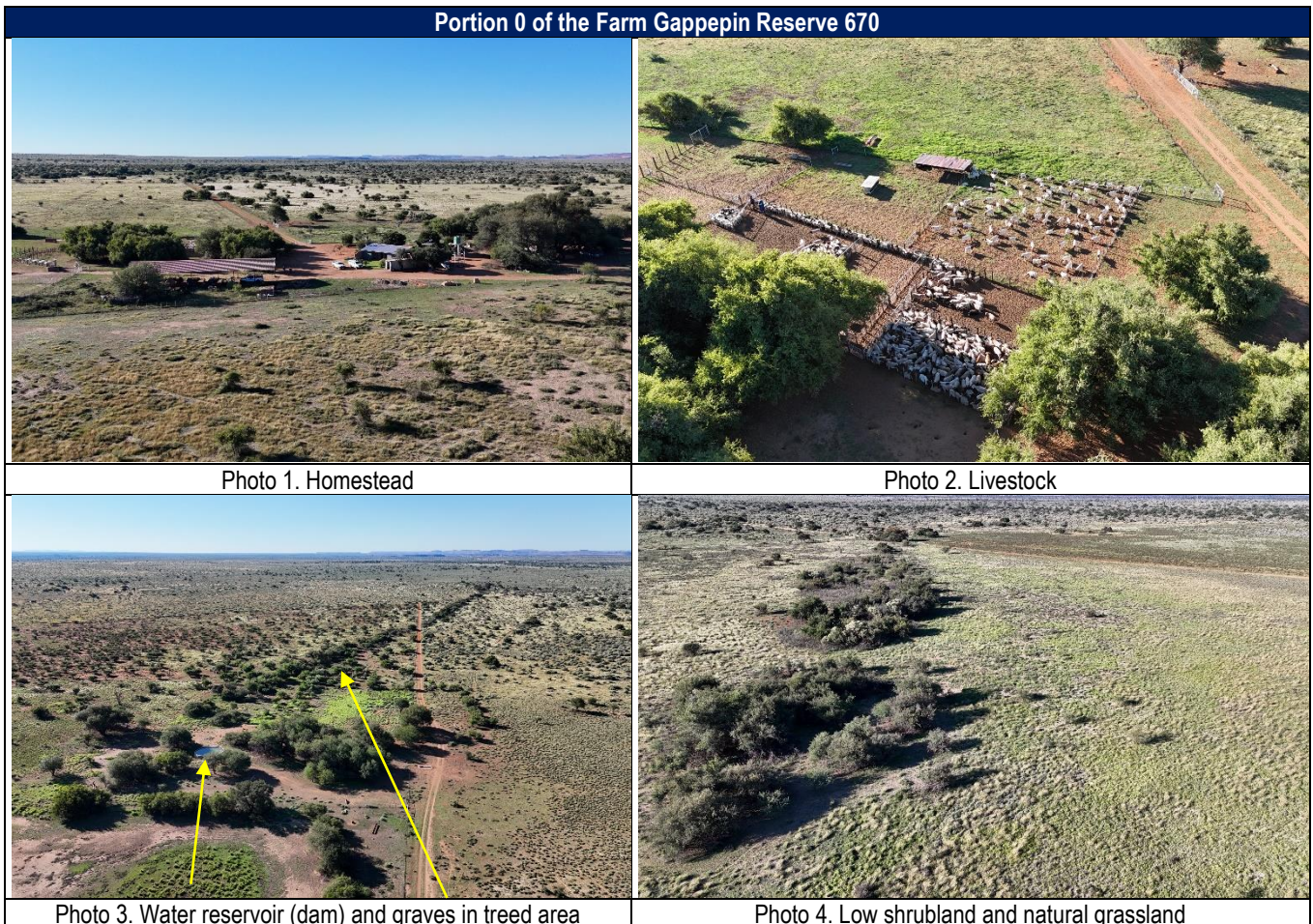


Figure 15. Land Uses associated with the PR application area and surrounds



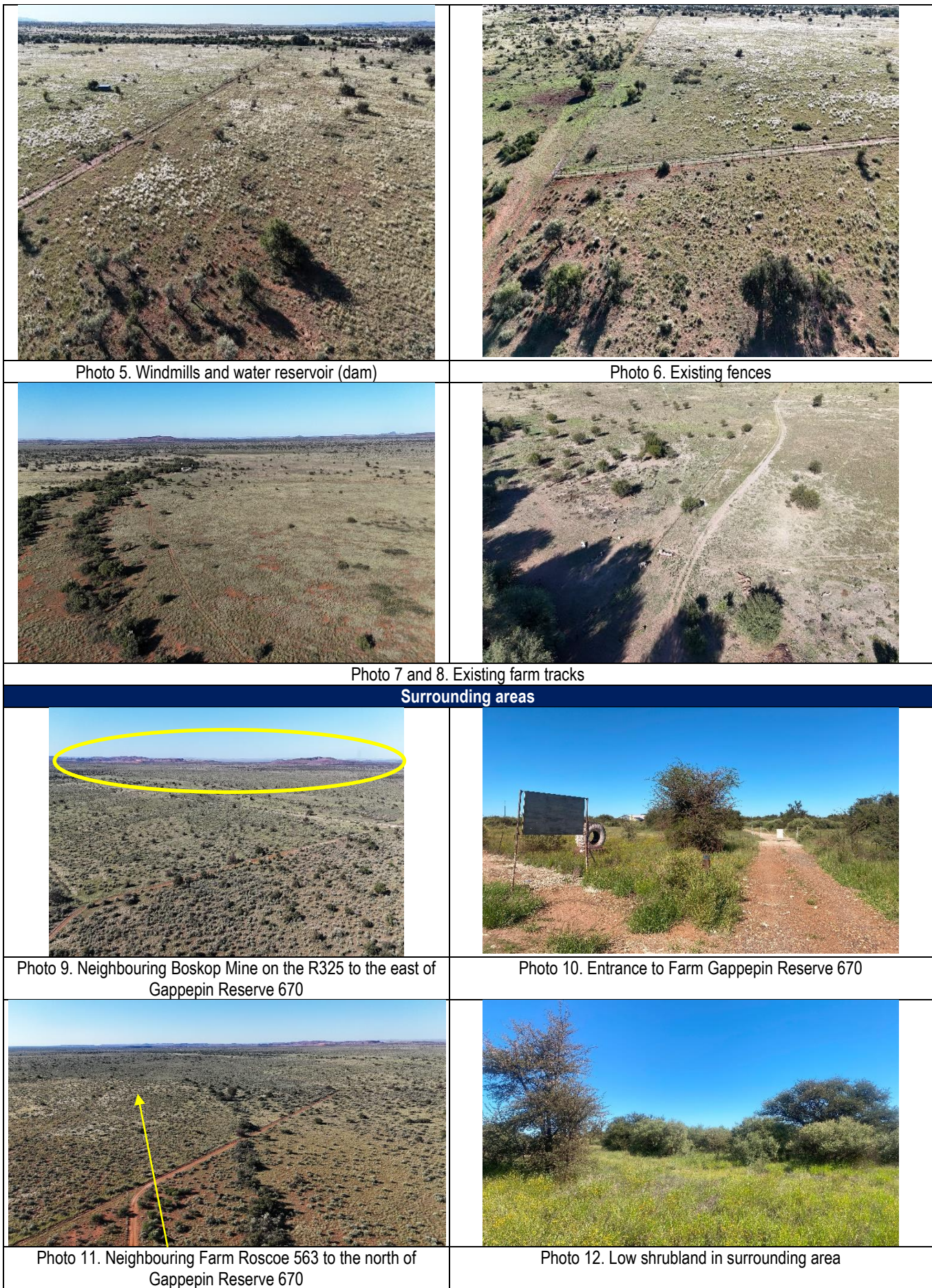


Figure 16. Photos taken during the preliminary on-site inspection

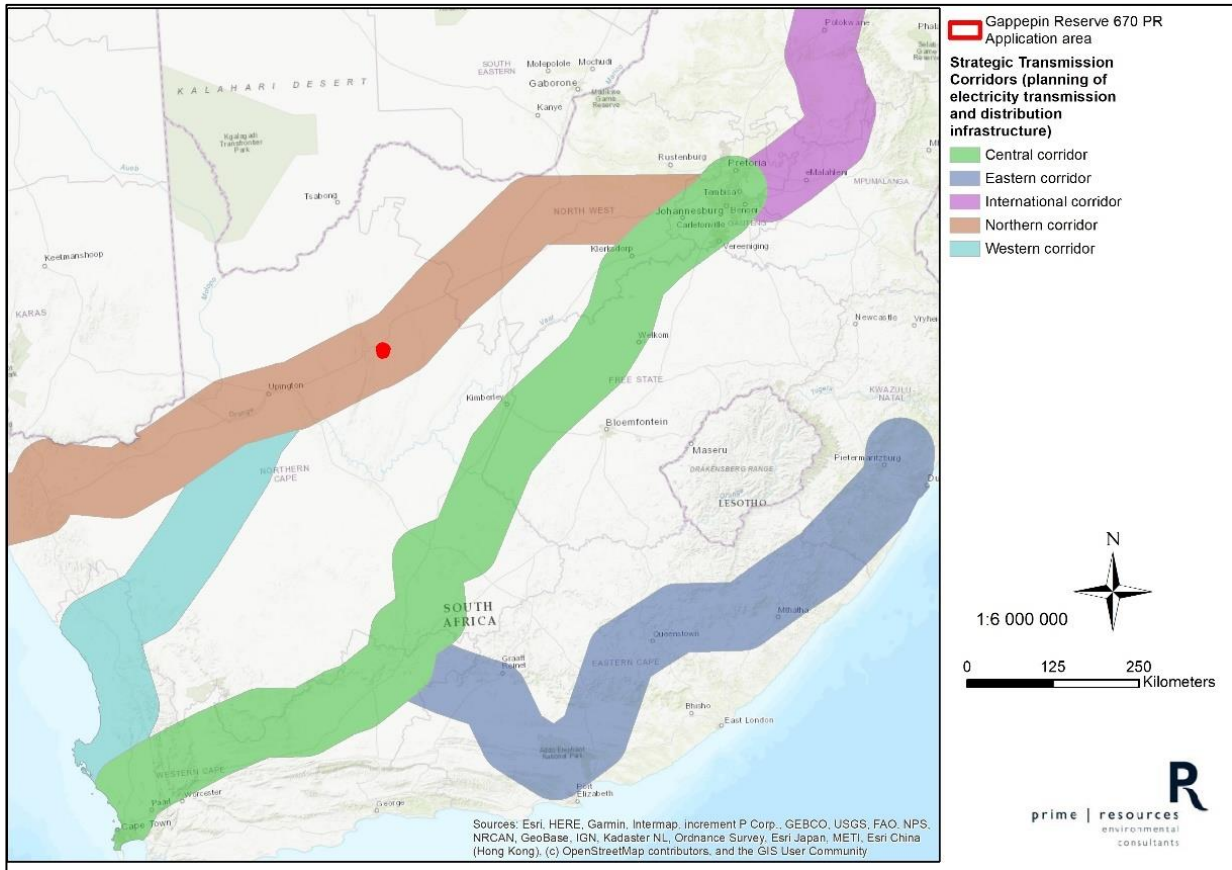


Figure 17. Strategic Transmission Corridors

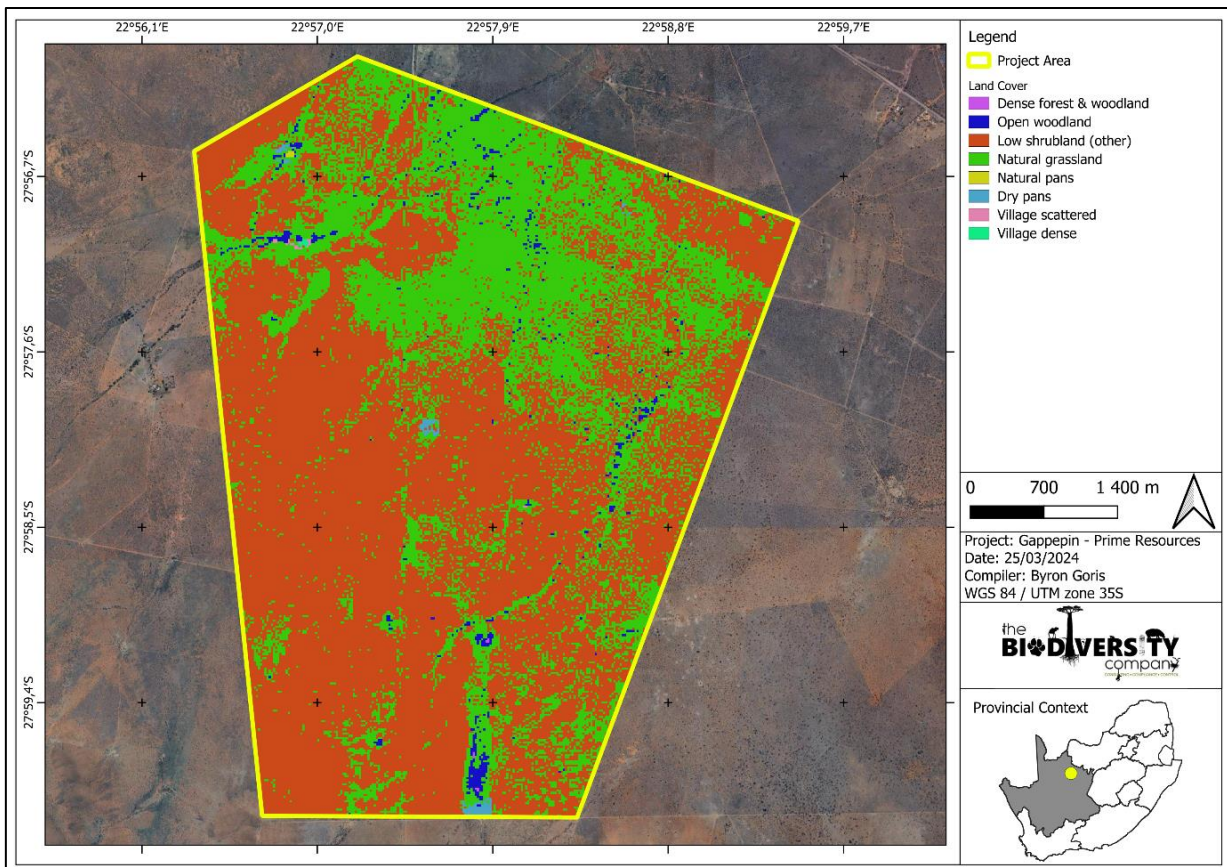


Figure 18. Land cover associated with the PR application area (The Biodiversity Company, 2024)

3) Description of specific environmental features and infrastructure on the site

The land cover associated with the proposed PR application area, as well as the surrounding area, is characterised by its natural, unpopulated and largely undeveloped state. Two homestead / building structures were noted within the PR application area. No evidence of crop planting was noted and the farm is used for grazing of livestock and wild game.

The proposed PR application area primarily hosts Kathu Bushveld and Olifantshoek Plains Thornveld vegetation types with a smaller section in the southwest corner designated as Kuruman Thornveld vegetation. In terms of the National Biodiversity Assessment 2018, Kathu Bushveld's Threat Status is LC and the Protection Level is PP, Olifantshoek Plains Thornveld's Threat Status is LC and the Protection Level is PP and Kuruman Thornveld's Threat Status is LC and the Protection Level is Not Protected.

Several small wetland pans or wet areas have been identified within the PR application area, prompting the demarcation of a 500 m no-go buffer zone for invasive prospecting activities around these features. There are no perennial watercourses located in the PR application area. A non-perennial topographic drainage line to the south was identified and included as a no-go area, pending confirmation of the presence thereof. A tributary of the Ga-Mogara river flows parallel to the site, approximately 5 km to the east.

PR Application area is situated approximately 1.5 km south-west of the R325 to Postmasburg and 4 km south of N14 which connects Kuruman, Kathu, Olifantshoek and Upington.

4) Environmental and current land use map (show all environmental, and current land use features)

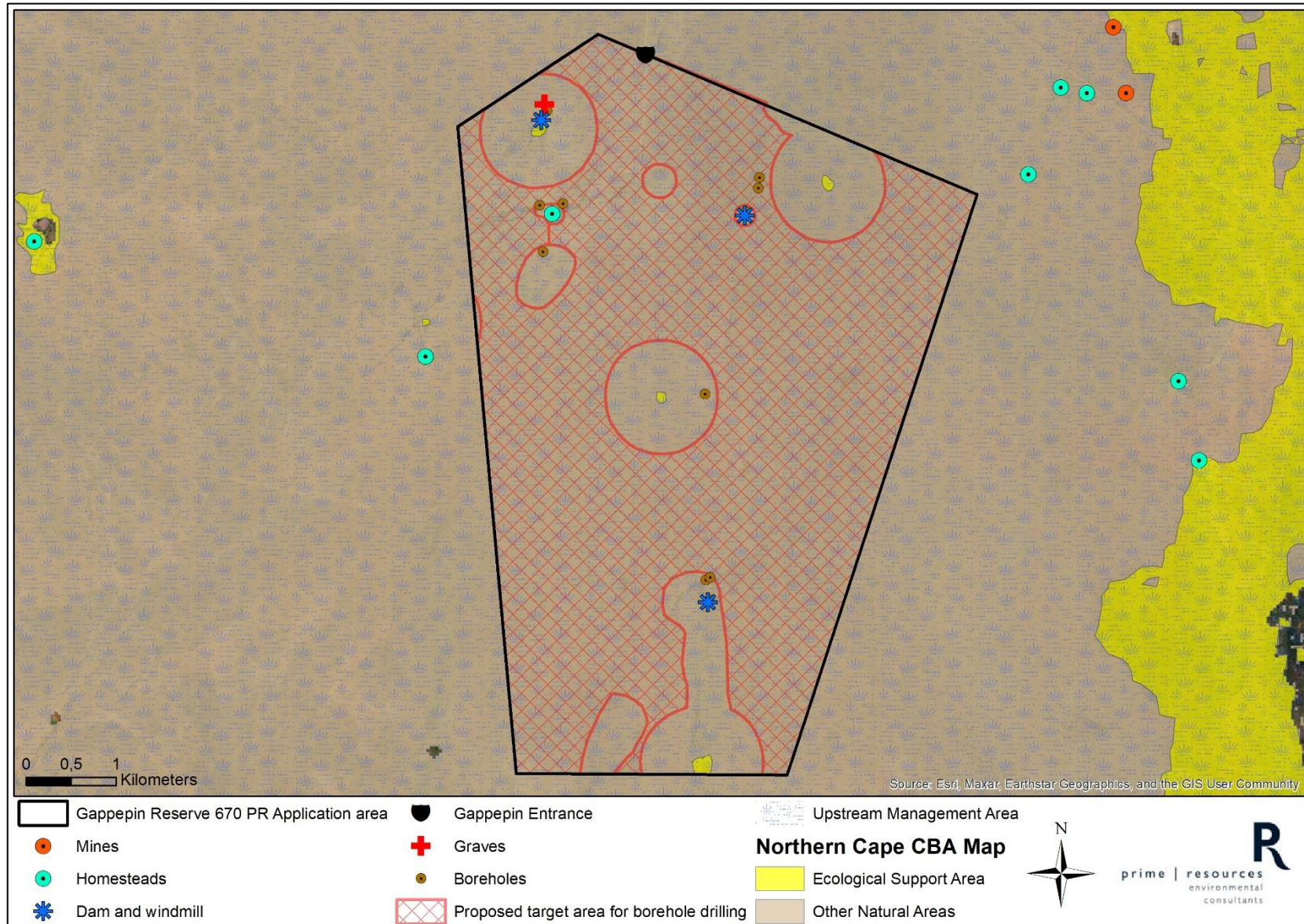


Figure 19: Composite environmental sensitivity and current land use map

- 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)**

This section outlines the potential impacts associated with the activities necessary to exercise the PR. The drilling grid will be finalised post non-invasive exploration activities. While existing access tracks to preferred drilling sites will be prioritized, it is understood that additional temporary access tracks may be needed. The development of such tracks will be subject to negotiation with the landowner.

Land clearing, vegetation relocation and removal, surface preparation, and site establishment will take place at each of the twenty proposed 10m x 10m drill pad sites. The establishment of the drill site, coupled with vehicle and equipment movements along unpaved roads and the drilling contractor's activities at each drillhole location, could lead to localized adverse effects on fauna, flora, air quality, and soil resources, including:

- Direct loss or the disturbance of wetland habitat, including habitat destruction, alteration of hydrology, and potential contamination of water resources from infrastructure and operational activities.
- Disruption in the ecological significance and serving as vital habitats for various invertebrates such as crustaceans and insects as well as bird species.
- Transformation, fragmentation, and loss of local habitats and ecosystems.
- Direct and indirect disturbance of plants and animals, including the proliferation of alien vegetation, displacement of fauna due to habitat loss, noise, dust, and vibration and loss of fauna due to theft and road collisions.
- Dust emissions (temporary nuisance to nearby sensitive areas).
- Potential damage to archaeological or paleontological resources during earthworks and site establishment.
- Soil contamination with drilling fluids and hydrocarbons, as well as erosion and compaction, affecting soil structure and land capability
- Generation of nuisance noise and safety risks to people and animals.

Refer to Section 3j) below for the assessment of the significance of the potential impacts and extent to which they can be avoided, managed or mitigated.

For a detailed evaluation of these potential impacts, their significance, and strategies for avoidance, management, or mitigation, refer to Appendix 10.

- 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)**

The Prime Resources (Pty) Ltd Impact Assessment Methodology and rationale was used to assess the significance of the potential impacts of the preferred initial layout on the surrounding biophysical and socio-economic environment.

The objective of the Impact Assessment is to rate the significance of potential impacts of the project prior to and after the implementation of mitigation measures. The methodology encompasses an assessment of the nature, consequence (magnitude, extent, duration) and probability (likelihood) of the identified potential environmental and social impacts of the project. The reversibility of the impact as well as the cumulative impact are also considered. The impact is assessed prior to and after implementation of potential mitigation measures.

The following risk assessment model has been used for determination of the significance of impacts.

$$\text{SIGNIFICANCE} = (\text{MAGNITUDE} + \text{DURATION} + \text{SCALE}) \times \text{PROBABILITY}$$

The maximum potential value for significance of an impact is 100 points. Environmental impacts can therefore be rated as high, medium or low significance on the following basis:

High environmental significance	60 – 100 points
Medium environmental significance	30 – 59 points
Low environmental significance	0 – 29 points

Table 3. Prime Resources risk assessment grid

Magnitude (M)	
Minor (2)	Change not measurable; or threshold never exceeded There is no need for people to adapt and will not notice changes to livelihoods and lifestyles
Low (4)	Low Disturbance of degraded areas, which have little conservation value. Minor change in species occurrence or variety Minor deterioration (nuisance or minor deterioration) or harm to receptors; Change to receiving environment not measurable; or identified threshold never exceeded People are able to adapt and maintain pre-impact livelihoods and lifestyles
Moderate (6)	Moderate/measurable deterioration or harm to receptors; Receiving environment moderately sensitive; Identified threshold occasionally exceeded People are able to adapt with difficulty (with no resettlement). Pre-impact livelihoods and lifestyles can be maintained with difficulty or with support or intervention. Disturbance of areas that have potential conservation value or are of use as resources Complete change in species occurrence or variety.
High (8)	High, measurable deterioration or harm to receptors; Receiving environment highly sensitive; Identified threshold often exceeded Pre-impact livelihoods and lifestyles cannot be maintained or resettlement is required
Very High / Unknown (10)	Loss of ecosystem function Loss of an irreplaceable natural resource (including cultural and heritage resources) Disturbance of pristine areas that have important conservation value Human health and or safety is compromised Receptors of impact are of conservation importance; or identified threshold (such as SANS limits, Resource Quality Objectives, etc.) consistently exceeded Unknown
Scale (S)	
Footprint (0)	Occurs only within the footprint of the activity
Site (1)	Occurs only within the site of the project
Local (2)	Occurs within approximately 2.5 km of the activity
Regional (3)	A regional scale as determined by administrative boundaries, habitat type/ecosystem or regional loss of a species population
National (4)	Nationally important or macro-economic consequences
International (5)	Internationally important agreements and resources are affected such as areas protected by international conventions, international waters etc. Unknown
Duration (D)	
Immediate (1)	Completely reversible without management Impact is instantaneous and ceases imminently
Short (2)	Naturally reversible or reversible with minimal management Impact ceases when the activity ceases
Medium (3)	Impact can be reversed with sufficient management Impact ceases when project ends
Long (4)	Impact is potentially irreversible even with management
Permanent (5)	Impact remains after the life of the project The impact will continue indefinitely / ad infinitum Unknown
Probability (P)	
Improbable (1)	Improbable, almost impossible
Unlikely (2)	Low probability, unlikely to occur
Likely (3)	Medium probability, likely to occur
Expected (4)	High probability, expected to occur
Definite (5)	Definite (certain) or unknown

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 PR application area has been selected based on the anticipated geology of the area, considering the regional stratigraphy and the potential presence of the target mineralisation.

The potential impacts associated with the activities required for the PR application, focusing on the negative impacts linked to invasive borehole drilling activities are discussed below. No adverse effects are expected from the non-invasive prospecting activities proposed.

The proposed target area for borehole drilling has been defined to avoid the sensitive environmental and socio-economic features. The actual drilling grid will however be further developed following non-invasive exploration activities. While existing access tracks to proposed drilling sites will be prioritized, additional temporary access tracks may be necessary, subject to negotiation with the landowner. The proposed target area for borehole drilling has been identified to avoid the sensitive environmental and socio-economic features, as summarised in Figure 19 in Section 4.

Negative impacts

Land clearing, vegetation removal, surface preparations, and site establishment will take place at each of the twenty potential 10m x 10m drill pad sites. These activities, along with vehicle and plant movements along unpaved roads and the drilling contractor's operations at each drillhole location, may lead to localized negative impacts on fauna, flora, air quality, and soil resources, including:

- Direct loss or the disturbance of wetland habitat, including habitat destruction, alteration of hydrology, and potential contamination of water resources from infrastructure and operational activities.
- Disruption in the ecological significance and serving as vital habitats for various invertebrates such as crustaceans and insects as well as bird species.
- Dust emissions (temporary nuisance to nearby sensitive areas).
- Potential damage to archaeological or paleontological resources during earthworks and site establishment.
- Transformation, fragmentation, and loss of local habitats and ecosystems.
- Direct and indirect disturbance of plants and animals, including the proliferation of alien vegetation, displacement of fauna due to habitat loss, noise, dust, and vibration and loss of fauna due to theft and road collisions.
- Soil contamination with drilling fluids and hydrocarbons, as well as erosion and compaction, affecting soil structure and land capability
- Generation of nuisance noise and safety risks to people and animals.

Positive impacts

- The prospecting activities will contribute to the geological body of knowledge regarding mineralization over the target area, aiding in the identification of potential economic mineral deposits, thus encouraging future local economic potential.

Concerns raised by Interested and Affected Parties (IAPs), including Organs of State and other stakeholders, will be addressed during the public participation process, and this section will be updated accordingly.

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 mitigations or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered)

Issue / concern raised	Response	Proposed alternative / mitigation and assessment thereof
This table will be updated following public participation and provided to the DMRE for their consideration.		

ix) Motivation where no alternative sites were considered

The proposed PR application area is confined to availability of Prospecting Rights and the regional stratigraphic trends where there is an expected presence of target mineralization. Therefore, alternate sites have not been considered. On a local scale, following the conclusion of non-invasive exploration activities, the selection and orientation of the drilling grid will be guided by access routes and the imperative to avoid any sensitive features. This includes implementing of a 500 m no-go buffer zone surrounding the wetland pan areas, a 32 m buffer around the drainage lines to the south of the site and a 100 m buffer around the buildings, stores, dams, graves and other existing farm infrastructure.

x) Statement motivating the alternative development location within the overall site (provide a statement motivating the final site layout that is proposed)

The PR application area was selected in terms of regional stratigraphic trends and the potential presence of target mineralisation and therefore no alternate locations were considered. Alternatives for the location of the specific areas to be targeted for invasive prospecting activities within the PR application area will be considered, and the location of the borehole drill sites will be selected to avoid sensitive environmental features as far as possible, while still targeting the areas identified as having potentially economic mineralisation.

Within the PR application area itself, the proposed footprint for drilling activities avoids the 500 m buffer zones surrounding the wetland pan areas, a 32 m buffer around the drainage lines to the south of the site and a 100 m buffer around the buildings, graves and permanent farm infrastructure.

- 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)**

The potential impacts which may arise as a result of the drilling activities necessary to execute the PR are considered typical of these activities and were determined by considering the nature of the activity, the equipment and materials utilised, the type of waste generated, common incidents which lead to impacts, the known timeframes and the proximity in relation to the environmental and socio-economic features of the site. The Prime Resources (Pty) Ltd Impact Assessment Methodology and rationale (described in Section 4h)vi) above was used to assess the significance of the potential impacts. Refer to Section 4h)vii) above for the list of potential impacts identified, and refer to Appendix 10 for the detailed assessment of their significance and the extent to which they can be mitigated.

- 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 - the supporting impact assessment conducted by the EAP must be attached as an appendix)**

The potential impacts of the planned activities have been assessed and summarised in the Table 4 below. Refer to Appendix 10 for the detailed environmental impact assessment conducted by Prime Resources.

Table 4. Planned activities, potential impacts, significance and mitigation

Activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Significance if not mitigated	Mitigation type and measure	Significance if mitigated
<ul style="list-style-type: none"> - Clearing and use of vehicles on access / haul roads - Clearing of land, surface preparations and site establishment - Vehicles travelling on unpaved roads 	Dust emissions	Temporary nuisance to nearest sensitive receptors	Site establishment, operation and rehabilitation	Low	<p>Avoid/stop or reduce impact at source:</p> <ul style="list-style-type: none"> - Areas to be cleared will be limited to the minimum extent possible. - Only clear areas immediately before the area is to be developed to limit the period of erosion. <p>Control impact through management:</p> <ul style="list-style-type: none"> - Nuisance dust must be avoided and wet suppression must be implemented where dust plumes are noted. - Cleared sites to be revegetated during rehabilitation. - A speed limit of 20 km/h must be applied on the roads. 	Low
	Damage to or loss of archaeological and historic resources of significance	Cultural Heritage resources	Site establishment	Medium	<p>Avoid/stop or reduce impact at source:</p> <ul style="list-style-type: none"> - A high-level site visit must be undertaken to identify potential historical and archaeological sites, buildings or structures prior to any invasive prospecting activities commencing. - Mapped sites must be avoided during prospecting activities. - Known grave sites, as indicated by the landowner, have been demarcated in the footprint activities as no-go areas and are respected with a 100 m no-go buffer area around them. - As requested by the landowner, no permanent renovations of any kind may take place on the property and no prospecting operations within a radius of 100 m of an existing building or permanent structure are to be undertaken. <p>Modify impact through design:</p> <ul style="list-style-type: none"> - The identified sites for drilling should be surveyed prior to commencing drilling to determine whether there is archaeological or historical material located there and the drill site repositioned if required. <p>Control impact through management:</p> <ul style="list-style-type: none"> - The 'Chance Find Procedure' as prescribed by the specialist should be implemented for items of cultural or heritage significance. - If any sites, objects or features, as well as graves and burials are uncovered during construction activities on site, work should cease immediately and an archaeologist should be contacted as a matter of urgency. - In the event that a previously unknown grave site is discovered, the grave should not be disturbed in any way. The grave should be geo-referenced, the Northern Cape Provincial Heritage Resources Authority notified and under their authority in co-operations with SAPS, the grave will be inspected and its potential heritage protection advised. 	Low
	Damage to or loss of paleontological resources of significance	Paleontological resources	Site establishment	Medium	<p>Control impact through management:</p> <ul style="list-style-type: none"> - The 'Chance Find Procedure' as prescribed by the specialist should be implemented in the unlikely event that any fossils are found in the loose soils and sands that cover the area or in the surficial limestone, or the iron or manganese ores below ground that will be drilled. 	Low
	Direct loss or the	Wetland habitat	Site establishment,	Medium	<p>Avoid/stop or reduce impact at source:</p>	Low

Activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Significance if not mitigated	Mitigation type and measure	Significance if mitigated
	disturbance of wetland habitat	destruction, alteration of hydrology, and potential contamination of water resources	operation and rehabilitation		<ul style="list-style-type: none"> - Clearly mark buffer areas to prevent encroachment and relocate nonessential infrastructure away from freshwater zones. - Removal of AIP (such as weedy annuals and other alien forbs) should be carried out by mechanical removal . - Train contractors on environmental awareness and maintain clean work areas. Ensure all contractors and staff have undergone an induction / training on the location of sensitive “No-Go” areas and basic environmental awareness using the mitigation provided in this report. - Existing roads should be used where possible. Avoid the creation of concentrated flow paths wherever possible, especially along the road reserves. <p>Modify impact though design:</p> <ul style="list-style-type: none"> - Where possible, construction activities to take place during the dry season to reduce the erosion by water and wind of the exposed surfaces. - Use temporary structures made of materials that can be easily removed from site and recycled or used elsewhere. <p>Control impact through management:</p> <ul style="list-style-type: none"> - Preserve vegetation cover in working areas to mitigate erosion. - Provide sanitation facilities, install amenities before drilling. Under no circumstances shall indiscriminate excretion and urinating be permitted other than in supplied facilities. <p>Repair or remedy impact through rehabilitation:</p> <ul style="list-style-type: none"> - Stockpile topsoil for site rehabilitation. - Prevent and manage potential spills from generator diesel storage tanks, machinery spills (e.g. accidental spills of hydrocarbons oils, diesel etc.) or construction materials on site (e.g. concrete). - Implement spill response plans and prevent contamination of freshwater resources. 	
	<p>Localised habitat and ecosystem transformation and loss</p> <p>Direct and indirect disturbance of plants and animals: introduction of AIP vegetation and collisions with fauna</p>	<p>Biodiversity loss</p> <p>Habitat transformation/ loss</p> <p>Soils, Land capability and Land use</p> <p>Unsuccessful rehabilitation</p>	Site establishment, operation and rehabilitation	Medium	<p>Avoid/stop or reduce impact at source:</p> <ul style="list-style-type: none"> - Where possible use existing access tracks. - Areas to be cleared will be limited to the minimum extent possible. <p>Modify impact though design:</p> <ul style="list-style-type: none"> - A specialist is to survey the drilling sites prior to establishment to undertake the faunal, floral and habitat surveys as recommended (TBC, 2024). The specialist is to identify the presence of floral and faunal SCC and to advise on managing AIP species. - The appropriate permits are required for SCC and eradication measures for alien invasive plants. - An effective fire management plan is required to protect sensitive environments from potential loss. <p>Control impact through management:</p> <ul style="list-style-type: none"> - No harvesting of plants or hunting and trapping of animals must be allowed. 	Low

Activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Significance if not mitigated	Mitigation type and measure	Significance if mitigated
					<ul style="list-style-type: none"> - Avoid the introduction of AIPs and implement an AIP monitoring and eradication programme. - Fires must not be allowed. 	
	Impacts to soil chemical and physical structure due to water and wind erosion, compaction and improper topsoil management	Local reduction in land capability and restoration of desired end land-use	Site establishment and operation	Low	<p>Modify impact through design:</p> <ul style="list-style-type: none"> - Plan activities, where possible, to occur on previously disturbed soil. - An effective fire management plan is required to protect sensitive environments from potential loss. <p>Control through management:</p> <ul style="list-style-type: none"> - Minimise areas to be disturbed by vehicles and machinery. - Implement an appropriate topsoil and subsoil stripping and stockpiling procedure where undisturbed soil present. - Stockpile topsoil and subsoil removed from sumps separately to ensure it is suitable for rehabilitation. - Monitor the entire site for signs of erosion and immediately implement prevention and maintenance measures. - A spill response kit should be available at all times. - Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use. <p>Repair or remedy impact through rehabilitation:</p> <ul style="list-style-type: none"> - Boreholes are to be sealed once drilling is completed. - Rip and profile any areas of compacted soil. - Monitor the entire site for signs of erosion and immediately implement prevention and maintenance measures. - Any incidents must be reported promptly. Any possible contamination of topsoil by hydrocarbons, concrete or concrete water must be avoided. Any contaminated soil must be treated in situ or be placed in containers and removed from the site for disposal in a licensed facility. 	Low
Borehole drilling activities	Damage to paleontological and archaeological resources of significance	Paleontological and Cultural Heritage resources	Operation	Medium	<p>Modify impact through design:</p> <ul style="list-style-type: none"> - Geologist to be trained in the Chance Find Procedure for paleontological and cultural heritage resources. <p>Control impact through management:</p> <ul style="list-style-type: none"> - Dolomitic layers noted in drill core must be inspected by the geologist for the presence of stromatolites. - Quaternary sand drill core to be inspected by the geologist for the presence of bones, rhizoliths and traces. - Implement a Chance Find Procedure should for paleontological and cultural heritage resources be noted. 	Low
Operation of machinery and heavy vehicles on site					<p>Avoid/stop or reduce impact at source:</p> <ul style="list-style-type: none"> - Conduct drilling activities only within designated footprints. No invasive drilling activities will be located 	
Chemicals and consumables handling	Direct loss or the disturbance of	Wetland habitat destruction,	Operation	Medium	<p>Avoid/stop or reduce impact at source:</p> <ul style="list-style-type: none"> - Conduct drilling activities only within designated footprints. No invasive drilling activities will be located 	Low

Activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Significance if not mitigated	Mitigation type and measure	Significance if mitigated
Ablutions Waste management Rehabilitation	wetland habitat	alteration of hydrology, and potential contamination of water resources			within 500m of the pan areas. - Removal of AIP should be carried out by mechanical removal and herbicides should not be used. - Train contractors on environmental awareness and maintain clean work areas. - Avoid the creation of concentrated flow paths wherever possible, especially along the road reserves. Modify impact through design: - Provide a method statement for drilling site management that includes the layout of the drilling site, amenities and wastewater / water management during drilling. - Implement proper waste management. The temporary storage of domestic waste shall be in covered bins that must be emptied on a weekly basis. Control impact through management: - Clean and dirty water at each drill pad will be separated through the placement of excavated topsoil in such a way as to divert runoff around the drill pad. - Silt laden runoff can be managed by ensuring that all drill water is captured in sumps and the sludge adequately disposed of. - Sumps for wastewater, grease and oil polluted water must be plastic lined to prevent pollution. Upon completion of drilling, the contents of the sumps (including the spent plastic liner) must be disposed of at a licensed disposal facility. - All solid waste collected must be disposed of at a licensed disposal facility. - No servicing of equipment on site unless absolutely necessary. Leaking equipment must be repaired immediately or be removed from site to facilitate repairs. Repair or remedy impact through rehabilitation: - Remove and replace vegetation as needed during drilling, ensuring concurrent rehabilitation - All disturbed and compacted footprint areas must be rehabilitated and landscaped after drilling is complete. These areas must either be rehabilitated to the original land use or an agreed upon land use.	
	Disruption in the ecological significance of the PR application area, in particular wetland area	Habitats for various insects, birds and invertebrates	Operation	Medium	Avoid/stop or reduce impact at source: - Where possible use existing access tracks for accessing drilling sites. Modify impact through design: - An effective fire management plan is required to protect sensitive environments from potential loss. Control impact through management: - No harvesting of plants or hunting and trapping of animals must be allowed. - Avoid the introduction of AIPs and implement an AIP monitoring and eradication programme. - Fires must not be allowed. Repair or remedy impact through rehabilitation: - According to the specialist, revegetation with indigenous flora species is necessary to prevent erosion	Low

Activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Significance if not mitigated	Mitigation type and measure	Significance if mitigated
					<p>from occurring, to restore habitats to their natural state as soon as possible, and in the long term will prevent the project impacts from causing nearly irreversible desertification.</p> <ul style="list-style-type: none"> - A suitably qualified ecologist should advise the revegetation measures following a site visit to the area. 	
	Generation of noise	Nuisance to surrounding sensitive receptors	Operation	Low	<p>Control through management:</p> <ul style="list-style-type: none"> - Limit idling and switch off equipment when not in use. - Implement offsite systematic maintenance of all forms of equipment and vehicles to minimise noise. - Activities must not be undertaken at night. 	Low
	Contamination of soil resources with drilling consumable fluids and hydrocarbons, as well as impacts to soil chemical and physical structure due to water and wind erosion, compaction and improper topsoil management	Local reduction in land capability and restoration of desired end land-use	Site establishment and operation	Low	<p>Modify impact through design:</p> <ul style="list-style-type: none"> - Plan activities, where possible, to occur on previously disturbed soil. <p>Control through management:</p> <ul style="list-style-type: none"> - Minimise areas to be disturbed by vehicles and machinery. - Implement an appropriate topsoil and subsoil stripping and stockpiling procedure where undisturbed soil present. - Stockpile topsoil and subsoil removed from sumps separately to ensure it is suitable for rehabilitation. <p>Repair or remedy impact through rehabilitation:</p> <ul style="list-style-type: none"> - Boreholes are to be sealed once drilling is completed. - Rip and profile any areas of compacted soil. - Monitor the entire site for signs of erosion and immediately implement prevention and maintenance measures. 	Low
	Loss of ground water quality due to spills or foreign material entering the boreholes contaminating the groundwater system	Pollution of the environment through hydrocarbon leaks	Site establishment, operation and rehabilitation	Low	<p>Avoid/stop or reduce impact at source:</p> <ul style="list-style-type: none"> - Minimise areas to be disturbed by vehicle and machinery. <p>Modify impact through design:</p> <ul style="list-style-type: none"> - Plastic line sumps. - Implement spill prevention measures such as handling and storing hydrocarbons on impermeable surfaces. <p>Control through management:</p> <ul style="list-style-type: none"> - Adequately maintaining vehicles and machinery to prevent leaks. - Implement adequate waste management practices - general duty of care and management regarding management of waste arising from prospecting. <p>Repair or remedy impact through rehabilitation:</p> <ul style="list-style-type: none"> - Rip and profile compacted soil. - Clean any spills immediately. 	Low
	Safety risks of the proposed invasive	People and animals	Operation	Low	<p>Control through management:</p> <ul style="list-style-type: none"> - Clearly demarcate drilling sites and restrict access for safety purposes. 	Low

Activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Significance if not mitigated	Mitigation type and measure	Significance if mitigated
	prospecting activities				<ul style="list-style-type: none"> - Backfill any excavations (such as sumps and the borehole) upon completion of prospecting activities. - No temporary infrastructure is to be left on site. - Remove all waste generated during the activities. 	
Unplanned events such as spills, fire and theft	Deterioration of sensitive areas	Wetland areas, soil quality, terrestrial ecology and land capability	Site establishment, operation and rehabilitation	Low	<p>Avoid/stop or reduce impact at source:</p> <ul style="list-style-type: none"> - No-go areas to be clearly demarcated and communicated to drilling contractors. - Train contractors on environmental awareness and maintain clean, safe work areas. <p>Modify impact through design:</p> <ul style="list-style-type: none"> - An effective fire management plan is required to protect sensitive environments from potential loss. <p>Compensate:</p> <ul style="list-style-type: none"> - Ensure that a landowner agreement is in place and aspects such as access, insurance and compensation are agreed upon therein. 	Low

- 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 - attach copies of specialist reports as appendices)**

The site sensitivities as identified in the ESR (Appendix 3) are summarised in Table 5. Table 5 also identifies the specialist studies/compliance statements which were required and undertaken. Table 6 summarises the mitigation measures proposed by the specialists.

Table 5. Sensitivity rating and specialist studies required

Site environmental sensitivities	Sensitivity rating according to ESR	Requirement according to NEMA Protocols	Specialist Assessment
Agricultural	Medium	Agricultural Compliance Statement	Refer to Appendix 6 for the Agricultural Compliance statement compiled by Digital Soils Africa (DSA, 2024).
Archaeological and Cultural Heritage Impact Assessment	Low	General assessment	Refer to Appendix 9 for the Heritage Compliance Statement compiled by Archaeos (2024).
Paleontological impacts	High	General assessment	Refer to Appendix 5 for the Palaeontological Impact Assessment undertaken by Prof Marion Bamford (2024).
Aquatic biodiversity	Low	Aquatic Biodiversity Compliance Statement	Refer to Appendix 8 for the Desktop Wetland Delineation and Impact Assessment for the Proposed Prospecting Right Application on the Farm Gappepin Reserve 670 compiled by The Biodiversity Company (TBC, 2024).
Terrestrial biodiversity	Low	Terrestrial Biodiversity Compliance Statement	Refer to Appendix 7 for the Desktop Terrestrial Biodiversity Assessment for the Proposed Prospecting Right Application on the Farm Gappepin Reserve 670 compiled by The Biodiversity Company (TBC, 2024).
Animal species	Medium	Terrestrial Animal Species Compliance Statement	
Plant species	Low	Plant Species Compliance Statement	
Noise impacts	N/A	General assessment	Given the localised and transient nature of the potential noise impact, a detailed noise assessment was not undertaken. The noise impacts will be managed as the measures included in the EMPr.
Radioactivity impacts	N/A	General assessment	As observed by the surrounding mining activities, radioactivity is generally not associated with the iron and manganese mineralisation in the area. Given the small scale of the prospecting activities, further measures were not considered to be necessary.

Table 6. Recommendations of specialist reports

List of studies undertaken	Recommendations from Specialist Reports	Specialist recommendations that have been included in the BAR (Mark with an X where applicable)	Reference to applicable section of report where specialist recommendations have been included
Agricultural Compliance Statement	According to the specialist, the project will not have a significant impact on agricultural activities in the area and poses no threat to food security. No site-specific recommendations were necessary.	(none)	N/A
Palaeontological Impact Assessment	A Fossil Chance Find Protocol should be added to the EMPr.	X	Part B, Sections 1e and 1f
	If fossils are found by the contractor, environmental officer or other responsible person once prospecting has commenced then they should be rescued and a palaeontologist called to assess and collect a representative sample.	X	Part B, Sections 1e and 1f
Heritage Compliance	Prior to development, a high-level site visit be undertaken to identify historical and archaeological sites, buildings or structures.	X	Part B, Sections 1e and 1f

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Statement	The mapping of any of the above will enable to project team to prevent the disturbance of any of these during prospecting activities. This will likely prevent any unnecessary delays in future.	X	Part B, Sections 1e and 1f
	A Heritage Impact Assessment (HIA) would be needed eventually but only before any mining can be done. The HIA will also benefit from data collected during the high-level site visit indicated above.	Not included (The EMPr considers only prospecting activities. The implications of mining on heritage resources would be considered should an application for a Mining Right ensue)	
Desktop Wetland Delineation and Impact Assessment	It is recommended that Very Highly sensitive areas as well as regulated areas be avoided and only after field work has been conducted can it be determined if prospecting in these Highly sensitive areas are acceptable. In addition, the potentially "wet" areas identified should be avoided.	X	Part B, Sections 1e and 1f
	Going forward, it is imperative that a field assessment be undertaken prior to any invasive prospecting activities taking place, in order to verify the results of the desktop assessment and confirm the status of the potentially "wet" areas.	X	Part B, Sections 1e and 1f
	A spill response kit must be available at all times. The incident must be reported on and if necessary, an experienced ecologist must investigate the extent of the impact and provide rehabilitation recommendations.	X	Part B, Sections 1e and 1f
	Storm water management plan must be compiled by a suitably qualified engineer and implemented throughout the life of the activity. Erosion control measures must be put in place. Measures must include monthly inspections across the project footprint and should be adaptive based on site-conditions.	X	Part B, Sections 1e and 1f
	An appropriate/ adequate fire management plan needs to be implemented to protect the watercourse areas from potential loss.	X	Part B, Sections 1e and 1f
	Section 3.1.4.1 of the specialist report (Appendix 8, pages 35 - 39) detailed site-specific mitigation measures.	X (consolidated measures were included in the EMPr)	Part B, Sections 1e and 1f
Desktop Terrestrial Biodiversity Assessment	A field assessment must be undertaken prior to any invasive activities taking place in order to verify the results of the terrestrial and aquatic desktop assessments. On a terrestrial ecology front, a biodiversity survey is suggested which would include the faunal, plants and vegetation and habitat surveys described below.	X	Part B, Sections 1e and 1f
	Faunal survey will include: <ul style="list-style-type: none"> - A survey of the project areas (if permitted). - Compilation of an identified species list. - Identify any Red Data or listed species present or potentially occurring in the area including SCC plants and animals identified in the accompanying scoping report. - A habitat assessment and delineation; and - An avifauna specialist site visit will be required if any further developments take place or permanent infrastructure is planned. Based on the desktop information available in the scoping, the prospecting phase of this project is expected to have limited impacts to vultures. 	X	Part B, Sections 1e and 1f
	Plants and vegetation survey will include the following: <ul style="list-style-type: none"> - A survey for Red and Orange Data plant species. - Vegetation units will be identified, classified and delineated. - Habitat types will be classified and delineated. 	X	Part B, Sections 1e and 1f

	<ul style="list-style-type: none"> - The survey will be conducted in consultation with local authorities who have information to be considered; and - The survey area will include the project area. 		
	<p>The habitat survey will include the following:</p> <ul style="list-style-type: none"> - The identification of these features and delineation thereof; and - The location of any unique or protected habitat features. - Based on the results of the field surveys, additional sensitive areas – over-and-above those described during the scoping phase – may be identified, delineated, and will be accompanied by recommendations which can include avoiding such locations during the undertaking of the project 	X	Part B, Sections 1e and 1f
	<p>Revegetation with indigenous flora species is necessary to prevent erosion from occurring, to restore habitats to their natural state as soon as possible, and in the long term will prevent the project impacts from causing nearly irreversible desertification. In the scenario of waiting for natural revegetation processes to take place, periodic site monitoring will need to be initiated - it therein becomes more costly and challenging to determine at what point the natural processes are deemed unsuccessful and require intervention, while it also carries more potential long-term risk to the disturbed habitats within the project area.</p>	X	Part B, Sections 1e and 1f

I) Environmental impact statement

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

Potential impacts which cannot be adequately mitigated (i.e. those with a significance rating of **Medium** (significance value ≥ 31) or above after the implementation of mitigation measures), are considered key findings of the environmental impact assessment.

Due to the limited extent of the areas to be cleared, limited temporary infrastructure required, temporary nature of the activities, the potential impacts are considered to be of **Low** significance after the implementation of mitigation measures.

ii) Final site map (provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers)

Refer to Figure 19 for a composite map / environmental sensitivity map of the PR application area and footprint within this area that is demarcated for the proposed prospecting activities.

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

The potential impacts of the activities that may be required in order to exercise the PR applied for, are listed below.

Negative impacts

The drilling grid will be finalised follow completion of non-invasive exploration activities. The areas drilling will avoid the homesteads, wetland/ pan areas, and other potential wet areas as identified by the specialist. While preference will be given to utilizing existing access tracks to reach drilling sites, the potential necessity for additional, temporary access tracks to drilling sites is recognized. The establishment of such tracks will be addressed within access agreements and negotiations with landowners.

Land clearing, vegetation removal, surface preparations, and site establishment will take place at each of the twenty 10m x 10m drill hole locations. These activities, alongside vehicle and plant movements along unpaved roads, as well as the operations of the drilling contractor at each drillhole site, may lead to localized impacts on fauna, flora, air quality, and soil resources:

- Direct loss or the disturbance of wetland habitat, including habitat destruction, alteration of hydrology, and potential contamination of water resources from infrastructure and operational activities.
- Disruption in the ecological significance and serving as vital habitats for various invertebrates such as crustaceans and insects as well as bird species.
- Dust emissions (temporary nuisance to nearby sensitive areas).
- Potential damage to archaeological or paleontological resources during earthworks and site establishment.

- Transformation, fragmentation, and loss of local habitats and ecosystems.
- Direct and indirect disturbance of plants and animals, including the proliferation of alien vegetation, displacement of fauna due to habitat loss, noise, dust, and vibration and loss of fauna due to theft and road collisions.
- Soil contamination with drilling fluids and hydrocarbons, as well as erosion and compaction, affecting soil structure and land capability
- Generation of nuisance noise and safety risks to people and animals.

Positive impacts of the proposed prospecting activities include the contribution to the geological body of knowledge regarding mineralization over the target area, aiding in the identification of potential economic mineral deposits, and encouraging future local economic potential.

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 conditions of authorisation)

Impact management objectives and outcomes included in the EMPr, are described in terms of the following mitigation hierarchy:

- **Avoid/stop or reduce at source:** through design (e.g. placement of activity away from sensitive areas or reducing by restricting the working area or changing the time of the activity).
- **Modify through design:** change/ add something to the design to reduce the impact (e.g., pollution control equipment, installation of noise silencers, operate in daylight hours).
- **Control through management and monitoring:** if an impact cannot be reduced on-site then control measures can be implemented off-site (e.g., noise barriers to reduce noise impact at a nearby residence or fencing to prevent animals straying onto the site).
- **Repair or remedy through rehabilitation:** some impacts involve unavoidable damage to a resource (e.g. agricultural land due to creating access, work camps or materials storage areas) and these impacts can be addressed through repair, restoration or reinstatement measures.
- **Compensate:** where other mitigation approaches are not possible or fully effective, then compensation for loss, damage and disturbance might be appropriate (e.g., replace damaged vegetation, financial compensation for damaged crops or providing community facilities for loss of resources, recreation and amenity space).

n) Aspects for inclusion as conditions of Authorisation (any aspects which must be made conditions of the Environmental Authorisation)

- An agreement for access to the PR application area must be finalised between the Applicant (MM) and landowner prior to the commencement of invasive prospecting activities.
- No invasive prospecting activities should be undertaken in areas identified by specialists as being of high potential sensitivity (i.e. 500 m within wetland pans and 32 m within other wet areas).
- Prior to the clearance of vegetation, a suitably qualified specialist should conduct faunal, floral and habitat surveys of the proposed drilling areas to identify any flora which require permits to relocate or remove and to advise on site specific measures for the presence of any SCC. Permits should be in place prior to the clearance of the area.
- The landowner has indicated the presence of graves and homestead structures on the property. These sites are to be avoided by a radius of 100 m.
- A high-level heritage survey to identify the presence of historical buildings, graves and potential for other heritage resources should be undertaken prior to the selection of drilling sites. Any areas identified as heritage resources are to be avoided.
- The commitments as per this EMPr (Part B) must be adhered to.
- Rehabilitation and closure must be undertaken as per the closure objectives and rehabilitation plan (refer to the EMPr (Part B of this document)).

o) Description of any assumptions, uncertainties and gaps in knowledge (which relate to the assessment and mitigation measures proposed)

Information to characterise the baseline environment was obtained from available desktop sources, specialist assessments and supplemented by specialist experience in the region. It is assumed that this information is reflective of the current conditions of the PR

application area, aside from those aspects where information is outdated and is stated as such in the baseline description. It is, however, not considered that this data will significantly alter the findings or outcomes of any potential impact identified nor the management measures proposed.

The specialist assessments were based on desktop assessments and knowledge of projects in the area, further uncertainties as noted in the specialist work included:

- In the palaeontological assessment (Appendix 5), it was assumed that the formation and layout of the dolomites, sandstones, shales and sands are typical for the country and only some might contain fossil plant, insect, invertebrate and vertebrate material. The sands of the Quaternary period would not preserve fossils.
- In the agricultural assessment (Appendix 6), available desktop information is assumed to be accurate and representative of site conditions.
- In the terrestrial biodiversity assessment (Appendix 7), the following assumptions and limitations were noted:
 - That the extent of the project area provided to the specialist is accurate.
 - The Project Footprint was considered together with a wider Project Area of Influence (PAOI) which will inform the field survey and subsequent impact assessments, according to required protocols based on regulated areas and legislation. The PAOI is necessary because prospecting of this nature has the potential for primary and secondary impacts on the surrounding habitats of the Project Footprint which must therefore be taken into account, especially from a wetlands/aquatic perspective.
 - The impact assessment was based only on the desktop information available – no preliminary on-site inspection was carried out at the time of writing.
 - Planned drilling descriptions were provided however greater detail to prospecting activities is provided in the Basic Assessment Report (BAR).
 - Apart from the project site polygon, no spatial information was provided in relation to the layout of the proposed drill pads at the time of report preparation, therefore the impacts and their significance ratings should be revisited upon finalisation of a full project layout
- In the wetland / aquatic biodiversity assessment (Appendix 8), the following assumptions and limitations were noted:
 - It has been assumed that the extent of the project area provided to the specialist is accurate.
 - No preliminary on-site inspection was carried out. The impact assessment was based only on the desktop information available.
 - For this desktop report, only the Project Footprint was considered and a wider Project Area of Influence (PAOI) will be considered for the field survey and subsequent impact assessment.
 - The wetland delineations have been completed at a desktop level only and must be followed by a field survey to verify the findings of the desktop assessment.
 - Apart from the project site polygon, no spatial information was provided in relation to the layout of the proposed drill pads at the time of report preparation, therefore the impacts and their significance ratings should be revisited upon finalisation of a full project layout.
- In the heritage compliance statement (Appendix 9), it is acknowledged that the project area is considered low risk area for containing heritage and archaeological sites due to the fact that no heritage studies was done here before. The main shortcoming of the screening tool is that heritage and archaeological data is incomplete. Thus, the tool is based on available data which is constantly updated by performing heritage surveys all over South Africa. Heritage sites have been identified in nearby areas, including Stone Age sites, graves and historical buildings and the presence of similar resources at the PR application area is likely.

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

i) Reasons why the activity should be authorized or not

The findings of the impact assessment indicate that prospecting activities will not result in any significant social or environmental impacts should the no-go areas as described in the BAR be enforced. No fatal flaws were identified; therefore, there are no reasons as to why the activities should not be authorized.

ii) Conditions that must be included in the authorisation

None aside from those listed under Section 3n) above, as all the relevant aspects have been included as commitments in this EMPr (Part B of this document).

q) Period for which the Environmental Authorisation is required

The PR and associated Environmental Authorisation should be valid for a period of 3 years.

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 EAP undertakes that the information provided is correct, and that the comments and inputs from stakeholders and IAPs will be included into the final report after the conclusion of the public consultation process.

The undertaking in the EMPr is applicable to both the BAR (this section, Part A) and the EMPr (Part B).

s) Financial Provision (state the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation)

As per Regulation 6 of the NEMA Financial Provisioning Regulations (GNR1147 of 2015) the determination of the quantum for rehabilitation-related financial provision and the detailed itemisation has been included in the EMPr (Part B). The total financial provision for the final rehabilitation, decommissioning and rehabilitation of the proposed invasive prospecting activities and for addressing latent or residual environmental impacts has been calculated to be **R105 908** (incl. P&Gs + contingencies + VAT) (value as per date of assessment – 2024).

i) Explain how the aforesaid amount was derived

As per GNR1147 of 2015, the holder of a right in terms of the MPRDA must determine and make financial provision to guarantee the availability of sufficient funds to undertake rehabilitation and remediation of the adverse environmental impacts of **prospecting**, exploration, mining or production operations, as contemplated in the Act and to the satisfaction of the Minister responsible for mineral resources. According to Regulation 5 an applicant or holder of right or permit must make financial provision for rehabilitation and remediation, decommissioning and closure activities at the end of prospecting and remediation and management of latent or residual environmental impacts which may become known in future, including the pumping and treatment of polluted or extraneous water (if warranted).

Regulation 6 makes provision for the method of determining the costs of the financial provision and states that a holder must determine the financial provision through a detailed itemisation of all activities and costs, calculated based on the actual costs of implementation of the measures required for annual rehabilitation, final rehabilitation, decommissioning and closure and remediation of latent or residual environmental impacts. As such, the quantum for closure-related financial provision in terms of the above has been determined. Refer to the EMPr - Part B of this document for further information.

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

The total financial provision for the invasive prospecting activities proposed, was calculated to be **R105 908** (incl. P&Gs + contingencies + VAT) (value as per date of assessment – 2024). Financial provision will be provided for from the implementation “operating” costs and will form part of the contract with the drilling contractor as per the Prospecting Works Programme (PWP) (Table 7). A total of R 40 000 (excl. VAT) has been included for rehabilitation. The adequacy of ongoing rehabilitation and financial provision will be evaluated in terms of the Financial Provisioning Regulations on an annual basis.

Table 7. Cost estimate for the proposed prospecting

	Year 1				Year 2				Year 3		Total
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 1	Quarter 2	
Search of existing information	7500	7500									15000
Ground sampling and Geophysical surveying		32000	32000								64000
Percussion Drilling & Diamod			150000	150000	150000	150000					600000
Borehole Sampling & Data Capture					7500	7500	7500				22500
Geologica mapping & interpretation					80 000	80 000	80 000				240000
Environmental Impact Assessment (EIA)						144000	144000				288000
Review & Validation							78000				78000
In- Fill Drilling								75000	75000	75000	150000
Update Geological Model & Resources Estimate									60000		60000
Update EIA & compile Feasibility report										45000	45000
Conclude Geological Interpretation and Mine Feasibility										45000	45000
Rehabilitation			5000	5000	5000	5000	5000	5000	5000	5000	40000
Overheads			7000	7000	7000	7000	7000	14000	14000	14000	77000
Total											1184500

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 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 land use associated with the proposed PR application area, as well as the surrounding area, is characterised by its natural, unpopulated and largely undeveloped state. One homestead and an existing grave site have been demarcated as no-go areas with a 100 m buffer area. Farming activities includes the grazing of cattle, sheep, goats and wildlife. The area is not used for commercial crop farming.

There are mines to the east of PR application area (PMG Mining Pty Ltd – Bishop Mine on the Bishop farm and smaller mining operations like Afrimat – Jenkins, Salene Manganese Mine, and Boskop Manganese Mine).

Communication from the Office of Regional Land Claims Commissioner: Northern Cape dated 12 April 2024 indicated that there are no land claims for the R application area according to their database (refer to Appendix 11 for a copy of the letter).

The landowner and the lawful occupiers would likely be the only directly affected persons. A landowner access agreement between the Applicant (MM) and the landowner for the prospecting activities should be in place prior to commencing prospecting activities. There is therefore limited risk to the socio-economic conditions of any directly affected person arising from the activities required to exercise the PR applied for.

- 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 that Act, attach the investigation report as an appendix and confirm that the applicable mitigation is reflected herein)**

Known grave sites, as indicated by the landowner, have been demarcated in the footprint activities as no-go areas and are respected with a 100 m no-go buffer area around them.

According to the available databases, there are no other heritage resources currently identified in the area. It is understood that this may be due the absence of previous studies on the site. A high-level heritage study has been recommended to be undertaken prior to invasive prospecting activities. A buffer of 100 m around any identified heritage structures will be provided for.

None of the protected activities in terms of the National Heritage Resources Act, No. 25 of 1999 (NHRA) are triggered by the proposed project as the prospecting activities will not transform the character of the site. Chance finds procedures for paleontological and cultural heritage finds are included in the EMPr, specific to the areas where invasive activities will be conducted (as detailed in Table 8 in the EMP - Part B of this document).

As per SAHRA Permit Regulations, GN 668 of 2005, should a discovery of previously unknown graves occur, the grave should not be disturbed in any way. The site should be geo-referenced and the NCHRA notified and under their authority in co-operations with SAPS, the grave will be inspected and its potential heritage protection advised.

The significance of potential damage to heritage and/ or paleontological resources of significance is Medium prior to mitigation and Low after the implementation of the recommended mitigation measures.

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

Motivation for why alternatives were not considered has been included in Section 3h)ix). This BAR / EMPr addresses the following requirements in terms of sections 24(4)(a) and (b) of the Act:

Section of NEMA	Contents	Description of how the aspect has been addressed
Section 24(4)(a)		
24(4)(a)	Procedures for the investigation, assessment and communication of the potential consequences or impacts of activities on the environment – must ensure, with respect to every application for an environmental authorisation—	Refer to Section 3h)vi) for the methodology used for the assessment of impacts.
24(4)(a)(i)	Coordination and cooperation between organs of state in the consideration of assessments where an activity falls under the jurisdiction of more than one organ of state;	The BAR / EMPr will be made available to the following relevant organs of state: Local and District Municipality, DWS, Department of Agriculture, Land Reform and Rural Development, DFFE and Northern Cape Province Department of Agriculture, Environmental Affairs, Land Reform and Rural Development as the authority regarding environmental matters - for comment during public participation processes. The DMRE remains the Competent Authority.
24(4)(a)(ii)	That the findings and recommendations flowing from an investigation, the general objectives of integrated environmental management laid down in this Act and the principles of environmental management set out in section 2 are taken into account in any decision made by an organ of state in relation to any proposed policy, programme, process, plan or project;	The general objectives and principles of environmental management were addressed in the EMPr - Part B of this document.
24(4)(a)(iii)	That a description of the environment likely to be significantly	Refer to Section 3h)iv)1) for a description of the baseline environment

Section of NEMA	Contents	Description of how the aspect has been addressed
	affected by the proposed activity is contained in such application;	likely to be affected by the project.
24(4)(a)(iv)	Investigation of the potential consequences for or impacts on the environment of the activity and assessment of the significance of those potential consequences or impacts; and	Refer to Section 3h)v) for the assessment of the potential impacts.
24(4)(a)(v)	Public information and participation procedures which provide all interested and affected parties, including all organs of state in all spheres of government that may have jurisdiction over any aspect of the activity, with a reasonable opportunity to participate in those information and participation procedures; and	Refer to Section 3h)ii) which details the public participation process to be followed.
24(4)(A)	Where environmental impact assessment has been identified as the environmental instrument to be utilised in informing an application for environmental authorisation, subsection (4)(b) is applicable	A Basic Assessment process has been identified as the environmental instrument therefore (4)(b) is applicable.
Section 24(4)(b)		
24(4)(b)	Must include, with respect to every application for an environmental authorisation and where applicable—	
24(4)(b)(i)	Investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity;	Motivation for why alternatives were not considered, as well as the options of not implementing the activity have been addressed in Section 3h).
24(4)(b)(ii)	Investigation of mitigation measures to keep adverse consequences or impacts to a minimum;	Mitigation measures for potential impacts have been identified. Refer to the EMPr - Part B of this document.
24(4)(b)(iii)	Investigation, assessment and evaluation of the impact of any proposed listed or specified activity on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act;	The NHRA has been taken into account (refer to Section 3h)iv)1)(j)) where the current heritage landscape in the PR application area is characterised) and the project does not trigger any activities as listed therein (refer to Section 3(e)) as the prospecting activities will not transform the character of the site.
24(4)(b)(iv)	Reporting on gaps in knowledge, the adequacy of predictive methods and underlying assumptions, and uncertainties encountered in compiling the required information;	The gaps have been identified. Refer to the EMPr - Part B of this document.
24(4)(b)(v)	Investigation and formulation of arrangements for the monitoring and management of consequences for or impacts on the environment, and the assessment of the effectiveness of such arrangements after their implementation;	<p>Management and monitoring measures have been specified in the EMPr - Part B of this document and the impact management actions detailed in Table 5 require monitoring.</p> <p>NEMA EIA Regulations requires an Environmental Audit Report to be submitted to the Competent Authority at the frequency specified within the Environmental Authorisation to ensure that the compliance with the conditions of the environmental authorisation, the EMPr, and the closure plan in the case of a closure activity, is audited.</p> <p>As per GNR1147 of 2015, the adequacy of ongoing rehabilitation and financial provision will be evaluated in terms of the Financial Provisioning Regulations on an annual basis.</p>
24(4)(b)(vi)	Consideration of environmental attributes identified in the compilation of information and maps contemplated in subsection (3); and	
24(3)	The Minister, or an MEC with the concurrence of the Minister, may compile information and maps that specify the attributes of the environment in particular geographical areas, including the sensitivity, extent, interrelationship and significance of such attributes which must be taken into account by every competent authority.	Refer to Section 3h)iv)1) for maps indicating geographical areas, including the sensitivity, extent, interrelationship and significance of such attributes informed by maps compiled by relevant departments.

Section of NEMA	Contents	Description of how the aspect has been addressed
24(4)(b)(vii)	Provision for the adherence to requirements that are prescribed in a specific environmental management Act relevant to the listed or specified activity in question.	Listed activities for the project have been identified. Refer to Section 3d)i). A Basic Assessment process has been identified as the environmental instrument in terms of NEMA. An AEL is not required as per NEMAQA. A WML is not required as per NEMWA. The area does not fall within a protected area as per NEMPAA. A WUL / GA is not required for the project as no listed activities in terms of the NWA are triggered by the proposed prospecting activities.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1. DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

- a) Details of the EAP (confirm that the requirement for the provision of the details and expertise of the EAP are already included in PART A, section 3(a) herein as required)**

The details and expertise of the EAP are already included in Part A, Section 3 a)i) herein as required. Key Prime Resources personnel CVs are attached as Appendix 2. The Prime Resources Company Profile is attached as Appendix 1.

- b) Description of the aspects of the activity (confirm that the requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section (3)(d) herein as required)**

The aspects of the activity that are covered by the EMPr are included in detail in Part A, Section 3d) herein as required.

- c) Composite map (provide a map 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)**

Refer to Figure 19 for a composite map which considers the PR application area and the proposed target area for invasive prospecting activities together with the environmental sensitivities, no-go buffer areas and surrounding land uses.

- 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)**

The main objective will be to rehabilitate and return the borehole drill sites, access tracks and any areas affected as a result of invasive prospecting activities to resemble the surrounding landscape (natural/ open) and pre-prospecting land use (grazing) with no remaining infrastructure or potential hazards to people or the environment. Further environmental closure objectives include:

- Ensure that no temporary infrastructure is left on site and ensure environmental and safety risks are minimised.
- Rehabilitate areas disturbed by prospecting activities.
- Rehabilitated areas must not pose a safety hazard to humans and animals.
- Limit the clearing of vegetation during prospecting activities.
- Establish a self-sustaining and stable vegetation cover over the area disturbed by the prospecting activities, by ripping and re-seeding using an appropriate indigenous seed-mix to promote the rehabilitation of the affected area to coincide with the surrounding landcover and as per landowner agreement.
- Minimise the establishment of AIPs species.
- Ensure the rehabilitated landform is free draining; and
- Ensure adherence to local, provincial and national regulatory requirements.

Refer to the Section 1.h)11) below for specific strategies for each of the above-mentioned aspects to achieve the main closure objectives.

- ii) Volumes and rate of water use required for the operation**

Small volumes of water are required to support activities to be undertaken in the exercising of the PR applied for. MM will make use of water obtained from an existing permissible source off site for use during drilling operations. The use of water from any private borehole not owned by MM is not permitted without the consent of the landowner.

- iii) Has a water use licence been applied for?**

A WUL / GA is not required for the project as no listed activities in terms of the NWA are triggered by the proposed prospecting activities. MM will make use of water obtained off site and will not commission any new abstraction points. No waste or water containing waste will be disposed in a manner which may result in pollution. No waste or water containing waste will be discharged into the environment.

e) Impacts to be mitigated in their respective phases (measures to rehabilitate the environment affected by the undertaking of any listed activity)

Activities (E.g. for prospecting – drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc.)	Phase (when activity will take place)	Size and scale of disturbance	Mitigation measures (how each recommendation will remedy the cause of pollution or degradation and migration of pollutants)	Compliance with standards (how each of the recommendations will comply with any prescribed environmental management standards or practices that have been identified by the CA)	Time period for implementation (time period when the measures in the EMP must be implemented)
PR application (without bulk sampling)	All phases	PR application area: 2614.53 ha Invasive activities footprint: < 2 ha	<ul style="list-style-type: none"> - Implement the approved EMPr. - Environmental awareness training must be implemented as per the relevant section of this EMPr, ensuring that drilling contractors / personnel comply with the commitments made in the EMPr. - As part of environmental awareness training, personnel and contractors must comply with the commitments made in this EMPr as per the above, specifically in terms of the possible presence of subterranean archaeological and/or paleontological sites, features or artefacts and be advised of the penalties associated with the unlawful removal of these artefacts, as set out in the NHRA as well as of the chance finds procedures. - No invasive activities to take place within 100 m of any existing graves / buildings/ houses/ structures within the PR application area. - Landowner access agreement and third-party insurance to be in place for duration of invasive prospecting activities. 	<ul style="list-style-type: none"> - Implement the approved EMPr and any conditions of the Environmental Authorisation. 	All phases
Invasive activities (borehole drill sites) <ul style="list-style-type: none"> - Clearing and use of vehicles on access / haul roads - Clearing of land, surface preparations and site establishment - Operation of machinery - Borehole drilling - Consumables handling 	Throughout operation, until invasive prospecting activities cease.	Invasive activities footprint: < 2 ha	<p>Air quality deterioration</p> <ul style="list-style-type: none"> - Areas to be cleared will be limited to the minimum extent possible. - Only clear areas immediately before the area is to be developed to limit the period of erosion. - Nuisance dust must be avoided and wet suppression must be implemented where dust plumes are noted. <p>Wetland habitat destruction, hydrology alteration and contamination</p> <ul style="list-style-type: none"> - Conduct drilling activities only within designated footprints. No invasive drilling activities will be located within 500 m of the pan areas. No invasive drilling activities will be undertaken within 32 m of wet areas. - Clearly mark buffer areas to prevent encroachment and relocate nonessential infrastructure away from freshwater zones. - Avoid the creation of concentrated flow paths wherever possible, especially along the 	<ul style="list-style-type: none"> - Dust generated likely to fall below the threshold as per the NEMAQA National Dust Control Regulations (GNR827 of 2013) - National Ambient Air Quality Standards for PM10 (GN1210 of 2009) - NWA, Section 21 - NWA Regulations on Use of Water for Mining and Related Activities aimed at the Protection of Water Resources (GNR704 of 1999) - Conservation of Agricultural Resources Act, No. 43 of 1983 	All phases, until rehabilitation is complete and revegetation is successful.

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Activities (E.g. for prospecting – drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc.)	Phase (when activity will take place)	Size and scale of disturbance	Mitigation measures (how each recommendation will remedy the cause of pollution or degradation and migration of pollutants)	Compliance with standards (how each of the recommendations will comply with any prescribed environmental management standards or practices that have been identified by the CA)	Time period for implementation (time period when the measures in the EMP must be implemented)
<ul style="list-style-type: none"> - Ablutions - Waste management - Soil and sample handling 			<p>road reserves.</p> <ul style="list-style-type: none"> - Train contractors on environmental awareness and maintain clean work areas. Ensure all contractors and staff have undergone an induction / training on the location of sensitive “No-Go” areas and basic environmental awareness using the mitigation provided in this report. - Existing roads should be used where possible. Avoid the creation of concentrated flow paths wherever possible, especially along the road reserves. - Where possible, construction activities to take place during the dry season to reduce the erosion by water and wind of the exposed surfaces. - Clean and dirty water at each drill pad will be separated through the placement of excavated topsoil in such a way as to divert runoff around the drill pad. - Silt laden runoff can be managed by ensuring that all drill water is captured in sumps and the sludge adequately disposed of. <p>Biodiversity loss, habitat transformation</p> <ul style="list-style-type: none"> - Where possible use existing access tracks. - Remove and replace vegetation as needed during drilling, ensuring concurrent rehabilitation. - A specialist to survey the drilling sites prior to establishment. The specialist is required to undertake the faunal, floral and habitat surveys as recommended by the specialist (TBC, 2024). The specialist is to identify the presence of floral and faunal SCC and to advise on managing alien invasive species. - The specialist should also advise the revegetation measures required for rehabilitation. - The appropriate permits are required for SCC removal and relocation. - Preserve vegetation cover in working areas to mitigate erosion. - No harvesting of plants or hunting and trapping of animals must be allowed. - Revegetation with indigenous flora species is necessary to prevent erosion from occurring, to restore habitats to their natural state as soon as possible, and in the long term will prevent the project impacts from causing nearly irreversible 	<p>(CARA)</p> <ul style="list-style-type: none"> - MPRDA Regulations (GNR527 of 2004). - NCNCA (No. 9 of 2009) <ul style="list-style-type: none"> - NEMBA, Threatened or Protected Species Regulations - NCNCA (No. 9 of 2009) 	

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Activities (E.g. for prospecting – drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc.)	Phase (when activity will take place)	Size and scale of disturbance	Mitigation measures (how each recommendation will remedy the cause of pollution or degradation and migration of pollutants)	Compliance with standards (how each of the recommendations will comply with any prescribed environmental management standards or practices that have been identified by the CA)	Time period for implementation (time period when the measures in the EMP must be implemented)
			desertification.		
			Proliferation of AIP - Avoid the introduction of AIPs. - Promptly remove AIP species (such as weedy annuals and other alien forbs) in line with an AIP management plan. - Removal of AIP should be without herbicide use near water systems and mechanical removal used instead.	- NEMBA Alien and Invasive Species Regulations (GNR598 of 2014) - Regulations under CARA pertaining to soil erosion and control of weeds and invasive plants	
			Local reduction in soil and land capability and restoration of desired end land-use - Plan activities, where possible, to occur on previously disturbed soil. - Minimise areas to be disturbed by vehicles and machinery. - Implement an appropriate topsoil and subsoil stripping and stockpiling procedure where undisturbed soil present. - Use temporary structures made of materials that can be easily removed from site and recycled or used elsewhere. - Stockpile topsoil and subsoil removed from sumps separately to ensure it is suitable for rehabilitation. - Monitor the entire site for signs of erosion and immediately implement prevention and maintenance measures. - Boreholes are to be sealed once drilling is completed. - Rip and profile compacted soil. - All disturbed and compacted footprint areas must be rehabilitated and landscaped after drilling is complete. These areas must either be rehabilitated to the original land use or an agreed upon land use.	- Regulations under CARA pertaining to soil erosion and control of weeds and invasive plants - NEMWA: National Norms and Standards for the Remediation of Contaminated Land and Soil Quality	
			Damage to buried archaeological resources of significance - A high-level site visit must be undertaken to identify potential historical and archaeological sites, buildings or structures prior to invasive prospecting activities commencing. - Mapped sites must be avoided during prospecting activities	- In the event that artefacts are unearthed they must be dealt with according to the provisions of the NHRA	Throughout operation, until invasive prospecting activities cease.

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Activities (E.g. for prospecting – drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc.)	Phase (when activity will take place)	Size and scale of disturbance	Mitigation measures (how each recommendation will remedy the cause of pollution or degradation and migration of pollutants)	Compliance with standards (how each of the recommendations will comply with any prescribed environmental management standards or practices that have been identified by the CA)	Time period for implementation (time period when the measures in the EMP must be implemented)
			<ul style="list-style-type: none"> - Known grave sites, as indicated by the landowner, have been demarcated in the footprint activities as no-go areas and are respected with a 100 m no-go buffer area around them. - The identified sites for drilling should be surveyed prior to commencing drilling to determine whether there is archaeological or historical material located there - Work should cease immediately and an archaeologist should be contacted as a matter of urgency to assess any sites, objects or features, as well as graves and burials that may be uncovered during construction activities on site. - 'Chance Find Procedure' as prescribed by a specialist should be implemented for items of cultural or heritage significance. - In the event that a previously unknown grave site is discovered; the grave should not be disturbed in any way. The grave should be geo-referenced, the Northern Cape Provincial Heritage Resources Authority notified and under their authority in co-operations with SAPS, the grave will be inspected and its potential heritage protection advised 		
			<p>Damage to buried paleontological resources of significance</p> <ul style="list-style-type: none"> - As requested by the landowner, no permanent renovations of any kind may take place on the property and no prospecting operations within a radius of 100 m of a grave, existing building or permanent structure are to be undertaken. - 'Chance Find Procedure' as prescribed by the specialist should be implemented in the unlikely event that any fossils are found in the loose soils and sands that cover the area or in the surficial limestone, or the iron or manganese ores below ground that will be drilled - Geologist to be trained in the Chance Finds procedures for paleontological and cultural heritage resources. - Dolomitic layers noted in drill core must be inspected by the geologist for the presence of stromatolites. - Quaternary sand drill core to be inspected by the geologist for the presence of bones, rhizoliths and traces. 	<ul style="list-style-type: none"> - In the unlikely event that fossils are discovered they must be dealt with according to the provisions of the NHRA 	

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Activities (E.g. for prospecting – drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc.)	Phase (when activity will take place)	Size and scale of disturbance	Mitigation measures (how each recommendation will remedy the cause of pollution or degradation and migration of pollutants)	Compliance with standards (how each of the recommendations will comply with any prescribed environmental management standards or practices that have been identified by the CA)	Time period for implementation (time period when the measures in the EMP must be implemented)
			- Implement a chance finds procedure should for paleontological and cultural heritage resources be noted.		
	Throughout operation, until invasive prospecting activities cease.	N/A	Generation of noise from drilling activities <ul style="list-style-type: none"> - Limit idling and switch off equipment when not in use. - Implement offsite systematic maintenance of all forms of equipment and vehicles to minimise noise. - Activities must not be undertaken at night. 	<ul style="list-style-type: none"> - (WHO) Guidelines for Community Noise - Maintain noise levels within typical rating level for Urban districts SANS 10103. - Ambient noise levels unlikely to increase above the typical rating level for rural districts (SANS 10103:2008) 	Throughout operation, until invasive prospecting activities cease.
	Throughout operation, until invasive prospecting activities cease.	20 drill sites of 10m x 10m	Hydrocarbon pollution of the environment, waste management <ul style="list-style-type: none"> - Provide a method statement for drilling site management that includes the layout of the drilling site, amenities and wastewater / water management during drilling. - Prevent and manage potential spills from generator diesel storage tanks, machinery spills (e.g. accidental spills of hydrocarbons oils, diesel etc.) or construction materials on site (e.g. concrete). - Handle and store hydrocarbons on impermeable surfaces. - Any incidents must be reported promptly. Any possible contamination of topsoil by hydrocarbons, concrete or concrete water must be avoided. Any contaminated soil must be treated in situ or be placed in containers and removed from the site for disposal in a licensed facility. - Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use. - Sumps for wastewater, grease and oil polluted water must be plastic lined to prevent pollution. Upon completion of drilling, the contents of the sumps (including the spent plastic liner) must be disposed of at a licensed disposal facility. - All solid waste collected must be disposed of at a licensed disposal facility. - No servicing of equipment on site unless absolutely necessary. Leaking equipment 	<ul style="list-style-type: none"> - NWA, Section 21 - NWA Regulations on Use of Water for Mining and Related Activities aimed at the Protection of Water Resources (GNR704 of 1999) - Hazardous Substances Act 15 of 1973 - NEMWA: National Norms and Standards for the Remediation of Contaminated Land and Soil Quality 	Throughout operation, until invasive prospecting activities cease.

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Activities (E.g. for prospecting – drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc.)	Phase (when activity will take place)	Size and scale of disturbance	Mitigation measures (how each recommendation will remedy the cause of pollution or degradation and migration of pollutants)	Compliance with standards (how each of the recommendations will comply with any prescribed environmental management standards or practices that have been identified by the CA)	Time period for implementation (time period when the measures in the EMP must be implemented)
			must be repaired immediately or be removed from site to facilitate repairs. - Provide sanitation facilities, install amenities before drilling. Under no circumstances shall indiscriminate excretion and urinating be permitted other than in supplied facilities. - Implement proper waste management. The temporary storage of domestic waste shall be in covered bins that must be emptied on a weekly basis.		
			Safety risk to people and animals - Clearly demarcate drilling sites and restrict access for safety purposes. - Backfill any excavations (such as sumps and the borehole) upon completion of prospecting activities. - No temporary infrastructure is to be left on site.	- Closure Objectives and Rehabilitation Plan - MHSA and Regulations - MPRDA Regulations (GNR527 of 2004)	
Unplanned events such as spills, fire and theft	Throughout operation, until invasive prospecting activities cease	PR application area: 2614.53 ha Invasive activities footprint: < 2 ha	Spills, fire and theft - No-go areas to be clearly demarcated and communicated to drilling contractors. - An effective fire management plan is required to protect sensitive environments from potential loss. - Ensure that a landowner agreement is in place and aspects such as insurance and compensation are agreed upon therein.	- MPRDA Regulations (GNR527 of 2004) - Landowner access agreement	Throughout operation, until invasive prospecting activities cease.

f) Impact management outcomes (a description of impact management outcomes, identifying the standard of impact management required for the aspects contemplated in paragraph)

Activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Mitigation type (modify, remedy, control or stop, through control measures)	Standards to be achieved (impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives etc.)
	- Dust emissions	- Temporary nuisance to nearest sensitive receptors	Site establishment, operation and rehabilitation	<p>Avoid/stop or reduce impact at source:</p> <ul style="list-style-type: none"> - Areas to be cleared will be limited to the minimum extent possible. - Only clear areas immediately before the area is to be developed to limit the period of erosion <p>Control impact through management:</p> <ul style="list-style-type: none"> - Nuisance dust must be avoided and wet suppression must be implemented where dust plumes are noted. 	- No nuisance dust generated.
<ul style="list-style-type: none"> - Clearing and use of vehicles on access / haul roads - Clearing of land, surface preparations and site establishment - Vehicles travelling on unpaved roads 	- Damage to or loss of archaeological and historic resources of significance	- Cultural Heritage resources	Site establishment	<p>Avoid/stop or reduce impact at source:</p> <ul style="list-style-type: none"> - A high-level site visit must be undertaken to identify potential historical and archaeological sites, buildings or structures prior to invasive prospecting activities commencing. - Mapped sites must be avoided during prospecting activities. - Known grave sites, as indicated by the landowner, have been demarcated in the footprint activities as no-go areas and are respected with a 100 m no-go buffer area around them. - As requested by the landowner, no permanent renovations of any kind may take place on the property and no prospecting operations within a radius of 100 m of an existing building or permanent structure are to be undertaken. <p>Modify impact through design:</p> <ul style="list-style-type: none"> - The identified sites for drilling should be surveyed prior to commencing drilling to determine whether there is archaeological or historical material located there <p>Control impact through management:</p> <ul style="list-style-type: none"> - Work should cease immediately and an archaeologist should be contacted as a matter of urgency to assess any sites, objects or features, as well as graves and burials that may be uncovered during construction activities on site. - ‘Chance Find Procedure’ as prescribed by a specialist should be implemented for items of cultural or heritage significance. - In the event that a previously unknown grave site is discovered; the grave should not be disturbed in any way. The grave should be geo-referenced, the Northern Cape Provincial Heritage Resources Authority notified and under their authority in co-operations with SAPS, the grave will be inspected and its potential heritage 	- No damage to archaeological resources

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Activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Mitigation type (modify, remedy, control or stop, through control measures)	Standards to be achieved (impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives etc.)
				protection advised	
	<ul style="list-style-type: none"> - Damage to or loss of paleontological resources of significance 	<ul style="list-style-type: none"> - Paleontological resources 	Site establishment	<p>Control impact through management:</p> <ul style="list-style-type: none"> - ‘Chance Find Procedure’ as prescribed by the specialist should be implemented in the unlikely event that any fossils are found in the loose soils and sands that cover the area or in the surficial limestone, or the iron or manganese ores below ground that will be drilled 	<ul style="list-style-type: none"> - No damage to paleontological resources
	<ul style="list-style-type: none"> - Direct loss or the disturbance of wetland habitat 	<ul style="list-style-type: none"> - Wetland habitat destruction, alteration of hydrology, and potential contamination of water resources 	Site establishment, operation and rehabilitation	<p>Avoid/stop or reduce impact at source:</p> <ul style="list-style-type: none"> - Clearly mark buffer areas to prevent encroachment and relocate nonessential infrastructure away from freshwater zones. - Removal of AIP should be without herbicide use near water systems and mechanical removal used instead. - Train contractors on environmental awareness and maintain clean work areas. Ensure all contractors and staff have undergone an induction / training on the location of sensitive “No-Go” areas and basic environmental awareness using the mitigation provided in this report. - Existing roads should be used where possible. Avoid the creation of concentrated flow paths wherever possible, especially along the road reserves. <p>Modify impact through design:</p> <ul style="list-style-type: none"> - Where possible, construction activities to take place during the dry season to reduce the erosion by water and wind of the exposed surfaces. - Use temporary structures made of materials that can be easily removed from site and recycled or used elsewhere. <p>Control impact through management:</p> <ul style="list-style-type: none"> - Preserve vegetation cover in working areas to mitigate erosion. - Promptly remove AIP species (such as weedy annuals and other alien forbs) in line with an AIP management plan - Provide sanitation facilities, install amenities before drilling. Under no circumstances shall indiscriminate excretion and urinating be permitted other than in supplied facilities. <p>Repair or remedy impact through rehabilitation:</p> <ul style="list-style-type: none"> - Stockpile topsoil for site rehabilitation. - Prevent and manage potential spills from generator diesel storage tanks, machinery spills (e.g. accidental spills of hydrocarbons oils, diesel etc.) or 	<ul style="list-style-type: none"> - Wetland habitats avoided - Wetland habitats left undisturbed and functional - Freshwater and hydrological systems remain functional and uncontaminated - Spread of alien invasive vegetation limited.

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Activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Mitigation type (modify, remedy, control or stop, through control measures)	Standards to be achieved (impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives etc.)
				construction materials on site (e.g. concrete) - Implement spill response plans and prevent contamination of freshwater resources.	
	- Localised habitat and ecosystem transformation and loss - Direct and indirect disturbance of plants and animals: introduction of AIP vegetation and collisions with fauna	- Biodiversity loss - Habitat transformation/ loss - Soils, Land capability and Land use - Unsuccessful rehabilitation	Site establishment, operation and rehabilitation	Avoid/stop or reduce impact at source: - Where possible use existing access tracks. - Areas to be cleared will be limited to the minimum extent possible. Modify impact through design: - A specialist to survey the drilling sites prior to establishment. The specialist is required to undertake the faunal, floral and habitat surveys as recommended by the specialist (TBC, 2024). The specialist is to identify the presence of floral and faunal SCC and to advise on managing alien invasive species. - The specialist should also advise the revegetation measures required for rehabilitation. - The appropriate permits are required for SCC and eradication measures for alien invasive plants. - An effective fire management plan is required to protect sensitive environments from potential loss. Control impact through management: - No harvesting of plants or hunting and trapping of animals must be allowed. - Avoid the introduction of AIPs and implement an AIP monitoring and eradication programme. - Fires must not be allowed.	- Loss of plant and animal species prevented. - Local habitat and ecosystem degradation avoided. - Rehabilitation achieves acceptable end land use as per the Closure Plan.
	- Impacts to soil chemical and physical structure due to water and wind erosion, compaction and improper topsoil management	- Local reduction in land capability and restoration of desired end land-use	Site establishment and operation	Modify impact through design: - Plan activities, where possible, to occur on previously disturbed soil. - An effective fire management plan is required to protect sensitive environments from potential loss. Control through management: - Minimise areas to be disturbed by vehicles and machinery. - Implement an appropriate topsoil and subsoil stripping and stockpiling procedure where undisturbed soil present. - Stockpile topsoil and subsoil removed from sumps separately to ensure it is suitable for rehabilitation. - Monitor the entire site for signs of erosion and immediately implement prevention	- No hydrocarbon contamination remaining post rehabilitation - Soil physical and chemical structure conserved and are adequate for vegetation re-establishment. - Land use and capability remains grazing

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Activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Mitigation type (modify, remedy, control or stop, through control measures)	Standards to be achieved (impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives etc.)
				and maintenance measures. - A spill response kit should be available at all times. - Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use. Repair or remedy impact through rehabilitation: - Boreholes are to be sealed once drilling is completed. - Rip and profile any areas of compacted soil. - Monitor the entire site for signs of erosion and immediately implement prevention and maintenance measures. - Any incidents must be reported promptly. Any possible contamination of topsoil by hydrocarbons, concrete or concrete water must be avoided. Any contaminated soil must be treated in situ or be placed in containers and removed from the site for disposal in a licensed facility.	
<ul style="list-style-type: none"> - Borehole drilling - Operation of machinery - Heavy vehicles on site - Consumables handling - Ablutions - Waste management 	<ul style="list-style-type: none"> - Damage to paleontological and archaeological resources of significance 	<ul style="list-style-type: none"> - Paleontological and Cultural Heritage resources 	Operation	Modify impact through design: - Geologist to be trained in the Chance Finds procedures for paleontological and cultural heritage resources. Control impact through management: - Dolomitic layers noted in drill core must be inspected by the geologist for the presence of stromatolites. - Quaternary sand drill core to be inspected by the geologist for the presence of bones, rhizoliths and traces. - Implement a chance finds procedure (discussed above) should for paleontological and cultural heritage resources be noted.	<ul style="list-style-type: none"> - No damage to paleontological resources
	<ul style="list-style-type: none"> - Direct loss or the disturbance of wetland habitat 	<ul style="list-style-type: none"> - Wetland habitat destruction, alteration of hydrology, and potential contamination of water resources 	Operation	Avoid/stop or reduce impact at source: - Conduct drilling activities only within designated footprints. No invasive drilling activities will be located within 500m of the pan areas. - Removal of AIP should be without herbicide use near water systems and mechanical removal used instead. - Train contractors on environmental awareness and maintain clean work areas. - Avoid the creation of concentrated flow paths wherever possible, especially along the road reserves. Modify impact through design: - Provide a method statement for drilling site management that includes the layout of	<ul style="list-style-type: none"> - Wetland habitats avoided - Wetland habitats left undisturbed and functional - Freshwater and hydrological systems remain functional and uncontaminated - Spread of alien invasive vegetation limited.

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Activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Mitigation type (modify, remedy, control or stop, through control measures)	Standards to be achieved (impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives etc.)
				<p>the drilling site, amenities and wastewater / water management during drilling.</p> <ul style="list-style-type: none"> - Implement proper waste management. The temporary storage of domestic waste shall be in covered bins that must be emptied on a weekly basis. <p>Control impact through management:</p> <ul style="list-style-type: none"> - Clean and dirty water at each drill pad will be separated through the placement of excavated topsoil in such a way as to divert runoff around the drill pad. - Silt laden runoff can be managed by ensuring that all drill water is captured in sumps and the sludge adequately disposed of. - Sumps for wastewater, grease and oil polluted water must be plastic lined to prevent pollution. Upon completion of drilling, the contents of the sumps (including the spent plastic liner) must be disposed of at a licensed disposal facility. - All solid waste collected must be disposed of at a licensed disposal facility. - No servicing of equipment on site unless absolutely necessary. Leaking equipment must be repaired immediately or be removed from site to facilitate repairs. <p>Repair or remedy impact through rehabilitation:</p> <ul style="list-style-type: none"> - Remove and replace vegetation as needed during drilling, ensuring concurrent rehabilitation - All disturbed and compacted footprint areas must be rehabilitated and landscaped after drilling is complete. These areas must either be rehabilitated to the original land use or an agreed upon land use. 	
	<ul style="list-style-type: none"> - Disruption in the ecological significance of the PR application area, in particular wetland area 	<ul style="list-style-type: none"> - Habitats for various insects, birds and invertebrates 	<p>Operation</p>	<p>Avoid/stop or reduce impact at source:</p> <ul style="list-style-type: none"> - Where possible use existing access tracks for accessing drilling sites. <p>Modify impact through design:</p> <ul style="list-style-type: none"> - An effective fire management plan is required to protect sensitive environments from potential loss. <p>Control impact through management:</p> <ul style="list-style-type: none"> - No harvesting of plants or hunting and trapping of animals must be allowed. - Avoid the introduction of AIPs and implement an AIP monitoring and eradication programme. - Fires must not be allowed. <p>Repair or remedy impact through rehabilitation:</p> <ul style="list-style-type: none"> - According to the specialist, revegetation with indigenous flora species is necessary to prevent erosion from occurring, to restore habitats to their natural state as soon 	<ul style="list-style-type: none"> - Loss of plant and animal species prevented. - Local habitat and ecosystem degradation avoided. - Rehabilitation achieves acceptable end land use as per the Closure Plan.

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Activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Mitigation type (modify, remedy, control or stop, through control measures)	Standards to be achieved (impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives etc.)
				as possible, and in the long term will prevent the project impacts from causing nearly irreversible desertification.	
	- Generation of noise	- Nuisance to surrounding sensitive receptors	Operation	Control through management: <ul style="list-style-type: none"> - Limit idling and switch off equipment when not in use. - Implement offsite systematic maintenance of all forms of equipment and vehicles to minimise noise. - Activities must not be undertaken at night. 	<ul style="list-style-type: none"> - Noise disturbance avoided. - No nuisance dust generated.
	<ul style="list-style-type: none"> - Contamination of soil resources with drilling consumable fluids and hydrocarbons, as well as impacts to soil chemical and physical structure due to water and wind erosion, compaction and improper topsoil management - Loss of ground water quality due to spills or foreign material entering the boreholes contaminating the groundwater system 	<ul style="list-style-type: none"> - Local reduction in land capability and restoration of desired end land-use 	Site establishment and operation	Modify impact through design: <ul style="list-style-type: none"> - Plan activities, where possible, to occur on previously disturbed soil. Control through management: <ul style="list-style-type: none"> - Minimise areas to be disturbed by vehicles and machinery. - Implement an appropriate topsoil and subsoil stripping and stockpiling procedure where undisturbed soil present. - Stockpile topsoil and subsoil removed from sumps separately to ensure it is suitable for rehabilitation. Repair or remedy impact through rehabilitation: <ul style="list-style-type: none"> - Boreholes are to be sealed once drilling is completed. - Rip and profile any areas of compacted soil. - Monitor the entire site for signs of erosion and immediately implement prevention and maintenance measures. 	<ul style="list-style-type: none"> - Pollution of the environment from drilling consumables and waste avoided. - Land use and capability remains grazing
<ul style="list-style-type: none"> - Pollution of the environment through hydrocarbon leaks 	Site establishment, operation and rehabilitation	Avoid/stop or reduce impact at source: <ul style="list-style-type: none"> - Minimise areas to be disturbed by vehicle and machinery. Modify impact through design: <ul style="list-style-type: none"> - Sumps for wastewater, grease and oil polluted water must be plastic lined. - Implement spill prevention measures such as handling and storing hydrocarbons on impermeable surfaces. Control through management: <ul style="list-style-type: none"> - Adequately maintain vehicles and machinery to prevent leaks. - Implement adequate waste management practices - general duty of care and management regarding management of waste arising from prospecting. Repair or remedy impact through rehabilitation: <ul style="list-style-type: none"> - Rip and profile compacted soil. Clean any spills immediately. 	<ul style="list-style-type: none"> - Pollution of the environment from drilling consumables and waste avoided. 		

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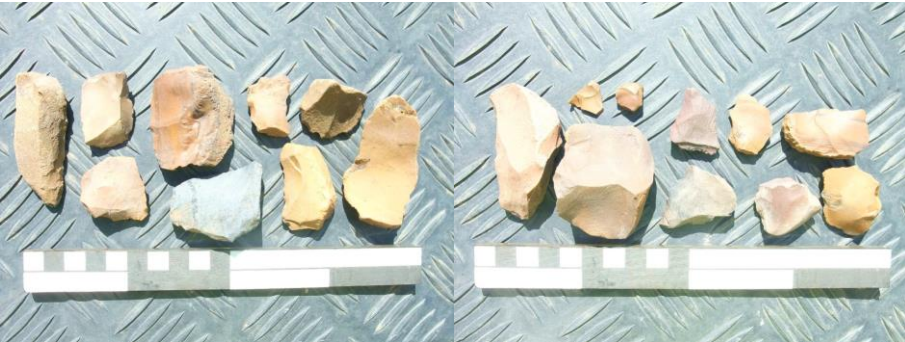
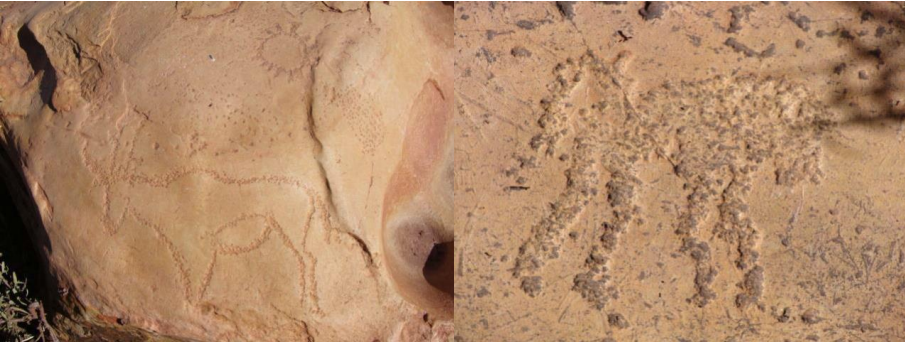
Activity	Potential impact	Aspects affected	Phase in which impact is anticipated	Mitigation type (modify, remedy, control or stop, through control measures)	Standards to be achieved (impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives etc.)
	<ul style="list-style-type: none"> - Safety risks of the proposed invasive prospecting activities 	<ul style="list-style-type: none"> - People and animals 	Operation	<p>Control through management:</p> <ul style="list-style-type: none"> - Clearly demarcate drilling sites and restrict access for safety purposes. - Backfill any excavations (such as sumps and the borehole) upon completion of prospecting activities. - No temporary infrastructure is to be left on site. - Remove all waste generated during the activities. 	<ul style="list-style-type: none"> - Access to active borehole drilling sites limited through adequate demarcation. - All affected sites rehabilitated and made safe. - Land use and capability remains grazing
Unplanned events such as spills, fire and theft	<ul style="list-style-type: none"> - Deterioration of sensitive areas 	<ul style="list-style-type: none"> - Wetland areas, soil quality, terrestrial ecology and land capability 	Site establishment, operation and rehabilitation	<p>Avoid/stop or reduce impact at source:</p> <ul style="list-style-type: none"> - No-go areas to be clearly demarcated and communicated to drilling contractors. - Train contractors on environmental awareness and maintain clean, safe work areas. <p>Modify impact through design:</p> <ul style="list-style-type: none"> - An effective fire management plan is required to protect sensitive environments from potential loss. <p>Compensate:</p> <ul style="list-style-type: none"> - Ensure that a landowner agreement is in place and aspects such as insurance and compensation are agreed upon therein. 	<ul style="list-style-type: none"> - Unplanned events managed in a safe manner - No loss of life, biodiversity and land capability


g) Impact management actions (a description of impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in the paragraphs above will be achieved)

Refer to Table 8 for the impact management actions to be implemented to manage the potential impacts of the proposed prospecting activities. An Environmental Control Officer (ECO) must be designated to the drilling contractor team to ensure that the various management measures detailed herein are implemented and that the necessary auditing and reporting is conducted.


Table 8. Environmental Management Plan (EMP)

Management area	Aspect	Management actions	Time period for implementation	Responsible party
Awareness	Soil; Biodiversity; Surface water; Wetlands; Groundwater; Heritage; Social	Environmental awareness training must be implemented as per the environmental awareness plan (as per Part B of this document), ensuring that personnel and contractors comply with the commitments made in the EMP.	Prior to activities commencing	Geologist , EAP (development of awareness plan), ECO, Contractor
		As part of environmental awareness training, personnel and contractors must comply with the commitments made in this EMP.		
	Biodiversity; Surface water; Wetlands;	Train contractors on environmental awareness and maintain clean work areas.	Prior to activities commencing, site establishment	ECO, Contractors
	Palaeontology and Heritage	Geologist and contractors to be trained in the Chance Finds procedures for paleontological and cultural heritage resources.		Geologist, Contractors
		Training to include explanation of the penalties associated with the unlawful removal of these artefacts, as set out in the NHRA.		
	No-go areas	Train contractors on environmental awareness and maintain clean work areas. Ensure all contractors and staff have undergone an induction / training on the location of sensitive “No-Go” areas and basic environmental awareness using the mitigation provided in this report.		ECO, Contractors
		No-go areas to be clearly demarcated and communicated to drilling contractors.		
Waste Management	Provide a method statement for drilling site management that includes the layout of the drilling site, amenities and wastewater / water management during drilling.	Prior to activities commencing		
Record keeping	Photographs of the sites shall be taken at selected points before and during prospecting and after rehabilitation and kept on record			
Dust	Air Quality	Areas to be cleared will be limited to the minimum extent possible.	Site establishment, operation and rehabilitation	Drilling contractor, ECO
		Only clear areas immediately before the area is to be developed to limit the period of erosion		
		Cleared sites to be revegetated during rehabilitation.		
		A speed limit of 20 km/h must be applied on the roads.		
		Nuisance dust must be avoided and wet suppression must be implemented where dust plumes are noted.		
Chance Finds	Heritage / Archaeology	A high-level site visit must be undertaken to identify potential historical and archaeological sites, buildings or structures prior to invasive prospecting activities commencing.	Site establishment, operation	Geologist, Contractor, ECO, SAHRA, Specialist
		Mapped sites must be avoided during prospecting activities		
		As requested by the landowner, no permanent renovations of any kind may take place on the property and no prospecting operations within a radius of 100 m of an existing building or permanent structure are to be undertaken.		
		The identified sites for drilling should be surveyed prior to commencing drilling to determine whether there is archaeological or historical material located there		
		Work should cease immediately and an archaeologist should be contacted as a matter of urgency to assess any sites, objects or features, as well as graves and burials that may be uncovered during construction activities on site (see Chance Find Procedure below for examples of artefacts and grave sites).		
		Chance Find Procedure’ as prescribed by a specialist should be implemented for items of cultural or heritage significance:		

Management area	Aspect	Management actions	Time period for implementation	Responsible party
		<p>Heritage Resources Chance Finds Procedure:</p> <ol style="list-style-type: none"> 1. Upon finding any archaeological or historical material all work at the affected area must cease. 2. The area should be demarcated to prevent any further work there until an investigation has been completed. 3. An archaeologist should be contacted immediately to provide advice on the matter. 4. Should it be a minor issue, the archaeologist will decide on future action. Depending on the nature of the find, it may include a site visit. 5. SAHRA's APM Unit may also be notified. 6. If needed, the necessary permit will be applied for with SAHRA. This will be done in conjunction with the appointed archaeologist. 7. The removal of such archaeological material will be done by the archaeologist in lieu of the approval given by SAHRA, including any conditions stipulated by the latter. 8. Work on site will only continue after the archaeologist/ SAHRA has agreed to such a matter. <p>Examples of Middle (left) and Late (right) Stone Age artefacts found in the Northern Cape:</p>  <p>Example of rock peckings (engravings):</p> 		

Management area	Aspect	Management actions	Time period for implementation	Responsible party
		<p>Examples of farmers and workers grave sites:</p>  <p>In the event that a previously unknown grave site is discovered; the grave should not be disturbed in any way. The grave should be geo-referenced, the Northern Cape Provincial Heritage Resources Authority notified and under their authority in co-operations with SAPS, the grave will be inspected and its potential heritage protection advised</p>		<p>Geologist, Contractor, ECO, SAHRA, SAPS</p>
	<p>Palaeontology</p>	<p>'Chance Find Procedure' as prescribed by the specialist should be implemented in the unlikely event that any fossils are found in the loose soils and sands that cover the area or in the surficial limestone, or the iron or manganese ores below ground that will be drilled</p> <p>Palaeontological Chance Finds Procedure:</p> <ol style="list-style-type: none"> 1. The following procedure is only required if fossils are seen on the surface and when drilling/excavations commence. 2. When excavations begin the rocks and discard must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (plants, insects, bone or coal) should be put aside in a suitably protected place. This way the project activities will not be interrupted. 3. Photographs of similar fossils must be provided to the developer to assist in recognizing the trace fossils such as stromatolites in the dolomites or the Quaternary bones, rhizoliths, traces. This information will be built into the EMPr training and awareness plan and procedures. 4. Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment. 5. If there is any possible fossil material found by the developer/environmental officer then the qualified palaeontologist sub-contracted for this project, should visit the site to inspect the selected material and check the dumps where feasible. 6. Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site a SAHRA permit must be obtained. Annual reports must be submitted to SAHRA as required by the relevant permits. 7. If no good fossil material is recovered, then no site inspections by the palaeontologist will be necessary. A final report 		<p>Geologist, Contractor, ECO, Palaeontologist</p>

Management area	Aspect	Management actions	Time period for implementation	Responsible party
		<p>by the palaeontologist must be sent to SAHRA once the project has been completed and only if there are fossils.</p> <p>8. If no fossils are found and the excavations have finished, then no further monitoring is required.</p> <p>Examples of fossils from the Tertiary and Quaternary sands and calcretes:</p>   <p>Examples of rhizoliths or rhizocretions from stabilised dunes associated with a palaeo-pan.</p>		

Management area	Aspect	Management actions	Time period for implementation	Responsible party
				
	Palaeontology	Dolomitic layers noted in drill core must be inspected by the geologist for the presence of stromatolites. Quaternary sand drill core to be inspected by the geologist for the presence of bones, rhizoliths and traces	Operation	Geologist
	Paleontological and Cultural Heritage resources	Implement a chance finds procedure (discussed above) should for paleontological and cultural heritage resources be noted.		Geologist, Contractor, ECO
No-go areas	Wetlands (pans), drainage lines and wet areas	Clearly mark buffer areas to prevent encroachment and relocate nonessential infrastructure away from freshwater zones.	Operation, rehabilitation	Geologist, Contractor, ECO
		Conduct drilling activities only within designated footprints.		
		No invasive drilling activities will be located within 500 m of the wetland / pan areas and 32 m of drainage lines / wet areas as identified by specialist.		
	Heritage	Known grave sites, as indicated by the landowner, have been demarcated in the footprint activities as no-go areas and are respected with a 100 m no-go buffer area around them.		
	Social	As requested by landowner, no drilling activities within a 100 m no-go buffer area around homes and permanent structures.		
Site Access	Hydrology, wetland, biodiversity	Existing roads should be used where possible.	Site establishment, operation	Contractor, ECO
		Avoid the creation of concentrated flow paths wherever possible, especially along the road reserves.		
		Areas to be cleared will be limited to the minimum extent possible		
Biodiversity	Survey and SCC	A specialist to survey the drilling sites prior to establishment. The specialist is required to undertake the faunal, floral and habitat surveys as recommended by the specialist (TBC, 2024). The specialist is to identify the presence of floral and faunal species of	Prior to site establishment	ECO, Specialist

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Management area	Aspect	Management actions	Time period for implementation	Responsible party
		conservation concern (SCC) and to advise on managing alien invasive species.		
		The specialist should also advise the revegetation measures required for rehabilitation.		
	Permits	The appropriate permits are required for SCC and eradication measures for alien invasive plants.	Site establishment, operations	
	Social	No harvesting of plants or hunting and trapping of animals must be allowed.	Site establishment, operations, rehabilitation	Contractor, ECO
Alien and Invasive Plants	Wetlands, terrestrial and aquatic biodiversity	Removal of AIP should be without herbicide use near water systems and mechanical removal used instead.	Site establishment, operations, rehabilitation	Contractor, ECO
		Avoid the introduction of AIPs and implement an AIP monitoring and eradication programme.		Contractor, ECO, specialist
		Promptly remove AIP species (such as weedy annuals and other alien forbs) in line with an AIP management plan.		Contractor, ECO
Soil and land use	Erosion	Where possible, construction activities to take place during the dry season to reduce the erosion by water and wind of the exposed surfaces.	Site establishment, operations, rehabilitation	Contractor, ECO
		Preserve vegetation cover in working areas to mitigate erosion.		
		Monitor the entire site for signs of erosion and immediately implement prevention and maintenance measures.		
	Soil, terrestrial biodiversity	Plan activities, where possible, to occur on previously disturbed soil.		
	Land use, terrestrial biodiversity	Minimise areas to be disturbed by vehicles and machinery.		
Stockpile	Implement an appropriate topsoil and subsoil stripping and stockpiling procedure where undisturbed soil present.	Site establishment	Contractor, ECO	
	Stockpile topsoil and subsoil removed from sumps separately to ensure it is suitable for rehabilitation.			
Water Management	Runoff	Clean and dirty water at each drill pad will be separated through the placement of excavated topsoil in such a way as to divert runoff around the drill pad.	Operations	Contractor
		Silt laden runoff can be managed by ensuring that all drill water is captured in sumps and the sludge adequately disposed of.		
	Sumps	Sumps for wastewater, grease and oil polluted water must be plastic lined to prevent pollution.		
Waste management	Sewage, domestic waste	Provide sanitation facilities, install amenities before drilling. Under no circumstances shall indiscriminate excretion and urinating be permitted other than in supplied facilities.	Site establishment, operations, rehabilitation	Contractor, ECO
		The temporary storage of domestic waste shall be in covered bins that must be emptied on a weekly basis.		
		All solid waste collected must be disposed of at a licensed disposal facility.		
	Sumps	Upon completion of drilling, the contents of the sumps (including the spent plastic liner) must be disposed of at a licensed disposal facility.	Rehabilitation	
	Spills	Prevent and manage potential spills from generator diesel storage tanks, machinery spills (e.g. accidental spills of hydrocarbons oils, diesel etc.) or construction materials on site (e.g. concrete)	Site establishment, operations, rehabilitation	
Implement spill response plans and prevent contamination of freshwater resources.				

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Management area	Aspect	Management actions	Time period for implementation	Responsible party
		A spill response kit should be available at all times.		
	Wetlands, terrestrial and aquatic biodiversity	Implement adequate waste management practices - general duty of care and management regarding management of waste arising from prospecting.		
Hydrocarbon management	Vehicles	Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use.	Operations	Contractor, ECO
		Adequately maintain vehicles and machinery to prevent leaks.		
		No servicing of equipment on site unless absolutely necessary. Leaking equipment must be repaired immediately or be removed from site to facilitate repairs.		
	Storage	Implement spill prevention measures such as handling and storing hydrocarbons on impermeable surfaces. Plastic line sumps.		
Noise	Social, terrestrial and aquatic biodiversity	Limit idling and switch off equipment when not in use.		Contractor
		Implement offsite systematic maintenance of all forms of equipment and vehicles to minimise noise.		
		Activities must not be undertaken at night.		
Rehabilitation	Soil; terrestrial and aquatic biodiversity; land use and capability; social	Use temporary structures made of materials that can be easily removed from site and recycled or used elsewhere.	Operations, rehabilitation	Contractor, ECO
		No temporary infrastructure is to be left on site.		
		Boreholes are to be sealed once drilling is completed.		
		Rip and profile any areas of compacted soil.		
		Monitor the entire site for signs of erosion and immediately implement prevention and maintenance measures.		
		Remove and replace vegetation as needed during drilling, ensuring concurrent rehabilitation		
		All disturbed and compacted footprint areas must be rehabilitated and landscaped after drilling is complete. These areas must either be rehabilitated to the original land use or an agreed upon land use.		
		According to the specialist, revegetation with indigenous flora species is necessary to prevent erosion from occurring, to restore habitats to their natural state as soon as possible, and in the long term will prevent the project impacts from causing nearly irreversible desertification.		
Remove all waste generated during the activities				
Emergency events	Fire, land use, social	An effective fire management plan is required to protect sensitive environments from potential loss.	Site establishment, operations, rehabilitation	
		Fires must not be allowed.		
	Spills, wetland, terrestrial biodiversity, soil	Any incidents must be reported promptly.		
		Clean any spills immediately. Any possible contamination of topsoil by hydrocarbons, concrete or concrete water must be avoided. Any contaminated soil must be treated in situ or be placed in containers and removed from the site for disposal in a licensed facility.		
Social	Safety	Clearly demarcate drilling sites and restrict access for safety purposes.	Site establishment	
		Backfill any excavations (such as sumps and the borehole) upon completion of prospecting activities.	Rehabilitation	
		Speed limit on the farm roads to be 20 km/h, as per landowner request	Site establishment, operations, rehabilitation	
	Agreements	Ensure that a landowner agreement is in place and aspects such as insurance and compensation are agreed upon therein.	Prior to site	Contractor,

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Management area	Aspect	Management actions	Time period for implementation	Responsible party
		Communicate with landowner regarding access the property and activities to be undertaken. Matters to be discussed could include, but are not limited to, positioning of boreholes, any clearance of vegetation, the use of farm roads and gates, installation of new gates, if necessary, use of resources, financial guarantees, and third-party insurance.	establishment	ECO, landowner
	Complaints	Introduce a mechanism whereby complaints from the landowner, tenants, and adjacent landowners and tenants can be received and responded to.	Site establishment, operations, rehabilitation	Contractor, ECO
	Health and safety	Ensure that operations are in line with the requirements of the MHSA and Regulations.	Site establishment, operations, rehabilitation	

h) Financial Provision

i) Determination of the amount of Financial Provision

Section 24(P)(1) of NEMA states that an Applicant for an environmental authorisation relating to mining or related activities on a mining area must make the prescribed financial provision for the rehabilitation, management and closure of environmental impacts, before the Minister responsible for mineral resources issues the environmental authorisation.

As per GNR1147 of 2015 the holder of a right in terms of the MPRDA must determine and make financial provision to guarantee the availability of sufficient funds to undertake rehabilitation and remediation of the adverse environmental impacts of prospecting, exploration, mining or production operations, as contemplated in the Act and to the satisfaction of the Minister responsible for mineral resources. According to Regulation 5 an Applicant or holder of right or permit must make financial provision for rehabilitation and remediation, decommissioning and closure activities at the end of prospecting and remediation and management of latent or residual environmental impacts which may become known in future, including the pumping and treatment of polluted or extraneous water.

This section serves to fulfil the requirement of the NEMA EIA Regulations (GNR982 of 2014 Appendix 5) and the Financial Provisioning Regulations (GNR1147 of 2015) in terms of the Final Rehabilitation, Decommissioning and Closure Plan, the Annual Rehabilitation Plan, and the Environmental Risk Assessment.

Since the prospecting activities have not yet commenced, no rehabilitation/remediation activities have been implemented for the preceding 12 months, nor will any rehabilitation or remediation activities be implemented in the forthcoming 12 months. The Annual Rehabilitation Plan has not yet been compiled. The Annual Rehabilitation Plan must be compiled when activities commence and updated annually for the duration of the invasive prospecting activities. The aim of the Environmental Risk Assessment is to identify the potential latent and residual environmental risks, which may arise following closure and decommissioning of the prospecting activities. This BAR/EMPr identifies the pre-mining environmental and social context, closure commitments, potential risks pertaining to closure, and the recommendations relating to closure. Recommended management and monitoring measures, based on the risk assessment findings, are to be implemented by MM in order to avoid or minimise the potential, latent risks / impacts post closure.

Regulation 6 makes provision for the method of determining the costs of the financial provision and states that a holder must determine the financial provision through a detailed itemisation of all activities and costs, calculated based on the actual costs of implementation of the measures required for annual rehabilitation, final rehabilitation, decommissioning and closure and remediation of latent or residual environmental impacts. As such, the quantum for closure-related financial provision in terms of the above has been determined.

Market related rates were used and the Guideline for Evaluation of the Quantum for Closure-Related Financial Provision compiled by the then Department of Minerals and Energy (DME) (now DMRE) was used to inform the Preliminary and General and Contingencies.

Identification of areas of disturbance - areas, volumes and lengths of possible disturbances and developments and each applicable closure component were identified and calculated using the proposed invasive prospecting plan. The financial provision currently includes the cost for the rehabilitation of the following:

- Backfill and sealing of 20 boreholes
- Backfilling of sumps
- Scarify compacted areas, replace topsoil
- Revegetate areas cleared for drilling sites and roads
- Inspection of rehabilitation performance one year post implementation of rehabilitation.

The financial provision for the final rehabilitation, decommissioning and closure of the proposed invasive prospecting activities and for addressing latent or residual environmental impacts has been calculated to be **R105 908** (incl. P&Gs + contingencies + VAT) (refer to Table 9 below).

Table 9. Total Financial Provision for the proposed invasive prospecting activities

Cost for rehabilitation of invasive prospecting activities	Quantity	Unit	Rate 2024	Total
Backfill and sealing of boreholes	20	no.	R1 659	R33 176
Backfill of sumps	20	m ³	R51	R1 020
Scarify compacted areas, replace topsoil, revegetate drill pads and access tracks	0,50	ha	R66 774	R33 387
Total 1				R67 582
Cost for addressing latent or residual environmental impacts	Quantity	Unit	Rate 2024	Total
Inspection of disturbed areas, one year after rehabilitation, maintenance and aftercare	0,50	ha/yr	R15 809	R7 905
Total 2				R7 905
Total 1 + 2				R75 487
Preliminary and General				R9 058
Contingencies				R7 549
Subtotal				R92 094
VAT (15%)				R13 814
Grand Total				R105 908

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

Table 10. Closure objectives and strategies

Closure objectives	Closure Strategy	Extent to which aligned to baseline environment
Developing a landform that is free draining	<ul style="list-style-type: none"> - The topography of rehabilitated drill sites will be shaped to ensure that the area is free draining to represent the baseline state. 	Disturbed area rehabilitated to resemble the surrounding landscape (natural/ open) "achievable end land-use"
Rehabilitate the borehole drill sites, access tracks and any areas affected as a result of invasive prospecting activities (including temporary infrastructure) with established, self-sustaining vegetation and no alien vegetation	<ul style="list-style-type: none"> - Minimise the extent of areas to be cleared. - Conserve topsoil removed during clearing, grubbing and excavations for use in rehabilitation. - Boreholes shall be capped and sealed (up to 300 mm below surface for natural areas). - No foreign matter such as rubble or waste material shall be introduced into the borehole. - All boreholes shall be covered and made safe by means of a concrete cap. - Sumps shall be pumped dry, and the contents disposed of at a licensed waste management facility. - Linings must be removed and disposed of at a licensed waste management facility. - After all foreign matter has been removed from the sumps, the excavations shall be backfilled with subsoil, compacted and levelled with previously stored topsoil. - No foreign matter such as cement or other rubble shall be introduced into such backfilling. - The exposed soil surface areas should be scraped clean, and any contaminated soil disposed of. - Soil in compacted areas should be ripped/ ploughed. - Spread topsoil evenly over disturbed areas and shape landforms to ensure they are stable and free draining. - Revegetation with indigenous flora species is necessary to prevent erosion from occurring, to restore habitats to their natural state as soon as possible, and in the long term will prevent the project impacts from causing nearly irreversible desertification. - Alien vegetation must be removed. - Monitor the entire site for signs of erosion and immediately implement prevention and maintenance measures. 	
No remaining infrastructure and rehabilitated areas do not pose a safety hazard to people or the environment.	<ul style="list-style-type: none"> - No foreign matter such as cement or other rubble shall be introduced into backfilling of sumps. - All boreholes shall be covered and made safe by means of a concrete cap. - All waste must be removed. - No temporary infrastructure is to be left on-site. 	

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

The main objective will be to rehabilitate and return the borehole drill sites, access tracks and any areas affected as a result of invasive prospecting activities (including temporary infrastructure) to resemble the surrounding landscape (natural/ open) with no remaining infrastructure or potential hazards to people or the environment.

The environmental objectives with regards to closure and rehabilitation have been incorporated into the BAR / EMPr. The BAR / EMPr and the closure objectives will be available for comment during the 30-day public participation period.

j) Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure

The following section details the preferred closure and rehabilitation actions in line with the closure strategy which must be implemented to ensure that closure objectives are met, and the realisation of the potential residual risks is avoided.

Borehole drill sites

- Photographs of the sites shall be taken at selected points before and during prospecting and after rehabilitation and kept on record.
- During clearing, topsoil shall be stripped separately and stored for use in the rehabilitation of the site.
- Any spill should be cleaned up immediately by removing the spill together with the polluted soil and disposing of it at a licensed waste management facility.
- Boreholes shall be compacted with appropriate inert material and soil and backfilled with concrete (up to 300 mm below surface).
- No foreign matter such as rubble or waste material shall be introduced into the borehole.
- All boreholes shall be covered and made safe by means of a concrete cap.
- Sumps shall be pumped dry, and the contents disposed of at a licensed waste management facility.
- Linings must be removed and disposed of at a licensed waste management facility.
- After all foreign matter has been removed from the sumps, the excavations shall be backfilled with subsoil, compacted and levelled with previously stored topsoil. No foreign matter such as cement or other rubble shall be introduced into such backfilling.
- The exposed soil surface areas should be scraped clean and any contaminated soil disposed of;
- Soil in compacted areas should be ripped/ ploughed and the stockpiled topsoil replaced; and
- Revegetation with indigenous flora species is necessary to prevent erosion from occurring, to restore habitats to their natural state as soon as possible, and in the long term will prevent the project impacts from causing nearly irreversible desertification.

Temporary access tracks

- Rehabilitation of access tracks should be undertaken as soon as they are no longer required.
- Any access track or portion thereof, constructed or upgraded for the prospecting activities which will no longer be required by the landowner, shall be rehabilitated.
- Tracks should be ripped or ploughed and if necessary, appropriately fertilized to ensure the regrowth of vegetation.
- Revegetation with indigenous flora species is necessary to prevent erosion from occurring, to restore habitats to their natural state as soon as possible, and in the long term will prevent the project impacts from causing nearly irreversible desertification.

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

The rehabilitation actions were compiled to meet the specific closure objectives as described in Section 1.b.iii) above.

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

The total financial provision for the invasive prospecting activities proposed is **R105 908** (incl. P&Gs + contingencies + VAT) (value as per date of assessment – April 2024). This amount comprises the financial provision for decommissioning and rehabilitation as well as the remediation of latent or residual environmental impacts.

iii) Confirm that the financial provision will be provided as determined

Financial provision will be provided for as determined through a financial vehicle as prescribed in the NEMA Financial Provisioning Regulations (GNR1147 of 2015).

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

- a) **Monitoring of impact management actions**
- b) **Monitoring and reporting frequency**
- c) **Responsible persons**
- d) **Time period for implementing impact management actions**
- e) **Mechanism for monitoring compliance**

Source activity	Impacts requiring monitoring programmes	Functional requirements for monitoring	Roles and responsibilities	Monitoring and reporting frequency and time periods for implementing impact management actions
Invasive prospecting activities: <ul style="list-style-type: none"> - Clearing and use of vehicles on access tracks - Clearing of land, surface preparations and site establishment - Operation of machinery - Borehole drilling - Consumables handling - Ablutions - Waste management - Soil and sample handling 	As no significant environmental or social impacts are expected to be exerted as a result of the prospecting activities monitoring programmes have not been recommended. Therefore, only compliance with the EMPr and the impact management actions detailed in Table 8 require monitoring	To ensure compliance with the EMPr and to determine the continued appropriateness and adequacy of the EMPr	Geologist/ Contractor EAP/ ECO	Auditing of compliance with the conditions of the environmental authorisation and of compliance with the approved EMPr, in order to determine whether such EMPr continuously meet mitigation requirements and addresses environmental impacts in terms of NEMA <u>as per the frequency stated in the Environmental Authorisation</u>

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

Auditing of compliance with the conditions of the environmental authorisation and of compliance with the approved EMPr, in order to determine whether such EMPr continuously meet mitigation requirements and addresses environmental impacts in terms of NEMA as per the frequency stated in the Environmental Authorisation.

MPRDA Regulation 55 (of the MPRDA Regulations GNR527 of 2004) which addressed the requirements of the Performance Assessment has been repealed and auditing of compliance with the conditions of the environmental authorisation and of compliance with the approved EMPr is regulated by Regulation 34 of the NEMA EIA Regulations, GNR982 of 2014 (as amended).

As per Regulation 34.1 of the NEMA EIA Regulations, the holder of an environmental authorisation must, for the period during which the environmental authorisation, EMPr, and the closure plan in the case of a closure activity, remains valid:

- ensure that the compliance with the conditions of the environmental authorisation, the EMPr, and the closure plan in the case of a closure activity, is audited; and
- submit an environmental audit report to the relevant competent authority.

As per Regulation 34.2, the environmental audit report must determine:

- the ability of the EMPr, and the closure plan in the case of a closure activity, to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an ongoing basis and to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility.
- the level of compliance with the provisions of the environmental authorisation, EMPr or closure plan.

Regulation 34.2.d) requires an Environmental Audit Report to be submitted to the Competent Authority at the frequency specified within the Environmental Authorisation (and may not exceed intervals of five years; see Regulation 26.e). Within 7 days of the date of submission of an Environmental Audit Report to the Competent Authority, MM must notify all potential and registered IAPs of the submission of that report and make the report immediately available to anyone on request and on a publicly accessible website. The EA will also specify the frequency of updating the EMPr and Closure Plan. The scope of the information that must be provided in an Environmental Audit Report is set out in Appendix 7 of the NEMA EIA Regulations.

ii) **Environmental Awareness Plan**

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

All personnel (including temporary employees as well as contractors) will undergo environmental awareness training as per this Environmental Awareness Plan. Environmental awareness training will be conducted as part of induction prior to the commencement of work, and relevant aspects of the EMPr should be extracted for use by contractors. The Environmental Awareness Plan also provides for periodic awareness training throughout operations. Adherence to the Environmental Awareness Plan as well as provision of periodic environmental awareness training will be monitored and enforced by the ECO throughout operations. The contents of the Environmental Awareness Plan are detailed below:

Objectives

- All personnel must be made aware of the environmental management requirements.
- All personnel, as a minimum, will undergo general environmental awareness training, which will highlight the environmental responsibility of all personnel; and
- Those personnel whose functions may exert an impact on the environment will receive focussed training, so that they may perform their designated tasks adequately.

Training Requirements

The agenda for the environmental awareness course should address, inter alia, the following:

- A definition of what the environment is.
- Environmental rights.
- Constitutional rights.
- NEMA, and the rights of a whistle blower.
- Why and how we must look after the environment.
- Details of working areas.
- Areas that are defined as no-go areas with the associated buffers (500 m for wetland pans, 100m for graves and buildings, 32m for other wet areas / drainage lines).
- Fire avoidance and management.
- The possible presence of subterranean archaeological and/or paleontological sites, features or artefacts, the penalties associated with the unlawful removal of these artefacts, as set out in the NHRA as well as of the chance finds procedure as detailed in Table 8.
- Management of biodiversity including the importance of biodiversity, different habitats in the area, threatened ecosystems and habitats that the teams must avoid, reasoning for prohibiting harvesting of species or use as firewood, speeding and the impacts on biodiversity, alien invasive species, incentives for reporting any instances of speeding, harvesting, hunting and trapping etc., avoidance (and not destruction) of feared species such as snakes; and contacts for snake removals.
- Details regarding smoking and fires.
- Management of consumables including any hydrocarbons.
- Dust management.
- Ablution facilities.
- Waste management.
- Traffic and road safety.
- Emergency procedures and numbers; and
- Appropriate manner of interacting with neighbouring landowners and communities.

Frequency of Training

All new employees, as well as contractors, will be expected to undergo environmental awareness training as part of their induction. This induction will occur within the first two weeks of employment / appointment.

This programme will include any required competencies associated with that employee's environmental management role, and the means and timeframe by which this competency is meant to be achieved. Adherence to this programme will be monitored. The employee will be required to successfully complete the programme.

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

The EMPr in Table 8 details the commitments in order to avoid pollution and the degradation of the environment. Compliance with the EMPr commitments will form part of the contractors' contract. Employees will also be briefed regarding the EMPr commitments prior to the commencement of operations. The ECO will monitor that the commitments are being adhered to by the contractors and employees.

l) Specific information required by the Competent Authority (among others, confirm that the financial provision will be reviewed annually)

MM commits to reviewing the Financial Provision on an annual basis as per the requirements of Section 24(P)(3) of NEMA, which states that every holder must annually assess his or her environmental liability and, if circumstances so require, must adjust his or her financial provision to the satisfaction of the Minister responsible for mineral resources.

In addition, MM commits to auditing compliance with the conditions of the environmental authorisation and of compliance with the approved EMPr, in order to determine whether such EMPr continuously meet mitigation requirements and addresses environmental impacts in terms of NEMA as per the frequency stated in the Environmental Authorisation.

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&APs;
- c) the inclusion of inputs and recommendations from the specialist reports where relevant; and
- d) the acceptability of the project in relation to the finding of the assessment and level of mitigation proposed



Louise Jones

Signature of the environmental assessment practitioner



Bronwyn Grover

Signature of the co-author

Prime Resources (Pty) Ltd

Name of company:

24 April 2024

Date:

-END-