mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

AND

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

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REVISION AND APPROVAL

REVISION NUMBER:	01
ENVIRONMENTAL MANAGEMENT ASSISTANCE (PTY) LTD (EMA) REF:	BCR Projects (Pty) Ltd Non-Invasive Prospecting on Farms Moordkopje and Zwartfontein
TITLE:	ENVIRONMENTAL BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT FOR THE LISTED ACTIVITIES IN TERMS OF NEMA ACTIVITIES ASSOCIATED WITH THE NON-INVASIVE PROSPECTING OF FARMS MOORDKOPJE AND ZWARTFONTEIN

REVIEWERS

	NAME	DIGITAL SIGNATURE	DATE
AUTHOR	**Anandi Alers** *MSc Geography and Environmental Management* ***EAP*** *Natural Scientist (400016/17) and registered EAP (2019/1514)*		23 August 2022
DOCUMENT REVIEWER	**Taryn Bigwood** *Masters* ***EMA Director*** *Member of LaRSSA, SAAG, and IAIAsa*		23 August 2022

DISTRIBUTION:

TO	DESCRIPTION	DATE	COMMENTS/CHANGES
Walter Murray	Review and Approval	24 August 2022	Request to include Chrome Ore

DISCLAIMER

The findings, results, observations, conclusions, and recommendations given in this report are based on the author's best scientific and professional knowledge and available information. Environmental Management Assistance (Pty) Ltd, hereinafter referred to as EMA, as an independent party, reserves the right to modify aspects of the report including the recommendations if new information may become available from ongoing research, monitoring, and further work in this field about the investigation.

EXECUTIVE SUMMARY

BCR Projects (Pty) Ltd (the applicant) is applying for the right to prospect Platinum Group Metals, including Chrome Ore, on the Farm Zwartfontein 814 LR and Moordkopje 813 LR, in the magisterial district of Mogalakwena, Limpopo.

The proposed non-invasive prospecting activities will include the following main techniques:

- Data search, field mapping, and desktop studies;
- Logging and sampling historical core; and
- Scoping and (pre) feasibility studies.

Due to the large amount of previous diamond core drilling conducted in the area, new drilling locations will only be considered after the completion of all the sourced historical exploration results. This report, however, did not assess activities related to any intrusive prospecting.

As such, Environmental Management Assistance (Pty) Ltd has been appointed as the independent Environmental Assessment Practitioner (EAP) in terms of Regulation 12 of the Environmental Impact Assessment Regulations (GNR 982 GG 38282 of 4 December 2014, as amended and hereafter referred to as NEMA 2014 EIA Regulations), published in terms of Sections 24 (5) and 44 of the National Environmental Management Act (NEMA Act No. 107 of 1998), to manage the required legislated Basic Assessment Process. To commence with the BA process, it is important to first understand the key listed activities in terms of NEMA (***Table 1***), associated with non-invasive prospecting.

LEGISLATIVE CONTEXT

The following listed activities are relevant to this application:

Table 1: Listed activities being triggered by the proposed coal mine

ACTIVITY DESCRIPTION	RELEVANT LEGISLATION	LISTED ACTIVITIES	KEY PROCESS COMPONENTS
NON-INVASIVE PROSPECTING	**GNR. 983 GG 38282 dated 8 December 2014** (as amended– Environmental Impact Assessment Regulations, Listing Notice 1	**Listed 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.	• Environmental Authorisation (EA) application in terms of NEMA; • Site Sensitivity Verification Report; • Basic Assessment Report (BAR), Environmental Management Programme (EMPr), and Closure Plan; • Specialist Reporting as required by the Screening Report generated by the National Web-based screening tool; and • Engagement with the registered I&AP.

Based on the defined listed activities, the EAP has determined that a desktop and site sensitivity verification assessment informing the BA process applies to the required application for Environmental Authorisation (EA).

This Basic Assessment Report (BAR) and Environmental Management Programme (EMPr) would sufficiently achieve the objective as contemplated in Appendix 1 and 4 of the NEMA 2014 EIA regulations and provide the competent authority (CA), Limpopo's Department of Mineral Resources and Energy (DMRE), with the required information to make an informed decision to issue an Environmental Authorisation (EA).

The first step to determining the environmental impacts of the proposed non-invasive prospecting is to perform a site verification and screening identifying potential environmental and social sensitivities to consider during the BA process.

SITE SENSITIVITY VERIFICATION AS PER THE SCREENING REPORT

As a result of the Screening Report generated by the National Screening Tool, as required by the NEMA 2014 EIA regulations, various environmental sensitivities have been identified. Based on the environmental sensitivities, the following list of specialist baseline assessments has been identified for inclusion in this BA process:

- Agricultural Verification Assessment (including soils);
- Desktop Archaeological, Cultural, and Palaeontology Verification Assessment;
- Terrestrial Biodiversity (Fauna and Flora included) Verification Assessment;
- Aquatic Biodiversity Verification Assessment;
- Desktop Hydrology Flood-line determination; and
- Desktop Noise Assessment.

Various protocols (GN 320 (GG 43110 dated 20 March 2020) require that before commencing with the said specialist assessment, the current use of land and the environmental sensitivity of the site must be confirmed by undertaking a site sensitivity verification) have been published for the specialist assessments. Where no specific assessment protocol has been prescribed a site sensitivity was performed using accepted verification techniques and by following the general protocols in line with Appendix 6 of the NEMA 2014 EIA Regulations.

On-site verification and the outcome of the desktop verification of the site sensitivities are attached to this report as ***Appendix D – Site Sensitivity Verification***.

As a result of the desktop assessment and verified site sensitivities, areas to avoid, or no-go sites have been defined within the prospecting right area.

NEED AND DESIRABILITY

Various factors were taken into consideration to assess the "Need and Desirability" of the proposed non-invasive prospecting. These include, but are not limited to resource demand, economic desirability and demand and environmental sustainability and competing land uses.

the following statement(s) can be made with regards to the "Need and Desirability" of the proposed non-invasive prospecting right application:

- The result of a prospecting right is to determine the financial feasibility to continue with the mining of available resources. Intensive historical prospecting data is available which supports the non-invasive prospecting method proposed.
- From a socio-economic perspective, the recorded status of unemployment, available job opportunities, and education, to list a few, highlights the need to further develop the mining sector within the Mogalakwena Municipality. The prospect of developing a future mine, following the positive feasibility outcome of the proposed non-invasive prospecting associated with this application, therefore, is supported by the municipal's Integrated Development Plan (IDP), Local Economic Development Plan (LED), and Spatial Development Framework's (SDF's).
- The proposed non-invasive nature of the prospecting right application results in no impacts. However, following the desktop assessment and site sensitivity verification outcome (***Appendix D – Site Sensitivity Verification***), areas to avoid, or no-go sites have been defined within the prospecting right area. The identified sensitivities are defined and mapped and attached as ***Appendix C – Site Layout Plan, Sensitivities, and Land Use***.
- The proposed non-invasive prospecting right boundary falls within Zone 6 (Restricted mining focus areas in aesthetic and/or ecological resource areas) of the Environmental Management Zone as defined in the Waterberg District Environmental Management Framework (WDEMF). Preferred activities identified within this zone include mining, and therefore it can be concluded that any prospecting activities are supported in terms of the WDEMF pending the outcome of an impact assessment.

ASSESSMENT OF ALTERNATIVES

Due to the non-invasive nature of the proposed prospecting activities, i.e. desktop prospecting with no planned drilling, excavations or trenching, no alternatives were assessed as part of the BA process.

However, following the desktop assessment and site sensitivity verification outcome (***Appendix D – Site Sensitivity Verification***), areas to avoid, or no-go sites have been defined within the prospecting right area.

The identified sensitivities are defined and mapped and attached as ***Appendix C – Site Layout Plan, Sensitivities, and Land Use***.

IMPACT STATEMENT

A desktop-based, followed by a site sensitivity verification (***Appendix D – Site Sensitivity Verification***), impact assessment has been undertaken, which has incorporated consultation with an appointed independent specialist, and resulted in this report.

No alternatives were considered (see ***Sections g),h), and i)***) due to the non-invasive nature of the proposed prospecting right application. However, verified sensitive areas were defined (***Appendix C – Site Layout Plan, Sensitivities, and Land Use***) and should be considered as potential "no-go" or "area requiring further investigation" should there be a planned change in scope. A change in scope from non-invasive to intrusive prospecting will require that the relevant amendment process as per the NEMA 2014 EIA Regulations (as amended), be initiated to review the issued EA.

It is the EAP's opinion that due process has been followed in terms of identifying potential impacts and or risks found to be potentially significant, and that should be further assessed if a change in scope is required.

It is recommended that the proposed ***non-invasive prospecting*** is allowed to proceed on the assumption that the environmental and social management commitments are adhered to, the scope of the prospecting remains as per the description provided in this document and considering the positive social impacts associated with the proposed prospecting right.

No intrusive prospecting activities shall continue without following the required EA amendment process as stipulated in the NEMA 2014 EIA regulations.

REASONED OPINION FOR AUTHORISATION

the appointed EAP and associated Specialist recommends that on the conditions that all the requirements, conditions, and measures listed in this document and associated appendices be adhered to, that there is no reason why this activity should not be authorised.

Due to the ***non-invasive*** nature of the proposed prospecting right application, the EAP and all specialists have confirmed that there is ***no impact or risk***.

However, should the scope change of the non-invasive to ***intrusive prospecting*** be considered, it is concluded that ***further assessment*** of all aspects, deemed applicable by the independent EAP, ***is required***.

Based on the outcome of this assessment and information informing the opinion of the independent EAP, it is recommended that the following conditions be specified and considered as conditions of the EA:

- The issued EA only relates to the proposed non-invasive prospecting activities. Should the holder of the authorisation (HoA), or the persons appointed to conduct the prospecting on behalf of the HoA, identify or plan the need for intrusive prospecting, an application for amending the scope of the EA in terms of the NEMA 2014 EIA Regulations (as amended) must be submitted.
- The potential impacts and risks identified for consideration in the planning of a change of scope from non-invasive to intrusive prospecting, as defined in this assessment (***Section iv)***), require further detailed assessment.
- The identified sensitivities as provided in ***Appendix C – Site Layout Plan, Sensitivities, and Land Use***, must be considered as potential "No-go" or "areas requiring further assessment", pending a detailed impact assessment and management or mitigation implementation plan.
- The management and mitigation actions provided in Part B – Environmental Management Programme Report must be implemented before and during the required process to amend the issued EA in terms of the NEMA 2014 EIA Regulations.
- An independent suitably qualified Environmental Inspector, preferably a registered EAP, must be appointed by the HoA to inspect, confirm, and report any non-conformances with the EA and requirements of the EMPr every quarter. Records of these inspections must be kept and readily available to the relevant Environmental Management Inspectorate (EMI).
- Auditing of compliance with the EA and EMPr in terms of Part 3, Regulations 34 of the NEMA 2014 EIA Regulations (as amended) must be conducted on an annual basis. This audit is to be conducted preferably by an independent registered EAP.

ENVIRONMENTAL MANAGEMENT PROGRAMME

No specific impact management objectives and outcomes can be defined for the proposed non-invasive prospecting right application, as it has been highlighted throughout this report that there is no impact or risk defined.

However, from the desktop and site sensitivity verification (***Appendix D – Site Sensitivity Verification***) there is a potential of several predetermined potential impacts and risks (***Section iv)*** identified should the applicant change the scope of this application process from non-invasive to intrusive prospecting.

Part B – Environmental Management Programme Report provides mitigation and management measures that must be implemented before and during the required process to amend the issued EA in terms of the NEMA 2014 EIA Regulations.

PERIOD FOR WHICH EA IS REQUIRED

The proposed non-invasive prospecting is planned over a total of five (5) years. In terms of Section 18 (4) of the Mineral and Petroleum Resources Development Act (MPRDA, Act No. 28 of 2002), following the acceptance of the renewal application, the prospecting right may be renewed once for a period not exceeding three years.

PUBLIC PARTICIPATION

This document is the "draft" BAR and EMPr, providing the registered Interested and Affected Parties (I&AP) an opportunity to comment as per the required commenting period of at least 30 days.

It is, therefore, requested that all comments on the BAR & EMPr and associated appendices be submitted in form of a formal correspondence (email, SMS, fax, and/or during an arranged public meeting) using the following contact information:

Company: EnviroRoots (Pty) Ltd

Contact Person: Chantel Bowyer

Tel: +27 84 444 2414

Email: info@enviroroots.co.za

Email reference: BCR Projects (Pty) Ltd non-invasive prospecting

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) Determined 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 locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determined:

(i) The nature, significance, consequence, extend, 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.

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LIST OF TABLES AND FIGURES

PART A – SCOPE OF BASIC ASSESSMENT REPORT

1. CONTACT PERSON AND CORRESPONDENCE ADDRESS

A) DETAILS OF

i) DETAILS OF THE EAP

Name of the Practitioner:	Environmental Management Assistance (Pty) Ltd
Contact person:	Anandi Alers
Tel No.:	+27 (0) 72 604 0455
Fax No.:	+27 (0) 86 226 7324
E-mail address:	anandi.alers@emassistance.co.za

ii) EXPERTISE OF THE EAP

EMA has appointed Mrs. Anandi Alers (EAPASA reg. no. 2019/1514) as the EAP to manage the application process on behalf of BCR Projects (Pty) Ltd.

A detailed portfolio of the team members associated with the management of this project can be found in ***Appendix A – EAP Qualifications and Team Members***.

(1) THE QUALIFICATIONS OF THE EAP

(with evidence)

Mrs. Anandi Alers completed a Master of Science degree in Environmental Management and Geography in 2015 at the North West University (Potchefstroom) under the guidance of Prof. Luke Sandham.

She holds a Bachelors of Science Honours degree in environmental sciences, specialising in Environmental Management and Geography, and a Bachelors of Science degree in Tourism, Zoology, and Geography.

(2) SUMMARY OF THE EAP'S PAST EXPERIENCE

(In carrying out the Environmental Impact Assessment Procedure)

Mrs Anandi Alers has extensive knowledge of the South African EIA process and holds a Master of Science degree in Environmental Management on the subject of EIA follow-up. Her practical experience includes, but is not limited to the following:

- Environmental Management of several construction, mining, and industry-related projects;
- Environmental auditing of a number of projects against the approved EMPr's and EA (Environmental Authorisations);
- The development and management of an ISO 14001 EMS (Environmental Management Systems) on a number of construction, mining and industry related projects;

- Development and implementation of policies and procedures managing environmental impacts; and
- Managing applications for a number of permits and licences.

A detailed description of all past experiences is available in ***Appendix A – EAP Qualifications and Team Members.***

B) LOCALITY OF THE OVERALL ACTIVITY

Farm Name:	Farm Moordkopje 813 LR and Zwartfontein 814 LR
Application area (Ha) :	4095.03 ha
Magisterial district:	Mogalakwena Local Municipality
Distance and direction from nearest town:	Mokopane is the nearest town, 25 km south from the area, Limpopo Province
21 digit Surveyor General Code for each farm portion:	T0IT00000000010800002 T0IT00000000010800009 T0IT00000000010800011 T0IT00000000010700001 T0IT00000000010700007 T0IT00000000010700012 T0IT00000000010700014

C) LOCALITY MAP

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

See ***Appendix B – Locality Map*** indicating the locality of the proposed activity.

D) DESRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY

(Provide a plan drawn to 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.)

The conceptual site layout plan indicating the location, the area (hectares) of all the main listed activities, and infrastructures to be placed on the associated properties can be found in ***Appendix C – Site Layout Plan, Sensitivities, and Land Use***.

i) LISTED AND SPECIFIED ACTIVITIES

NAME OF ACTIVITY (*All activities including activities not listed) (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)*	**Aerial extent of the Activity Ha or m²**	**LISTED ACTIVITY Mark with an X where applicable or affected.**	**APPLICABLE LISTING NOTICE** (*GNR 544, GNR 545 or GNR 546)/NOT LISTED*
Non-invasive prospecting (desktop prospecting)	4095.03 ha	X	GNR. 983 GG 38282 dated 4 December 2014 (as amended) - ***Listed activity 20***

ii) DESCRIPTION OF THE ACTIVITIES TO BE UNDERTAKEN

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

BCR Projects (Pty) Ltd (the applicant) is applying for the right to prospect Platinum Group Metals, Chrome Ore, on the Farm Zwartfontein 814 LR and Moordkopje 813 LR, in the magisterial district of Mogalakwena, Limpopo.

The proposed non-invasive prospecting activities will include the following main techniques:

- Data search, field mapping and desktop studies;
- Logging and sampling historical core; and
- Scoping and (pre) feasibility studies.

Due to the large amount of previous diamond core drilling conducted in the area, new drilling locations will only be considered after completion of all the sourced historic exploration results.

Table 2 provides a summary of the resources applicable to the non-invasive prospecting right.

Table 2: Resource particulars associated with the proposed non-invasive prospecting right

ITEM	DETAIL
Type of Mineral (s)	Platinum Group Metals and all minerals and metals found in mineralogical association therewith and are mined out of necessity together with the Platinum Group Metals, including but not limited to: • **Platinum Group Metals:** Platinum (Pt), Palladium (Pd), Rhodium (Rh), Iridium (Ir), Ruthenium (Ru) and Osmium (Os) and Chromite (Chrome Ore); and • **Other Precious Metals:** Gold (Au) and Silver (Ag) Base Metals: Nickel (Ni), Copper (Cu), Cobalt (Co), Iron (Fe).
Geological Formation	Bushveld Complex, Platreef Unit.

For the purposed of this Basic Assessment (BA) process, the Environmental Assessment Practitioner (EAP) and appointed specialist will perform a baseline and/or desktop assessment identifying potential sensitivities in the general area of the properties.

Should additional sampling be required using any invasive prospecting methods, the areas where these activities will take place will require the necessary assessments as per the various protocols published for identified themes and approval from the Department of Minerals, Resources and Energy (DMRE), prior to commencement of any such activities.

E) POLICY AND LEGISLATIVE CONTEXT

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);	**REFERENCE WHERE APPLIED** (i.e. Where in this document has it been explained how the development complies with and responds to the legislation and policy context)	**HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT** (E.g In terms of the National Water Act:-Water Use Liscence has/has not been applied for).
National Legislation and regulations		
Section 24 of the Constitution of South Africa Act No. 108 of 1996	Part A: BAR process followed Part B: Requirements included in the EMPr	Adherence with all legislation and regulations that prevents pollution and ecological degradation, promotes conservation, and secures an ecological sustainable development and use of natural resources while promoting justifiable economy and social development.
The Mineral and Petroleum Resources Development Act, 2002 Act No. 28 of 2002 (MPRDA)	Part A: BAR process followed Part B: Requirements included in the EMPr	• Submission of a prospecting works programme. • Submission of an application to a prospecting right. • Application for Environmental Authorisation in process (purpose of this report). • A Liability Estimation and Final Rehabilitation, Decommissioning and Prospecting Closure Plan (LRDCP) are ***not applicable*** due to the non-invasive prospecting activities to be undertaken**.**
National Environmental Management Act No. 107 of 1998 (NEMA)	Part A: BAR process followed Part B: Requirements included in the EMPr	• Development of an EMPr for the proposed activities. • Application for authorisation resulting in the submission of this document. • Ensuring compliance with a monitoring and audit schedule and plan.
The following regulations in terms of NEMA are applicable:		
GN R. 982 (GG 38282 dated 4 December 2014, as amended): National Environmental Management Act (107 of 1998): Environmental Impact Assessment Regulations, 2014 (2014 NEMA EIA regulations)	Part A: BAR process followed Part B: Requirements included in the EMPr	Independent EAP appointed to ensure adherence with the BAR procedure.

GN R. 983 – 985 (GG 38282 dated 4 December 2014, as amended): Listing notices 1 to 3	Part A: BAR process followed Part B: Requirements included in the EMPr	Application for authorisation of listed activities submitted followed by the submission of the BAR and EMPr.
GN. 320 (GG 43110 dated 20 March 2020): Procedure for the assessment and minimum criteria for reporting on identified environmental themes in terms of section 24(5)(a) and (h) and 44 of NEMA when applying for environmental authorisation. **GN. 1150 (GG 43855 dated 30 October 2020)**: Procedure for the assessment and minimum criteria for reporting on identified environmental themes in terms of section 24(5)(a) and (h) and 44 of NEMA when applying for environmental authorisation. (Terrestrial animal and plant specie themes)	Part A: BAR process followed Part B: Requirements included in the EMPr	A Site Sensitivity Verification Report (***Appendix D – Site Sensitivity Verification***) completed by the EAP.
GN R. 1147 (GG 39425 dated 20 November 2015, as amended): Regulations pertaining to the financial provision for prospecting, exploration, mining or production	Part A: BAR process followed Part B: Requirements included in the EMPr	Due to the non-invasive prospecting nature of the proposed prospecting right application, ***no*** Financial Provisioning Estimation can be determined. However, should the applicant wish to change the scope to intrusive prospecting, a detailed required estimation calculation will be required in line with this regulations.
National Environmental Management: Air Quality Act 39 of 2004 (NEMAQA)	Part A: BAR process followed Part B: Requirements included in the EMPr	Non-invasive prospecting. However, requirements stipulated in the EMPr ensuring requirements of the act/regulations are taken into consideration as part of the NEMA 2014 EIA Regulations amendment process.
The following regulations in terms of NEMAQA are applicable:		
GN 893 (GG 37054 dated 22 November 2013, as amended): List of activities which result in atmospheric emissions	Part A: BAR process followed Part B: Requirements included in the EMPr	Non-invasive prospecting. However, requirements stipulated in the EMPr ensuring requirements of the act/regulations are taken into consideration as part of the NEMA 2014 EIA Regulations amendment process.
GN R. 827 GN R. 827 (GG 36974 dated 1 November 2013): National dust control regulations	Part A: BAR process followed Part B: Requirements included in the EMPr	
GN R. 283 (GG 38633 dated 2 April 2015): National atmospheric emissions reporting regulations	Part A: BAR process followed Part B: Requirements included in the EMPr	
GN R. 1210 (GG 32816 dated 24 December 2009): National ambient air quality standards	Part A: BAR process followed Part B: Requirements included in the EMPr	

GN 893 (GG 37054 dated 22 November 2013, as amended): List of activities which result in atmospheric emissions	Part A: BAR process followed Part B: Requirements included in the EMPr	
Atmospheric Pollution Prevention Act of 1965 **GN R. 1651 (GG 4393 dated 20 September 1974):** Regulations concerning the control of noxious or offensive gasses emitted by diesel-driven vehicles	Part A: BAR process followed Part B: Requirements included in the EMPr	
National Environmental Management: Waste Act 59 of 2008 **(NEMWA)**	Part A: BAR process followed Part B: Requirements included in the EMPr	
The following regulations in terms of NEMWA are applicable:		
GN R. 634: Waste classification and management regulations	Part A: BAR process followed Part B: Requirements included in the EMPr	Non-invasive prospecting. However, requirements stipulated in the EMPr ensuring requirements of the act/regulations are taken into consideration as part of the NEMA 2014 EIA Regulations amendment process.
GN R. 634 (GG 36784 dated 23 August 2013): Waste classification and management regulations	Part A: BAR process followed Part B: Requirements included in the EMPr	
GN R. 632 (GG 39020 dated 24 July 2015, as amended): Regulations regarding the planning and management of residue stockpiles and residue deposits from prospecting, mining, exploration or production operation	Part A: BAR process followed Part B: Requirements included in the EMPr	
GN R. 921 (GG 37083 dated 29 November 2013, as amended): Activities listed requiring a waste management licence (WML)	Part A: BAR process followed Part B: Requirements included in the EMPr	
GN R. 633 (GG 39020 dated 24 July 2015): Amendments to the list of waste management activities that have, or are likely to have, a detrimental effect on the environment	Part A: BAR process followed Part B: Requirements included in the EMPr	
GN R. 625 (GG 35583 dated 13 August 2012): National waste information regulations	Part A: BAR process followed Part B: Requirements included in the EMPr	
Environmental Conservation Act of 1989 **(ECA)**	Part A: BAR process followed Part B: Requirements included in the EMPr	

GN R. 425 (GG 31901 dated 13 February 2009): Waste tyre regulations **GN R. 341 (GG 30904 dated 28 March 2008):** Regulations for the prohibition of the use, manufacturing, import and export of asbestos and asbestos containing materials **GN R. 154 (GG 13717 dated 10 January 1992):** Noise control regulations in terms of section 25 of ECA		
National Water Act 36 of 1998 (NWA)	Part A: BAR process followed Part B: Requirements included in the EMPr	
The following regulations in terms of NWA are applicable:		
GNR 267 (GG 40713 dated 24 March 2017): Water Use Licence Application and Appeals Regulation, 2017	Part A: BAR process followed Part B: Requirements included in the EMPr	Non-invasive prospecting. However, requirements stipulated in the EMPr ensuring requirements of the act/regulations are taken into consideration as part of the NEMA 2014 EIA Regulations amendment process. No Water Use Licence Application applicable to the proposed non-invasive prospecting.
GN 704 (GG 20119 dated 4 June 1999): Regulations on use of water for mining and related activities aimed at the protection of water resources	Part A: BAR process followed Part B: Requirements included in the EMPr	
Hazardous Substances Act 15 of 1973	Part A: BAR process followed Part B: Requirements included in the EMPr	Non-invasive prospecting. However, requirements stipulated in the EMPr ensuring requirements of the act/regulations are taken into consideration as part of the NEMA 2014 EIA Regulations amendment process.
Petroleum Products Act of 1977 **GN R. 627 (GG 44363 dated 30 March 2021):** Regulations regarding petroleum products specification and standards	Part A: BAR process followed Part B: Requirements included in the EMPr	
Prospecting Health and Safety Act of 1996	Part A: BAR process followed Part B: Requirements included in the EMPr	

GN R. 1237 (GG 25404 dated 29 August 2003): Prospectings and works regulations **GN R. 911 (GG 29217 dated 8 September 2006)**: Prospecting health and safety regulations		
National Road Traffic Act of 1996 **GN R. 225 (as amended by GN. 485 GG 35413 dated 8 June 2012):** National Road traffic regulations	Part A: BAR process followed Part B: Requirements included in the EMPr	
Human Tissue Act No. 65 of 1983 **National Health Act, 2003 – Regulations regarding the general control of human bodies, tissue, blood, blood products and gametes** **Medicines and related substances control Act 101 of 1965 & regulations**	Part A: BAR process followed Part B: Requirements included in the EMPr	
Fertilizers, farm feeds, agricultural remedies and stock remedies Act 36 of 1947	Part A: BAR process followed Part B: Requirements included in the EMPr	
Conservation of Agricultural Resources Act 43 of 1983 (CARA) **GN R. 1048 (GG 9238 dated 25 May 1984, as amended):** Declared Weeds and Invader plants	Part A: BAR process followed Part B: Requirements included in the EMPr	
National Veldt and Forest Fire Act 101 of 1998	Part A: BAR process followed Part B: Requirements included in the EMPr	
National Forest Act 84 of 1998	Part A: BAR process followed Part B: Requirements included in the EMPr	
National Heritage Resources Act 25 of 2000	Part A: BAR process followed Part B: Requirements included in the EMPr	
Carbon Tax Act No. 15 of 2019	Part A: BAR process followed Part B: Requirements included in the EMPr	
Government Policies		
Waste Management policies	Part A: BAR process followed Part B: Requirements included in the EMPr	Non-invasive prospecting.

National Environmental Health Policy	Part A: BAR process followed Part B: Requirements included in the EMPr	However, requirements stipulated in the EMPr ensuring requirements of the act/regulations are taken into consideration as part of the NEMA 2014 EIA Regulations amendment process.
SANS Standards		
Hazardous substances management	Part A: BAR process followed Part B: Requirements included in the EMPr	Non-invasive prospecting. However, requirements stipulated in the EMPr ensuring requirements of the act/regulations are taken into consideration as part of the NEMA 2014 EIA Regulations amendment process.
Provincial Legislation		
Limpopo Environmental Management Act, Act No. 7 of 2003	Part A: BAR process followed Part B: Requirements included in the EMPr	A Site Sensitivity Verification Report (***Appendix D – Site Sensitivity Verification***) completed by the EAP.

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).

A desktop assessment, based on available information, of the need and desirability of the proposed non-invasive prospecting right application was assessed taking the following into consideration:

- Resource desirability and demand;
- Economic desirability and demand; and
- Environmental sustainability and competing land-uses.

F.1 RESOURCE DESIRABILITY AND DEMAND

The Bushveld Complex is generally subdivided into the eastern, western, far western, southern and northern lobes. Each lobe or limb has its own distinct features, and global comparisons and generalizations between the lobes need to be treated with some circumspection, particularly since the various lobes are unlikely to be interconnected. The northern lobe, in particular, includes rock sequences that differ significantly from those encountered elsewhere. The sequence in the southernmost extremity of this lobe (i.e. south of Mokopane) is both anomalous and highly faulted, making stratigraphic relationships difficult to interpret. A sequence of chromitite-bearing ultramafic rocks located here has been assigned to the Lower Zone but does not correlate with equivalent sequences anywhere else in the intrusion. Unconformably overlying these ultramafic rocks is a sequence of interlayered norite, gabbronorite, anorthosite, and pyroxenite, including several sulphide-rich units and a 0.8 m thick layer of chromitite that has tentatively been correlated with the UG2. This latter sequence is generally assigned to the Critical Zone.

The Platreef is not encountered south of Mokopane, and the above is reported simply for completeness. From a short distance north of Mokopane, and for a lateral distance of slightly more than 25 km, the Platreef forms the basal sequence of the intrusion, and is directly in contact with Transvaal Supergroup sediments (in the south) and basement Archean granitoids (in the north).

Detailed logging of relatively deep drill-core from the northern limb of the Bushveld Complex, has afforded new perspectives on the Platreef and its origins. In line with most recent studies, it is believed that mineralization to be entirely orthomagmatic, rather than contamination related.

The primary target orebody is the Main Mineralized Reef (MMR), which is situated within the Platreef Unit.

After completion of the code compliant resource/reserve estimations, a scoping study will be conducted to determine the mining potential, mining method, etc. for the deposit. This will be conducted in conjunction with relevant experts in the industry. After this phase, it will be clear if the deposit will be financially viable to mine.

F.2 ECONOMIC DESIRABILITY AND DEMAND

Mogalakwena Municipality (MM) falls within the jurisdiction of the Waterberg District Municipality (WDM), Limpopo.

According to the Waterberg District Environmental Management Framework Report (WDEMFR), compared with other districts in Limpopo, the WDM presents greater prospects for growth in all sectors in terms of GDP, employment, and population.

Mining, as one of the leading contributors (49%), together with agriculture, and tourism sectors serve as key sectors for growth and consequently has a high potential in triggering growth of other sectors such as transport, construction, and trade.

Although mining is by far the biggest contributor to the GDP, it comes second (16%) in terms of employment after the agriculture sector (26.98%). Even though agriculture creates more jobs it is one of the smallest contributors to the total GDP with a share of approximately 3%. The rate (69%) in which mining created employment between 2001 and 2007, signals a trend that mining will become the biggest employer in the near future whereas agriculture registered negative growth of 54% (WDEMFR, published date unknown).

According to the most updated Integrated Development Plan (IDP) for the MM, the following information is noted regarding the demographics:

- According to Census 2011, Mogalakwena Municipality contains over 45% of the WDM population with a total population of 307 682 and 79 396 households.
- The Africans are in majority (295 796) and constitute approximately 96% of the total Mogalakwena municipality population. The white population is 9274, coloured population is 403 and the Indian/Asian population is 1646. Just over 53% of the population is females.
- The population growth rate is estimated at 0.31% in 2011.
- Of the 307 682 residents of Mogalakwena Local Municipality, 96,1% are black African, 3% are white, with the other population groups making up the remaining 0,9%.
- Of those aged 20 years and above, 18,2% completed/have some primary education, 35,6% have secondary education, 21,7% have completed matric, 8,5% have some form of higher education, and 16% have no form of schooling.
- According to Census 2011, there are 17 525 households of which 42,3% have access to piped water in the yard, while only 20,2% of households have access to piped water in their dwelling which is the lowest figure in the Waterberg District Municipality.
- According to Census 2011, of the 78 647 economically active (employed or unemployed but looking for work) people in the district, 40,2% are unemployed.
- The unemployment rate of Mogalakwena is almost double that of the other municipalities in the district. This could be attributed to a reduction in mining activities in recent years.
- Of the 39 515 economically active youth (15‑35 years) in the area, 51,7% are unemployed, which is also the highest in the district.

One of the key social problems facing the Mogalakwena Municipality is poverty. The unemployment estimates in the Municipality vary between 45% and 70% of the economically active population (people between the ages of 15 and 64 years). Women, and especially rural women, form the greatest number affected by the lack of job opportunities and other social problems (2021/22 MM IDP).

General education levels are low, as income earned by low-skilled laborers is lower than income earned by highly skilled workers. Since education levels are low, income earned is concentrated in the lower brackets, which suggests that the general population is poor (2021/22 MM IDP).

The 2011 Mogalakwena reviewed Local Economic Development Plan (LED), the Spatial Development Framework (SDF) and the Tourism Strategies has identified that mining, finance, and wholesale are the major role-players in terms of promoting growth and development within the municipality. Other sectors of importance that have potential to become active role-players in the economy are tourism and agriculture. The Waterberg Municipality Development Strategy (WMDS, 2006) highlighted that platinum mining in the region will become a more important facet to mining and mining development.

Platinum mining in Mokopane is a leading driving force to economic development, employment and community skills development and prosperity. The incorporation of this sector in the diversification of the local economy and promoting value-chain development for the purposes of clustering supportive economic functions in a single area will assist in the goals and objectives identified within the Mogalakwena IDP, Waterberg LED/IDP and the Limpopo Development Plan (LDP).

The LDP has identified that the long-term strategic vision of the mining sector should be transformed to become not only a resource-based industry but should also become knowledge-based industry which collectively creates a conducive environment for value-addition (2021/22 MM IDP).

F.3 ENVIRONMENTAL SUSTAINABILITY AND COMPETING LAND-USES

The proposed non-invasive prospecting activities is situated within the Waterberg District Environmental Management Framework (WDEMF). The WDEMF defines the following objectives:

- Identification of the status quo;
- Development pressures and trends in the area; and
- The development of a decision support system for development in the area;
- Ensures that environmental attributes, issues and priorities are taken into account.

The following sections provides the Strategic Environmental Management Plan associated with the WDEMF.

Key Issues

The WDEMF identifies several key issues within the Waterberg District (WD). These include:

- ***Water availability and utilisation*** – The scarcity of water in the WD is well known by all sectors within the district. The protection of the water catchment areas is of great concern. The need to determine and maintain ecological reserves for the rivers in the area requires to be urgently addressed. The presence of alien invasive vegetation along key waterways negatively impacts water production and runoff. A number of illegal dams and water extraction points also negatively impacts water production and runoff.
- ***Water quality and pollution*** – Being one of the major issues within the district, water pollution is caused by failing municipal services (sewage works and lack of sewage system), management of functioning sewage systems at lodges and tourism facilities and game reserves, and agricultural pesticides and fertilisers, and polluted water runoff from industries and mines. This impacts the quality of water for human consumption especially in rural settlements.
- ***Air Quality*** - A number of air pollution sources are defined as a concern and includes dust from mines queries, brickworks, spoil/overburden heaps and heavy vehicles using gravel roads; burning of solid waste at waste disposal sites, informal dumps; and smoke from heavy vehicles in towns. The adoption of ambient air quality standards for specific areas within the district is considered as a priority.
- ***Noise*** - High noise levels of heavy vehicles through through towns, especially at night, is a major issue.
- ***Character of the Waterberg District*** – Being one of the countries branded nature/wilderness destinations, the character of the Waterberg is being threatened due to the sudden, rapid and poorly planned formal and informal urbanisation. It is gradually losing its wilderness character and certain types of development, such as lifestyle and golf estates, power stations and large-scale development, are the main contributing factor.
- ***Waterberg Biosphere Reserve*** – Being one of the first regions in the northern part of the country to be named as a Biosphere Reserve by UNESCO, the Reserve is supported. However, the meaning and implementation of the biosphere reserve concept is unclear, and no clear roles of government and private sectors are defined. The boundaries currently conserved excludes many important sensitive areas. Its current layout is considered to be fragmented and should be consolidated into one continuous area.
- ***Firewood*** – collection of wood for fire is a major threat and causing significant damage in certain areas.

- ***Change to the population structure and socio-economic conditions*** – The change in population structure and socio-economic conditions is significant. This is due to a sudden influx of people which in its turn places significant pressure on the municipal infrastructure. People flocking to the areas being developed is outcompeting the number of available jobs and leads to severe poverty and increased crime rates. Tension is caused by developers importing skilled labour as the majority of the local population is unskilled.
- ***Service Infrastructure Needs*** (roads, telecommunications, electricity, water and sewage, education and skills training, and waste disposal) - as previously mentioned the sudden growth experienced by the district is resulting in the municipalities not being able to maintain and provide the required infrastructures (roads and electricity). The almost complete failure of the sewage works, and subsequent pollution of rivers and wetlands is a major concern. Low level of education and quality thereof is a major issue. The lack of well managed solid waste disposal sites enhances illegal disposal of solid waste. A limited number of registered landfills makes disposing of waste legally expensive due to transport cost.
- ***Government*** – Co-operation between various government department is a concern.
- ***Planning and Development*** – The before mentioned issues identified indicates a need for clear and transparent planning of defined development, conservation, and industry zones.

Desired state

The desired state specified by the WDEMF was determined by the extensive stakeholder and public participation process. This is summarised as follows:

- Tourism industry – the WD has a rich offering of landscape, biological and cultural features with a potential to develop and contribute to the local and national tourism industry.
- Conservation expansion – The Waterberg Biosphere Reserve is considered to be the priority for expanding conservation onto private property.
- Agriculture – Playing a role in the production of food for the expanding markets and the main employment sector within the district, agriculture is considered to be playing a vital role in the stability of the social structures.
- Mining – As the cornerstone of the economy within the district, mining currently accounts for more than 50% of the Gross Domestic Product (GDP). The industry is considered as important for the development of the district over the medium and long term.
- Government service delivery – due to the ever-growing mining industry within the district, commitments are required from government to supply water, transport infrastructure, and other necessary infrastructures in support of private enterprises.

Sensitivity analysis

The following aspects was further analysed to refine the spatial base required to accurately identify Environmental Management Zones relevant to the WD:

- General environmental sensitivity (ecological and landscape);
- Conservation planning (current protected areas and potential expansion areas);

- Water production priority areas; and
- Agricultural intensity.

The proposed non-invasive prospecting activity is situated ±30 km north of Mokopane. For this area the WDEMF defines the following sensitivities:

- Low environmental sensitivity from an ecological and landscape perspective (***Figure 1***);
- Low priority in terms of Protected Areas and Conservation Planning Priorities (***Figure 2***);
- Moderate agricultural intensity (***Figure 3***); and
- Low water production priority area (***Figure 4***).

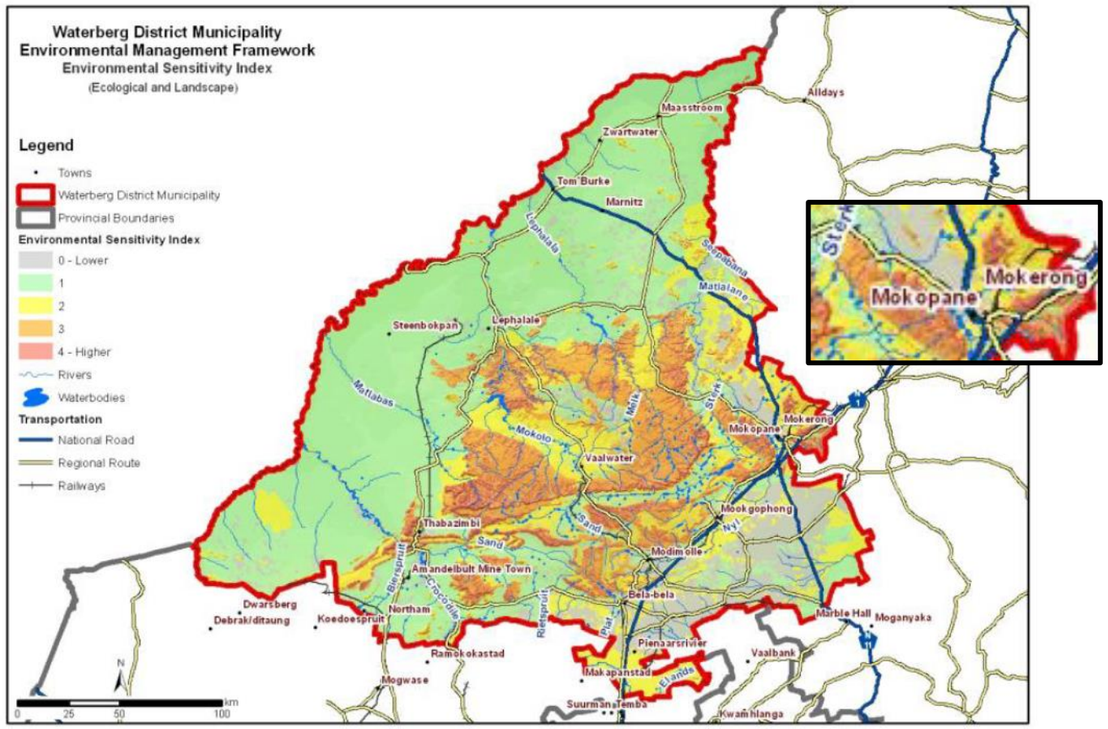


Figure 1: General environmental sensitivity in terms of ecology and landscape (WDEMF)

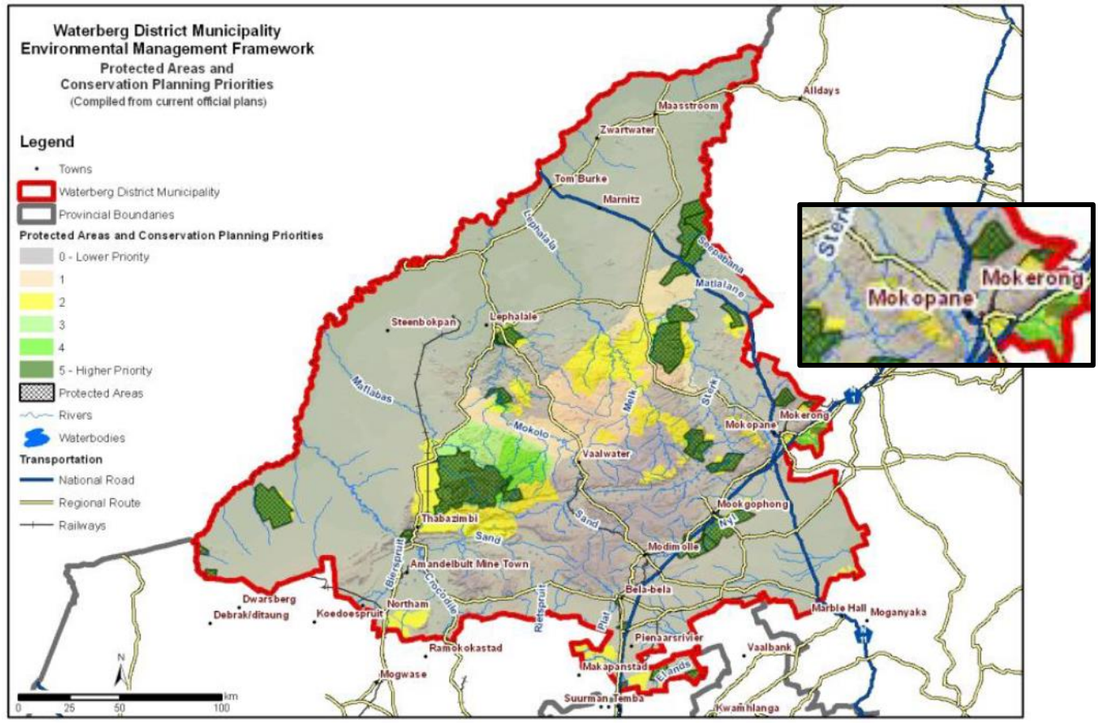


Figure 2: Sensitivity in terms of Protected Areas and Conservation Planning priorities (WDEMF)

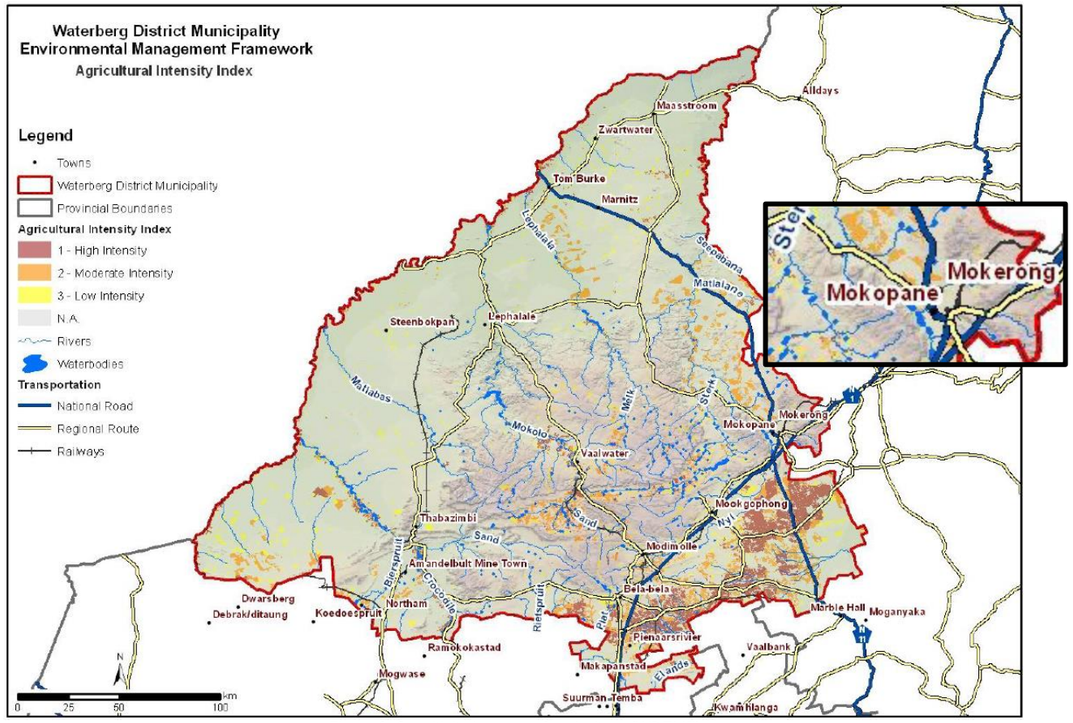


Figure 3: Sensitivity in terms of agriculture (WDEMF)

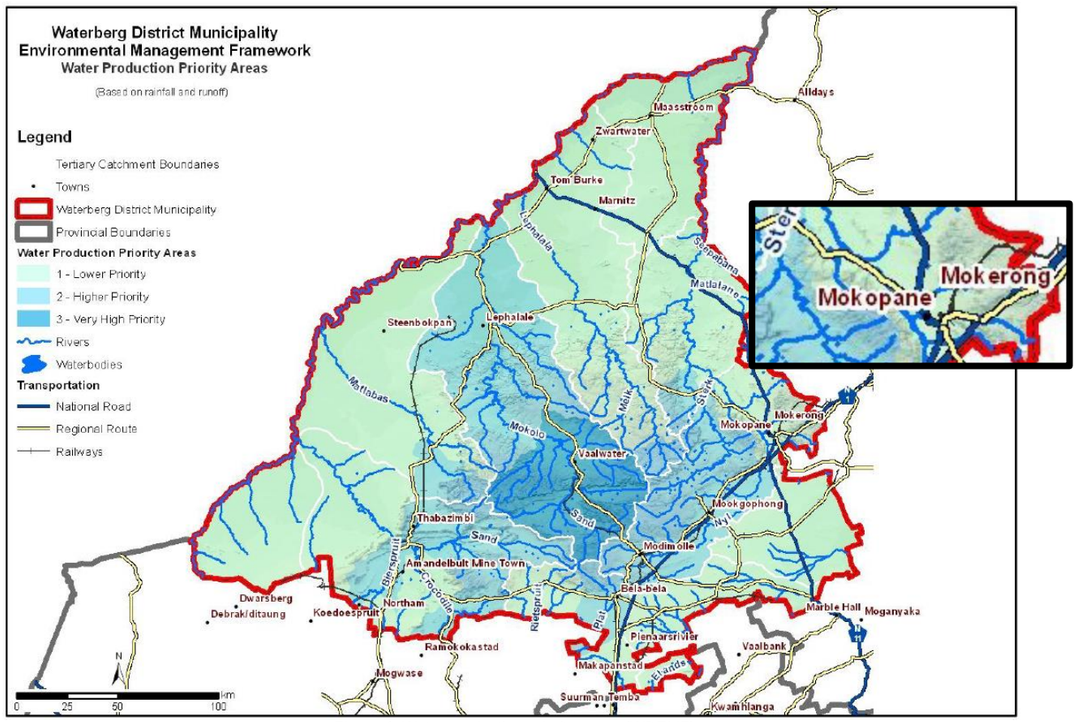


Figure 4: Water production priority areas (WDEMF)

Environmental Management Zones (EMZ)

A total of eleven (11) zones have been defined in the WDEMF. Each zone has been identified with a desired state indicating activities that are preferred, compatible and undesirable. These EMZ are as follows:

- Zone 1: Protection of natural vegetation, scenic landscape and rock painting areas, with limited appropriate tourism;
- Zone 2: Nature and cultural tourism focus areas within a high quality natural setting;
- Zone 3: Game and cattle farming (including hunting) areas with commercial focus;
- Zone 4: Mining focus areas;
- Zone 5: Potential large industrial and related activities focus area;
- Zone 6: Restricted mining focus areas in aesthetic and/or ecological resource areas;
- Zone 7: Urbanisation focus areas and nodes;
- Zone 8: Rural settlement areas;
- Zone 9: Agriculture focus areas with a tourism component;
- Zone 10: Agriculture areas with commercial focus; and
- Zone 11: Major infrastructure corridors.

The proposed non-invasive prospecting activities falls mainly within Zone 6 (***Figure 5***).

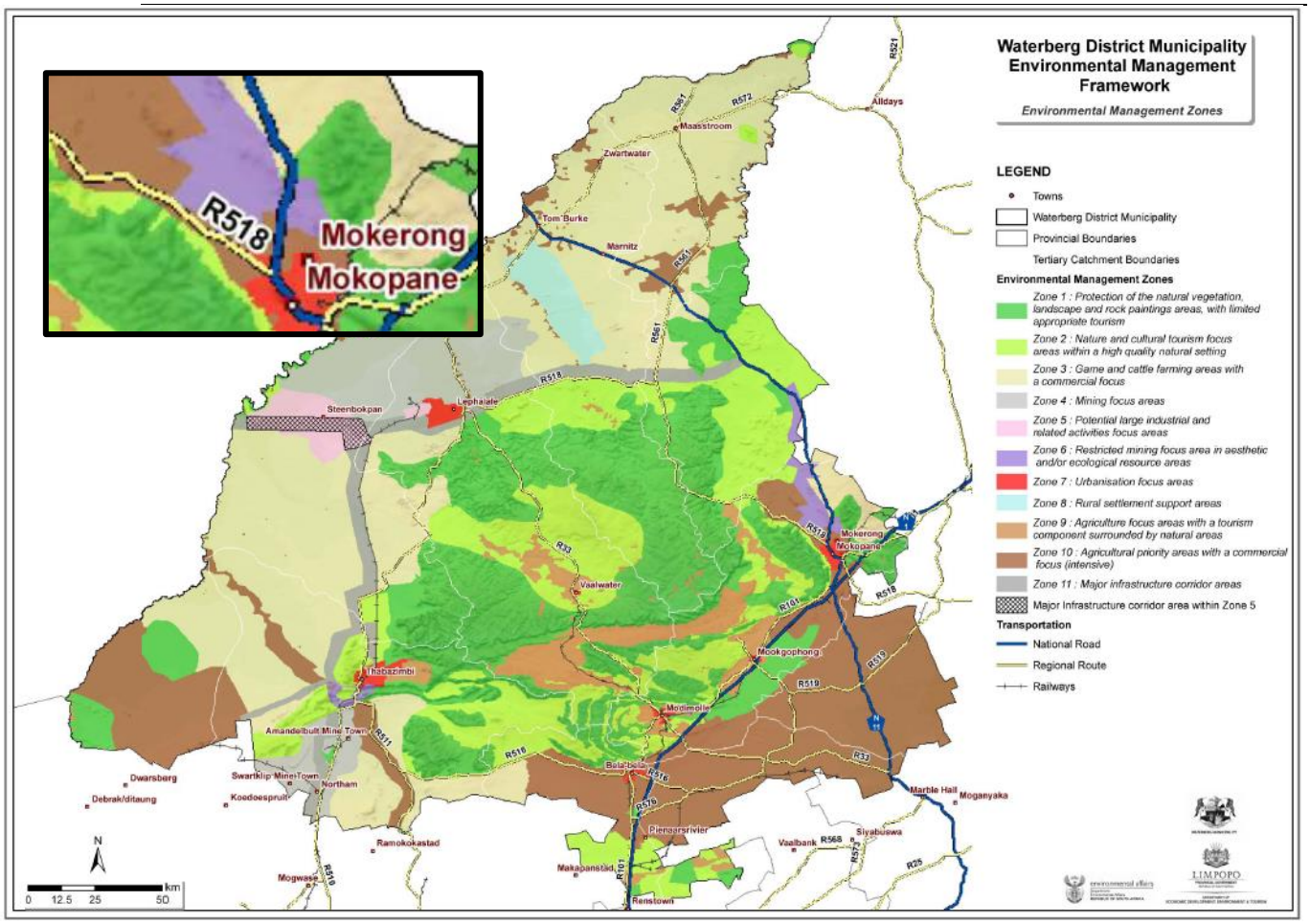


Figure 5: WDEMF Environmental Management Zones

Table 3 provides a summary of environmental management requirements as defined for Zone 6.

Table 3: Summary of Zone 6 management requirements

DESCRIPTION	DESIRED STATE	
Water utilisation should be kept to a minimum. Ecological water requirements should be always met.	WATER UTILISATION	Water utilisation should be kept to a minimum. Ecological water requirements should be met at all times.
	WATER QUALITY	Water quality in this zone should not be allowed to deteriorate. Legislation to protect water quality and prevent pollution should be strictly enforced. Heavy penalties should be employed to punish users who pollute water sources.
	CONSERVATION	Conservation of ecological and/or aesthetic resources should be a prerequisite to mining and industrial development in the area.
	TOURISM	Tourism should be encouraged as a secondary activity especially in respect to cultural tourism.
	AGRICULTURE	Agriculture is not desired in this zone. Existing agricultural activities may continue provided that such activities are not expanded.
	GAME AND CATTLE FARMING	Game and cattle farming is a secondary activity in these areas.
	SERVICE INFRASTRUCTURE	Service infrastructure should be sufficient to support mining in the area. Transport infrastructure is of particular importance. The impact of heavy vehicle traffic especially through towns should be limited.
	SOLID WASTE DISPOSAL	All solid waste should be discarded at permitted solid waste sites. Sufficient permitted solid waste disposal sites should be established at key locations to deal with the waste generated in this zone. Strict enforcement and proper management at such sites is necessary to

		minimise negative impact. Recycling collection points should be encouraged wherever possible.
	SEWAGE TREATMENT AND DISPOSAL	Sewage treatment plants and disposal sites capable of properly dealing with the sewage and wastewater generated in the area is necessary to prevent pollution of rivers and streams.
	EMPLOYMENT	Employment in the zone should be focussed on providing opportunities for local unemployed people. This should go hand in hand with appropriate education and training.
	HOUSING	Housing the area should preferably be concentrated in existing urban areas.

PREFERRED, COMPATIBLE AND UNDESIRED DEVELOPMENTS		
PREFERRED ACTIVITIES	COMPATIBLE ACTIVITIES	UNDESIRABLE ACTIVITIES
• Mining of minerals that is done in a well-planned manner that will ensure that it will not cause widespread and unacceptable damage to the aesthetic and/or ecological values of the area; and • Keeping of game and/or cattle for commercial purposes in a responsible manner that makes sustainable use of the natural vegetation cover of the area in parts where mining is not possible or where mining will only become a factor in the medium to long term.	• Tourism facilities, including hunting lodges (indigenous vegetation should not be removed) in parts where mining is not possible or where mining will only become a factor in the medium to long term. • Existing farming activities; and • Roads and railway infrastructure that is necessary for the safe and proper transportation of mineral products.	• Any activity that sterilises the potential to explore a mineral resource in the area.

F.4 NEED AND DESIRABILITY ASSESSMENT

In addition to the above, the need and desirability of the proposed development was further assessed by answering the questions, as far as possible at this stage of the process, listed in the Guideline on need and Desirability (DEA, 2017).

These questions will be explored in further details as part of the EIA phase once this Scoping Report has been accepted.

Table 4: Questions indicating how the development considered ecological sustainability and the use of natural resources

QUESTION		ANSWER	CROSS-REFERENCE
1	How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?	Highlighted throughout this document, the proposed non-invasive prospecting will have no impact on the ecological integrity of the prospecting area. However, as part of the desktop assessment and site sensitivity verification, a number of sensitivities have been defined (***Appendix C – Site Layout Plan, Sensitivities, and Land Use).***	The following Section(s) of this report holds reference: • ***f)***; • ***g), h), and i)***; • ***(1)(a)II, III, IV, V, and VI***; • ***iv)***; • ***v)***; • ***vi)***; • ***vii)***; • ***m)***; • ***n)***; • ***o)***; and • ***q)***.
1.1	How were the following ecological integrity considerations taken into account?:	According to the 2011 Listed Ecosystems, the site is not situated within a Listed Ecosystems published in terms of the Biodiversity Act in 2011. Also, the recent National Biodiversity Assessment (NBA) 2018 which represents an update of the assessment of threat status for terrestrial ecosystems, classified the Mukhado Sweet Bushveld ecosystems as Least Concern, albeit poorly protected (Skowno, *et al,* 2019).	
1.1.1	Threatened Ecosystems,		
1.1.2	Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure	The project is not located within a Strategic Water Source Area. According to Le Maitre et al. (2018), the project is located about 14km to the northeast of the closet SWSA, Nyl and Dorps River Valley Groundwater Strategic Water Source Area. The study area is located within an Upstream Management Catchment which is required to prevent the downstream degradation of Freshwater Ecosystem Priority Areas (FEPAs) and Fish Support Areas (FSAs). According to the NFEPA Database, only limited wetlands occur within the study or investigation areas. A depression wetland is located in the north-western part of the study area (PES: AB - natural / largely natural state) and a wetland flat is located in the south-eastern part of the study area (PES Z3 – heavily to critically modified state). According to the NFEPA Database, no rivers occur within the study or investigation areas. The closest river is the Groot Sandsloot to the south-east and the Mogalakwena River to the west.	
1.1.3	Critical Biodiversity Areas (“CBAs”) and Ecological Support Areas (“ESAs”),	The site stretches over Other Natural Areas, and areas listed as having No Natural Habitat. A small Ecological Support Area 2 is present on the north-western boundary of the site. Other Natural Areas (ONAs) are open spaces between township areas where grazing and cultivation likely takes place. ONAs are not required to meet conservation targets and are not identified or functional as CBAs or ESAs. No management objectives, land management recommendations or	

		land-use guidelines are prescribed in such areas These areas are nevertheless subject to all applicable town and regional planning guidelines and policy. No Natural Habitat comprises developed and cultivated areas. These areas should be favoured for development before "Other natural areas" Ecological Support Areas (ESA) play an important role in supporting the ecological functioning of a protected area or Critical Biodiversity Area, in delivering ecosystem services. In most cases ESA2 sites are those with degradation (as is within the prospecting area), whereas ESA1 are near-natural to natural. No Critical Biodiversity Area (CBA) are present within the prospecting rights area.	
1.1.4	Conservation targets,	See ***Sections (1) (a) IV and V***.	
1.1.5	Ecological drivers of the ecosystem,		
1.1.6	Environmental Management Framework,	As indicated in Section F.3, the WDEMF is applicable to the proposed non-invasive prospecting right area.	
1.1.7	Spatial Development Framework, and	See Section F.2.	
1.1.8	Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.).	The proposed non-invasive prospecting right area are not located on a RAMSAR site. The Screening Report, however, did define the area as forming part of the Air Quality Waterberg-Bojanala Priority Area.	
1.2	How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	Highlighted throughout this document, the proposed non-invasive prospecting will have no impact on the ecological integrity of the prospecting area. However, following the desktop assessment and site sensitivity verification outcome (***Appendix D – Site Sensitivity Verification***), areas to avoid, or no-go sites have been defined within the prospecting right area. The identified sensitivities are defined and mapped and attached as ***Appendix C – Site Layout Plan, Sensitivities, and Land Use***. In the event of a change in the scope from non-invasive to intrusive prospecting activities, further assessment will be required, including the consideration of these listed questions.	
1.3	How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?		
1.4	What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?		
1.5	How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?		
1.6	How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?		

1.7	How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?		
1.7.1	Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)? (note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life)		
1.7.2	Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources this the proposed development alternative?)		
1.7.3	Do the proposed location, type and scale of development promote a reduced dependency on resources?		
1.8	How were a risk-averse and cautious approach applied in terms of ecological impacts?	See ***Section iv)***.	
1.8.1	What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?	See ***Section p)***.	
1.8.2	What is the level of risk associated with the limits of current knowledge?		
1.8.2	Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	See ***Section iv)***.	
1.9	How will the ecological impacts resulting from this development impact on people's environmental right in terms following:		
1.9.1	Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	***Potential Negative (s)*** – although no activities or impacts have been defined by this assessment, the potential future mining within the proposed prospecting right area will have definite impact on the defined sensitivities. The significance thereof can only be determined following the required Scoping and Environmental Impact Assessment (S&EIA) as defined in the NEMA 2014 EIA Regulations. The potential impacts or risks defined in this assessment should however be used as the baseline determination to avoid, mitigate and manage the identified potential risks associated with future mining activities.	
1.9.2	Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?	***Potential Positive (s)*** – although no physical job creation will result from the non-invasive prospecting, the potential job opportunities and much needed economic support to the local GDP associated with future mining, may alleviate to some extend poverty, crime, and the increasing unemployment rate observed throughout the district.	
1.10	Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?	See ***Section iv)***.	
1.11	Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives /targets /considerations of the area?		

1.12	Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?	See ***Sections g), h), and i).***	
1.13	Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?	See ***Section iv)***.	

Table 5: Questions indicated how the proposed development justified economic and social development

QUESTION		ANSWER	CROSS-REFERENCE
2.1	What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?:	See ***Section F.3***.	
2.1.1	The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area,		
2.1.2	Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.),		
2.1.3	Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.), and		
2.1.4	Municipal Economic Development Strategy ("LED Strategy").		
2.2	Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?	No physical job creation will result from the non-invasive prospecting. However, the potential prospect of job opportunities and much needed economic support to the local GDP associated with future mining, may alleviate to some extend poverty, crime, and the increasing unemployment rate observed throughout the district. In the event of a change in the scope from non-invasive to intrusive prospecting activities, further assessment will be required, including the consideration of these listed questions.	
2.2.1	Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?		
2.3	How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?		
2.4	Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?		
2.5	In terms of location, describe how the placement of the proposed development will:		
2.5.1	result in the creation of residential and employment opportunities in close proximity to or integrated with each other,		
2.5.2	reduce the need for transport of people and goods,		
2.5.3	result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport),		
2.5.4	compliment other uses in the area,		
2.5.5	be in line with the planning for the area,		
2.5.6	for urban related development, make use of underutilised land available with the urban edge,		
2.5.7	optimise the use of existing resources and infrastructure,		
2.5.8	opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement),		

2.5.9	discourage "urban sprawl" and contribute to compaction/densification,		
2.5.10	contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs,		
2.5.11	encourage environmentally sustainable land development practices and processes,		
2.5.12	take into account special locational factors that might favour the specific location (e.g. the location of a strategic prospectingral resource, access to the port, access to rail, etc.),		
2.5.13	the investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential),		
2.5.14	impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area, and		
2.5.15	in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?		
2.6	How were a risk-averse and cautious approach applied in terms of socio-economic impacts?		
2.6.1	What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?		
2.6.2	What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability, and sustainability) associated with the limits of current knowledge?		
2.6.3	Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?		
2.7	How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following:		
2.7.1	Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?		
2.7.2	Positive impacts. What measures were taken to enhance positive impacts?		
2.8	Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?		
2.9	What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?		
2.10	What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)? Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered?		
2.11	What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?		

2.12	What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?		
2.13	What measures were taken to:		
2.13.1	ensure the participation of all interested and affected parties,		
2.13.2	provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation,		
2.13.3	ensure participation by vulnerable and disadvantaged persons,		
2.13.4	promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means		
2.13.5	ensure openness and transparency, and access to information in terms of the process,		
2.13.6	ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge,		
2.13.7	ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein were be promoted?		
2.14	Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g.. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?		
2.15	What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?		
2.16	Describe how the development will impact on job creation in terms of, amongst other aspects:		
2.16.1	the number of temporary versus permanent jobs that will be created,		
2.16.2	whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area),		
2.16.3	the distance from where labourers will have to travel,		
2.16.4	the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits), and		
2.16.5	the opportunity costs in terms of job creation (e.g. a prospecting might create 100 jobs, but impact on 1000 agricultural jobs, etc.).		
2.17	What measures were taken to ensure:		
2.17.1	that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment, and		
2.17.2	that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?		
2.18	What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?		
2.19	Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?		

2.20	What measures were taken to ensure that he costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?		
2.21	Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?		
2.22	Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?		

4.5 NEED AND DESIRABILITY STATEMENT

Considering the previous sections, the following statement(s) can be made with regards to the "Need and Desirability" of the proposed non-invasive prospecting right application:

- The end result of a prospecting right is to determine the financial feasibility to continue with mining of the available resources. Intensive historical prospecting data is available which supports the non-invasive prospecting method proposed.
- From a socio-economic perspective, the recorded status of unemployment, available job opportunities, and education, to list a few, highlights the need to further develop the mining sector within the Mogalakwena Municipality. The prospect of developing a future mine, following the positive feasibility outcome of the proposed non-invasive prospecting associated with this application therefore is supported by the municipal's IDP, LED, and SDF's.
- The proposed non-invasive nature of the prospecting right application results in no impacts. However, following the desktop assessment and site sensitivity verification outcome (***Appendix D – Site Sensitivity Verification***), areas to avoid, or no-go sites have been defined within the prospecting right area. The identified sensitivities are defined and mapped and attached as ***Appendix C – Site Layout Plan, Sensitivities, and Land Use***.
- The proposed non-invasive prospecting right boundary falls within Zone 6 (Restricted mining focus areas in aesthetic and/or ecological resource areas) of the Environmental Management Zone as defined in the WDEMF. Preferred activities identified within this zone includes mining, and therefore it can be concluded that any prospecting activities is supported in terms of the WDEMF pending the outcome of an impact assessment.

G) MOTIVATION FOR THE OVERALL PREFFERED SITE, ACTIVITES AND TECHNOLOGY ALTERNATIVE

Due to the non-invasive nature of the proposed prospecting activities, i.e. desktop prospecting with no planned drilling, excavations or trenching, no alternatives were assessed as part of the BA process.

However, following the desktop assessment and site sensitivity verification outcome (***Appendix D – Site Sensitivity Verification***), areas to avoid, or no-go sites have been defined within the prospecting right area.

The identified sensitivities are defined and mapped and attached as ***Appendix C – Site Layout Plan, Sensitivities, and Land Use***.

H) FULL DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERED 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)

As mentioned throughout this report, due to the non-invasive nature of the proposed prospecting activities, a desktop assessment and site sensitivity verification in line with the relevant protocols (GN. 320 GG 43110 dated 20 March 2020), was completed and are attached to this report as ***Appendix D – Site Sensitivity Verification***.

As a result, a number of sensitivities within the proposed prospecting right area are defined (***Appendix C – Site Layout Plan, Sensitivities, and Land Use***).

The defined sensitivities should be considered as "no-go" areas or "areas requiring further investigation", should the proposed scope associated with this prospecting right change, i.e. intrusive prospecting. In the event of change in scope, a detailed alternative assessment, taking into consideration the defined sensitivities, must be conducted and be in line with the [1]NEMA 2014 EIA Regulations (as amended).

i) DETAILS OF THE DEVELOPMENT FOOTPRINT ALTERNATIVES CONSIDERED

(With reference to the site plan provided as Appendix C and the location of the individual activities on site, provide details of the alternatives considered in respect to: (a) the property on which or location where the 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.)

With reference to ***Section g) and h),*** the following details alternatives considered as part of the BA process related to the non-invasive prospecting right application:

(A) PROPERTY ON WHICH OR LOCATION WHERE THE PROPOSED ACTIVITY IS TO BE UNDERTAKEN

[1] Should the applicant which to conduct any form of intrusive prospecting, the applicability of Regulation 31 of NEMA 2014 EIA Regulations (Part 2 amendment of Environmental Authorisation, where a change in scope occurs) should be assessed by a Registered EAP.

No property alternatives were considered as extensive available prospecting data from previous diamond core drilling in the area, are associated specifically with Farms Moordkopje 813 LR and Zwartfontein 814 LR.

(B) TYPE OF ACTIVITY TO BE UNDERTAKEN

No alternative prospecting methods were assessed as part of this BA process. This assessment process only relates to non-invasive prospecting.

(C) THE DESIGN OR LAYOUT OF THE ACTIVITY

No design or layout alternatives were considered. A number of sensitivities within the proposed prospecting right area are defined (***Appendix C – Site Layout Plan, Sensitivities, and Land Use***).

The defined sensitivities should be considered as "no-go" areas or "areas requiring further investigation and assessment", should the proposed scope associated with this prospecting right change, i.e. intrusive prospecting.

(D) THE TECHNOLOGY TO BE USED IN THE ACTIVITY

No technology alternatives were considered.

(E) THE OPERATIONAL ASPECTS OF THE ACTIVITY

As the non-invasive prospecting only relates to desktop studies and in field observations, no operational alternatives were assessed.

(F) THE OPTION OF NOT IMPLEMENTING THE ACTIVITY

In the event of change in scope, a detailed alternative assessment, taking into consideration the defined sensitivities, must be conducted and be in line with the NEMA 2014 EIA Regulations (as amended). Following the defined change in scope, a site layout plan is required to be assessed. In the event of the prospecting activities being intrusive, the sensitivities as define during this site sensitivity verification should be considered as potential "no-go" areas or "areas requiring further investigation and assessment".

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.)

Enviroroots (Pty) Ltd was appointed by Environmental Management Assistance (Pty) Ltd on behalf of BCR Coal (Pty) Ltd to assist in conducting and managing the required Public Participation Process (PPP) required as part of the Scoping and EIA Process.

For the purpose of this section a summary of steps taken to date will be provided. The detailed PPP report and associated records is attached as ***Appendix E – Public Participation***.

Identification of I&AP

The following groups were identified as potential Interested and Affected Parties (I&APs):

- Relevant National Government Departments;
- Relevant Provincial Government Departments;
- Relevant Municipal Representatives;
- Relevant Ward Councillors;
- Landowners/Occupiers;
- Adjacent Landowners/Occupiers;
- Relevant Institutional/Organisational Representatives;
- Surrounding Mining Activities;
- Land Claimants; and
- Governmental and Non-Governmental Organisations and Agencies.

To ensure that all potential I&APs were made aware of the project and had the opportunity to register and provide comments, the notification process was as thorough as possible. Registration will remain open throughout the Public Participation Process to allow Interested and Affected Parties to register and submit their input throughout.

Notification of I&APs

Site Notices

To inform surrounding and immediate community members, landowners, occupiers, workers and passers-by of the proposed project and to invite registrations and comments, ten (10) A2 notices were erected at a visible and accessible locality throughout the study area on 18 August 2022. These notices were strategically erected along access routes throughout the study area and are summarised in ***Table 6*** below.

Table 6: Locality of Site Notices Placed

DATE	NUMBER	COORDINATES	PLACEMENT
18/08/2022	Site Notice 01	S 23° 57´33.0" E 28° 50´ 55.5"	Monene Supermarket
18/08/2022	Site Notice 02	S 23° 57´33.0" E 28° 50´ 55.5"	Monene Supermarket
18/08/2022	Site Notice 03	S 23° 56´ 57.1" E 28° 50´ 31.5"	Sedibeng Trading Store
18/08/2022	Site Notice 04	S 23° 56´ 57.1" E 28° 50´ 31.5"	Sedibeng Trading Store
18/08/2022	Site Notice 05	S 23° 57´ 09.1" E 28° 50´ 38.5"	Mapela Plaza
18/08/2022	Site Notice 06	S 23° 57´ 09.1" E 28° 50´ 38.5"	Mapela Plaza
18/08/2022	Site Notice 07	S 23° 57´ 23.6" E 28° 50´ 51.0"	Mapela Clinic

DATE	NUMBER	COORDINATES	PLACEMENT
18/08/2022	Site Notice 08	S 23° 57´ 23.6" E 28° 50´ 51.0"	Mapela Clinic
18/08/2022	Site Notice 09	S 23° 58´36.7" E 28° 50´ 52.6"	Mapela Tribal Office
18/08/2022	Site Notice 10	S 23° 58´36.7" E 28° 50´ 52.6"	Mapela Tribal Office

Newspaper Advertisements

To inform a broad spectrum of individuals who might want to register as I&APs, newspaper advertisements (one English and one Sepedi) will be placed in the Bosveld Review newspaper on Thursday, 25 August 2022.

Written Notifications

Identified I&APs were directly informed of the application processes to be followed by means of email, hand delivery and registered post. Proof of written notifications sent is provided in the relevant appendices as described in the sections to follow. Note that the written notifications encouraged potential I&APs to register and provide their comments/questions on the proposed project and related application processes currently underway.

Hand Delivery

Background Information Documents (BIDs), providing information on the proposed project, were physically hand delivered to the Mapela Traditional Council, the lawful occupiers of the land, on 20 July 2022 during the Key Stakeholder Introduction Meeting. Proof of delivery to the Mapela Traditional Council is captured in the Key Stakeholder Introduction Meeting Minutes which has been forwarded to the Council.

Email Notifications

Apart from the hand delivered BID, the Background Information Document was furthermore forwarded to the Mapela Traditional Council via email on 10 August 2022. All other I&APs will be notified of the proposed project by means of email by 25 August 2022. The Background Information Document (BID) will be attached to the emails and all email notifications sent will provide the contact information for EnviroRoots (Pty) Ltd.

Registered Post

Where I&APs could not be provided with the Background Information Document either electronically or by hand delivery, and postal addresses were available, the BID will be sent via Registered Post.

Notification of I&AP's of reports availability

Registered I&APs will be notified of the availability of the Draft Basic Assessment Report for Public Commenting as and when required. I&APs will be informed of the relevant commenting period and will be encouraged to submit any comments or questions on or before the closing date (to be confirmed).

Access and Commenting Opportunity

Commenting and Registration opportunity will be provided for throughout this Public Participation Process. The entire process will remain transparent and allow for I&APs to register and comment throughout. The process will be conducted in accordance with Clause 3(8) of the NEMA EIA Regulations (GN No. 326 of 07 April 2017) which indicates that any public participation process must be conducted for a period of at least 30 days. Hard copies of the Draft documents will be placed at a relevant public entity and will be provided to the relevant Departments/Institutions/Organisations requiring hard copies of the documents. Further to this, an electronic copy of the draft documents will be uploaded onto the Environmental Management Assistance (Pty) Ltd Website.

Key Stakeholder Meeting

Two Key Stakeholder Meetings have been held with the Mapela Traditional Authority which is the lawful occupier of the study area. An Introduction Meeting was held on 20 July 2022 to explain the project, including planned activities and the relevant environmental process to be followed, to the Traditional Council.

Further to the above, a second Key Stakeholder Meeting was held with the Mapela Traditional Council to explain the Specialist work required for the environmental application process and to obtain site access for the Specialists to conduct their studies. Access was subsequently granted.

Regulatory Consultation

Commenting Authorities include the following:

- Department of Forestry, Fisheries and the Environment;
- Department of Water and Sanitation;
- Department of Mineral Resources and Energy;
- Department of Agriculture, Land Reform and Rural Development;
- Limpopo Department of Economic Development, Environment and Tourism;
- Mogalakwena Local Municipality;
- Waterberg District Municipality; and
- South African Heritage Resources Agency.

Disclosure of I&AP Interests

Registered I&APs were informed that this process is a PUBLIC PROCESS. All comments and/or questions received from I&APs on this process is considered public knowledge. In accordance with the Environmental Impact Assessment Regulations and the Regulations regarding the procedural requirements for Water Use Applications and Appeals, EnviroRoots (Pty) Ltd will not keep any information of this nature confidential and will submit all comments and/or questions received to the Regulatory Authority in a verbatim manner as far as possible.

By registering as an I&AP and providing comments, I&APs consent to the above. Note that no contact information for I&APs will be made available to the public at any point during the process. However, names and surnames will accompany comments in the

Comments and Responses Report (C&RR) to form part of this process. I&APs were requested to inform EnviroRoots if they would prefer their name and surname to not accompany their comments.

This Public Participation Process is conducted in accordance with Section 11(1)(c) of the Protection of Personal Information Act, 2013 (Act No. 4 of 2013), which allows for the processing of personal information if processing complies with an obligation imposed by law on the responsible party and in accordance with Section 11(1)(f) of the Act which allows for the processing of personal information if processing is necessary for pursuing the legitimate interests of the responsible party or of a third party to whom the information is supplied.

Registrations and Comments Received

Identified I&APs will be encouraged to submit their registrations and comments to EnviroRoots for them to receive further correspondence regarding the proposed project currently underway. Comments and registrations received via all methods (Registration Forms/email/telephonic/public participation meeting) will be captured and will be provided in the Final Basic Assessment Report for submission to the relevant Departments.

Addressing Comments and Concerns

A Comments and Responses Report (C&RR) will be compiled as part of the Public Participation Process. This document will record the issues of concern, questions and suggestions contributed by stakeholders during the course of the Basic Assessment Report Process. This report will also include the responses provided by relevant parties. It should be noted that the Comments and Responses Report is an active document which will be updated throughout the process as comments and concerns are received. However, following submission of all final documents to the Department of Mineral Resources and Energy, all additional comments should be directed directly to the Department.

Notifying I&AP of the Decision

Following the verdict by the DMRE on whether to grant or reject the Environmental Authorisation Application, all registered I&APs will be informed of the decision and the appeal process and its timeframes for submission, if applicable.

iii) SUMMARY OF ISSUES RAISED BY I&AP

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

Table 7 provides the summary of comments and issues raised to date.

Table 7: Summary of comments and issues raised

Interested and Affected Parties		Date Comments Received	Issues raised (Verbatim unless specified otherwise)	EAPs response to issues as mandated by the applicant (Verbatim unless specified otherwise)
AFFECTED PARTIES				
LANDOWNER/S				
LAWFUL OCCUPIER/S OF THE LAND				
Peter Masebe (Mapela Traditional Council)		2022/07/20	Mapela Traditional Council explained that all specialists must report to Moshate (MTC) when they get to site. MTC will nominate guides for each specialist to show and walk with them while conducting the field investigations. There is a fee payable to the said guides per day. The said fee must be proposed by BCR Projects and agreed to with the guides.	Via the Key Stakeholder Introduction Meeting on 2022/07/20: Gudani Consulting explained that a programme or schedule of the proposed dates when the specialists intend to come to site will be forwarded to MTC for approval prior to them (specialists) coming through.
Mpho Langa (Mapela Traditional Council)		2022/07/20	Mapela Traditional Council added that should there be prospecting drill holes done at various sites – a fee is payable for each prospecting hole at a rate of R15 000 per hole. The said fee is payable into the MTC Trust Account. If prospecting holes are done on someone's property, the said amount is payable to that owner.	Via the Key Stakeholder Introduction Meeting on 2022/07/20: All attendees noted.
Peter Masebe (Mapela Traditional Council)		2022/07/20	Mapela Traditional Council advised that all communication will be through MTC communications department for attention Mr M.J. Tjale. PM must be copied in all communique.	Via the Key Stakeholder Introduction Meeting on 2022/07/20: All attendees noted.
Peter Masebe (Mapela Traditional Council)		2022/08/02	Mapela Traditional Council explained that there is no objection to specialists coming to conduct their respective field work, however, all specialists must report to Moshate (MTC) when they get to site. MTC will nominate guides for each specialist to show and walk with them	Via the Key Stakeholder Specialist Meeting on 2022/08/02: All attendees noted and arrangements were made accordingly.

Interested and Affected Parties		Date Comments Received	Issues raised (Verbatim unless specified otherwise)	EAPs response to issues as mandated by the applicant (Verbatim unless specified otherwise)
			while conducting the field investigations. There will be a R500/day fee payable to the said guides. PM requested BCR Specialists to please provide lunch packs for the said guides.	
Mpho Langa (Mapela Traditional Council)		2022/08/02	Mapela Traditional Council requested that BCR Projects must provide MTC will documents pertaining to the BCR/Sibanye appeal process and the court judgement of 3rd June 2022. This to ensure that MTC has all evidence pertaining to the issue should Sibanye engage MTC.	Via the Key Stakeholder Introduction Meeting on 2022/07/20: BCR Projects (Pty) Ltd undertook to keep MTC updated with the BCR/Sibanye appeal process.
LANDOWNERS OR LAWFUL OCCUPIERS ON ADJACENT PROPERTIES				
MUNICIPAL COUNCILLOR				
MUNICIPALITY				
ORGANS OF STATE (RESPONSIBLE FOR INFRASTRUCTURE THAT MAY BE AFFECTED ROADS DEPARTMENT, ESKOM, TELKOM, DWS ETC.)				
COMMUNITIES				
DEPT. LAND AFFAIRS				
TRADITIONAL LEADERS				
DEPT. ENVIRONMENTAL AFFAIRS				
OTHER COMPETENT AUTHORITIES AFFECTED				
OTHER AFFECTED PARTIES				
INTERESTED PARTIES				

I) THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES

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

The section to follow describes the environmental attributes associated with the proposed prospecting right application area from a desktop or baseline perspective.

(1) BASELINE ENVIRONMENT

(a) TYPE OF ENVIRONMENT AFFECTED BY THE PROPOSED ACTIVITY

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

I. OVERVIEW OF THE GENERAL ENVIRONMENT

a. *CLIMATE*

The climate of the Waterberg District varies. The northern and western regions of the area experience a hot and semi-arid climate. The southern and eastern regions are more humid and slightly cooler. The Waterberg District receives summer rainfall.

Temperature

Situated within ± 30 km south of the proposed prospecting right area, Mokopane's mean maximum average during the summer period (November to February) measures at 30 °C with 17°C as minimum. During the seasonal change period (spring and autumn) temperatures are between 25°C and 29°C maximum and 16°C and 13°C minimum. The winter months are cool to warm with maximum and minimum temperatures between 24°C and 7°C.

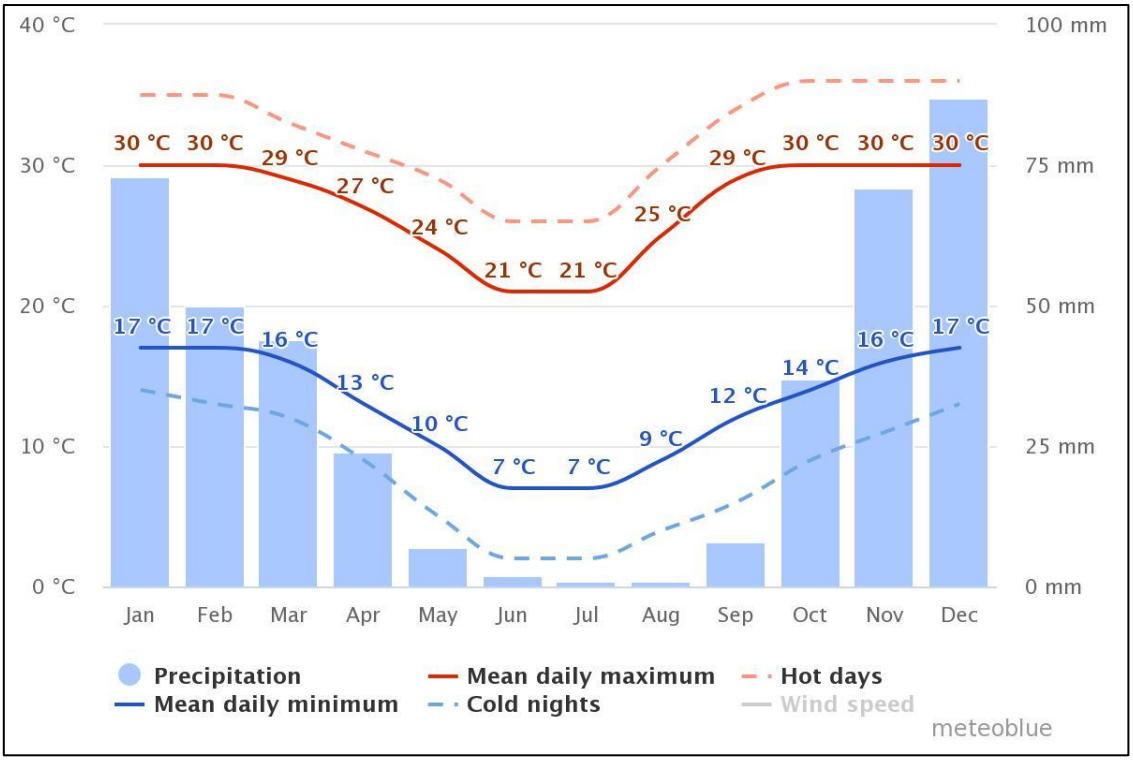


Figure 6: Average temperatures and precipitation for Mokopane (source: https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/mokopane_south-africa_964315)

Wind speed and direction

Figure 7 provides the wind rose for Mokopane.

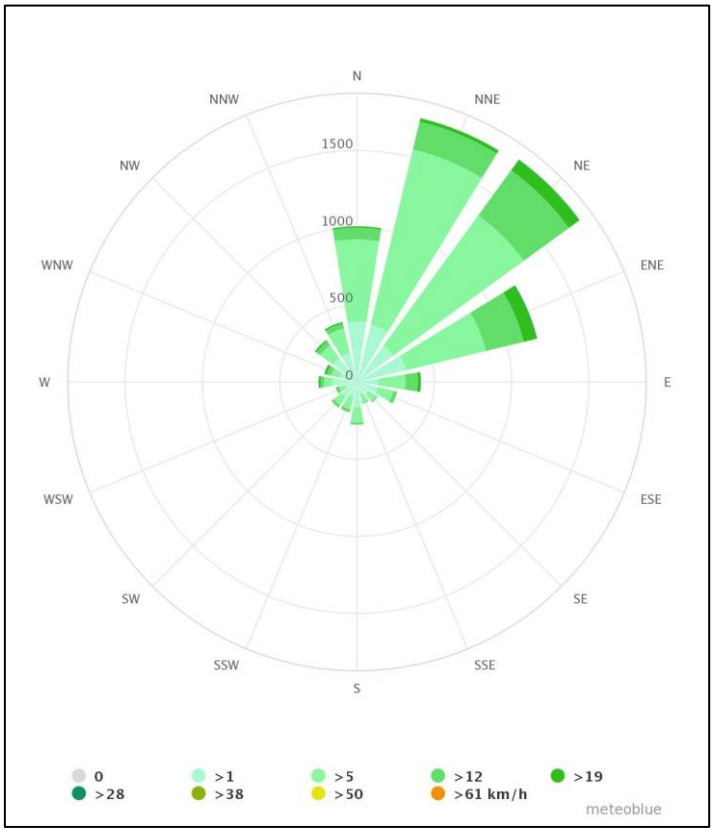


Figure 7: Wind rose for Mokopane (source: https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/mokopane_south-africa_964315)

Rainfall and evaporation

Rainfall in the region occurs in the summer months (mostly December to February), with a mean annual precipitation of 500 mm (observed from rainfall station 0676597 W). The reference potential evaporation (ETo) is approximately 2 217 mm (A-pan equivalent, after Schulze, 2011) and the mean annual evaporation is between 1 800 – 2 000 mm, which exceeds the annual rainfall. This suggests a high evaporative demand and a water limited system.

b. TOPOGRAPHY AND LANDSCAPE

There are four main landscape features in the Waterberg District, namely the Waterberg Plateau, the Transvaal Plateau Basin, the Pietersburg Plain and the Limpopo Depression.

The terrain morphology of the areas where the proposed non-invasive prospecting is defined by the WDEMF as “Large Open Plains” (***Figure 8***). The Environmental Potential Atlas of South Africa (ENPAT) (Van Riet et al, 1998) describes the topography as “Lowlands with mountains”.

From ***Figure 9*** the slope analysis for the area associated with the proposed prospecting right is smaller than 8°.

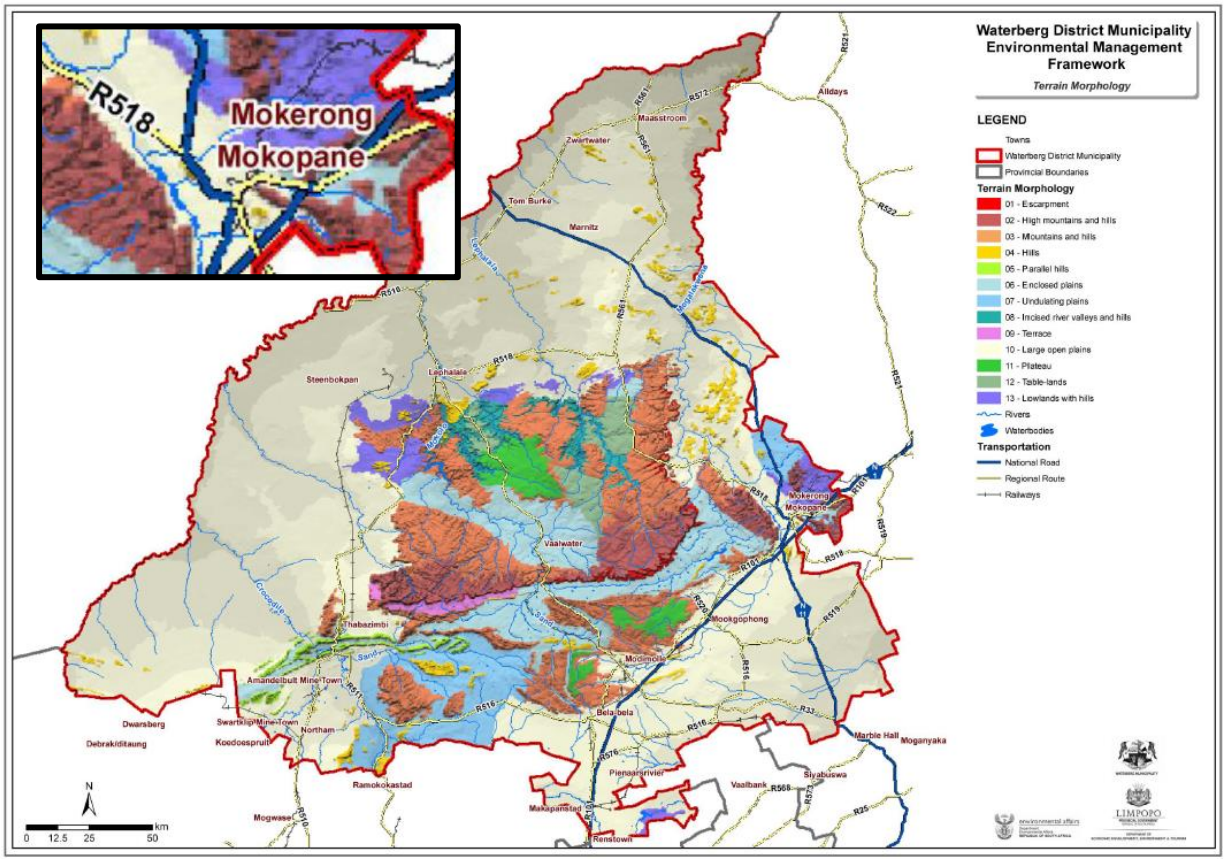


Figure 8: Terrain Morphology

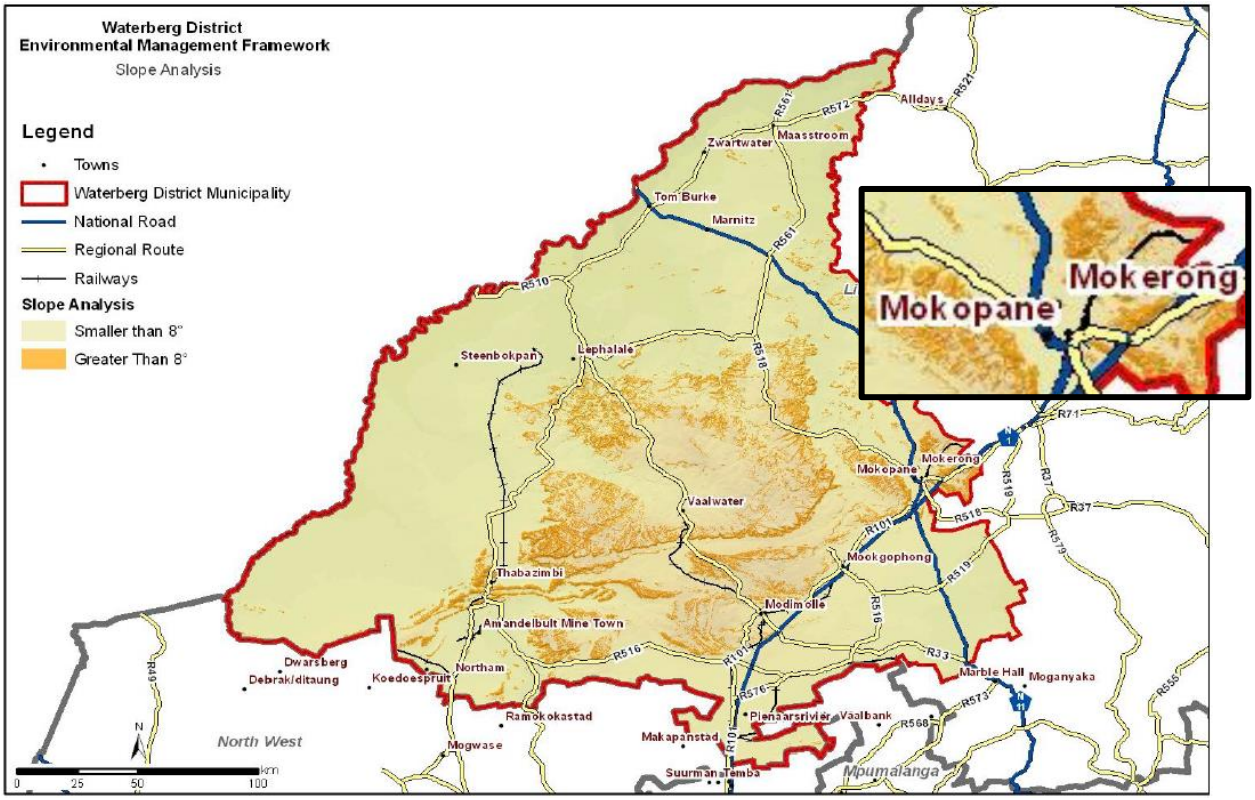


Figure 9: Slope analysis

c. LAND TYPE

The dominant land types within the study area is the Ea208 (Vertic/Melanic horizon), to a lesser extent the study area is dominated by the Ia168 (Undifferentiated deep deposit), Ib447 (Rocky areas), Ae227 (Red/yellow soils freely drained >300 mm), Ae224 (Red/yellow soils freely drained <300 mm) and BD57 (Plinthic catena) land types (*Error! Reference source not found.*).

II. AGRICULTURAL AND SOIL

Zimpande (Pty) Ltd was appointed by Environmental Management Assistance (Pty) Ltd on behalf of BCR Projects (Pty) Ltd to conduct a baseline soil and agricultural potential assessment and to conduct the required desktop and site verification.

The following sections summarises the outcome.

The detailed report is attached as ***Appendix F.1 – Agriculture and Soil Assessment***.

a. SUMMARY OF DESKTOP ASSESSMENT

As indicated in ***Section*** *Error! Reference source not found.*, various databases were consulted to determined the desktop b aseline associated with the proposed non-invasive prospecting right. ***Table 8*** provides a summary of the background information related to soil from the databases.

Table 8: Desktop based soil background information sourced from various databases

PARAMETERS	DESCRIPTION
Geology	Rustenburg, Lebowa and Rashoop formations
Soil pH	Slightly acidic to neutral with pH range of 6.5 - 7.4. This means that most nutrients will are available for plant uptake.
Desktop land capability	The majority of the study area is characterised by marginal potential arable land (Arable Class IV), followed by moderate potential arable land (Arable Class III) along the south eastern portion of the study area and lastly non-arable land (Wilderness Class VIII) along the south western portion of the study area. The arable soils are moderately suitable for cultivation and may require extensive management. (*Error! Reference source not found.*)
Desktop Grazing Capacity	The majority of the study area is classified as a transformed rangeland due to residential and on-going subsistence agricultural activities. The small areas located north and south west of the study area are characterised by the grazing capacity of 14 – 17 hectares per Livestock Unit (ha/LSU). The study area is suitable to support limited grazing activities. (***Figure 12***)
Water Retaining Capacity of the soil	Scarce or absent.
Alkalinity and Sodicity of the soils	The soils are neither alkaline or sodic, this indicates soils are not affected by high concentration of salts.
Predicted soil loss	Medium for majority of the study area. (***Figure 13***)
Screening Tool Analysis	Very High to High Sensitivity to Agriculture (*Error! Reference source not found.*)

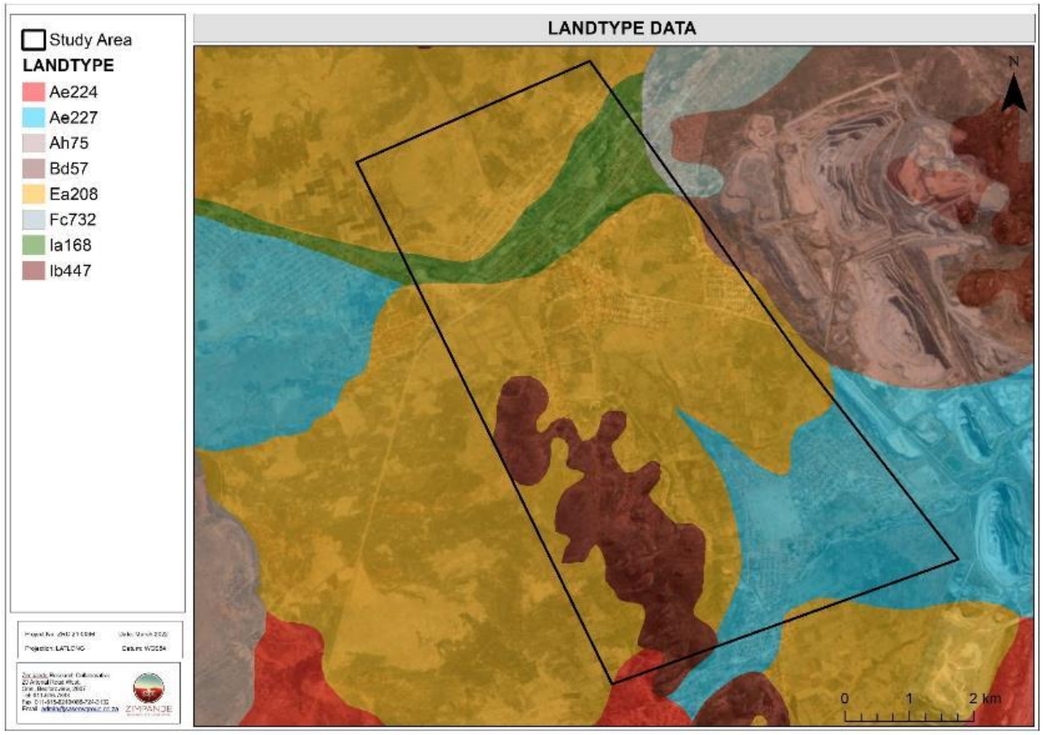


Figure 10: Land type data associated with the study area

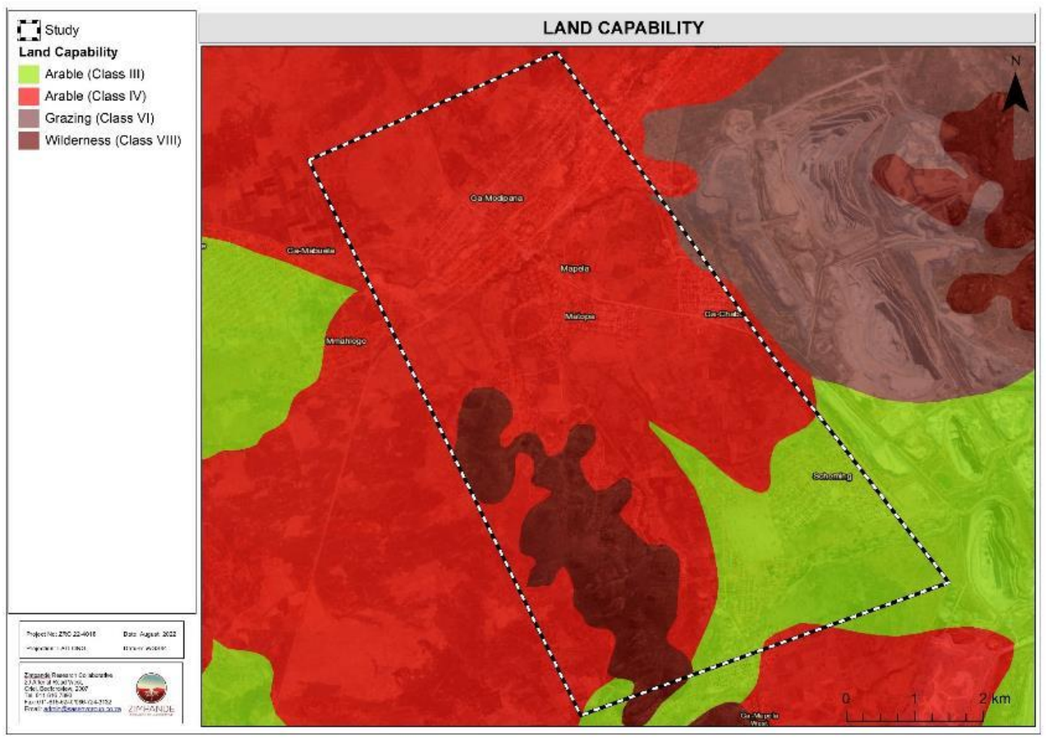


Figure 11: Desktop land capability associated with the study area

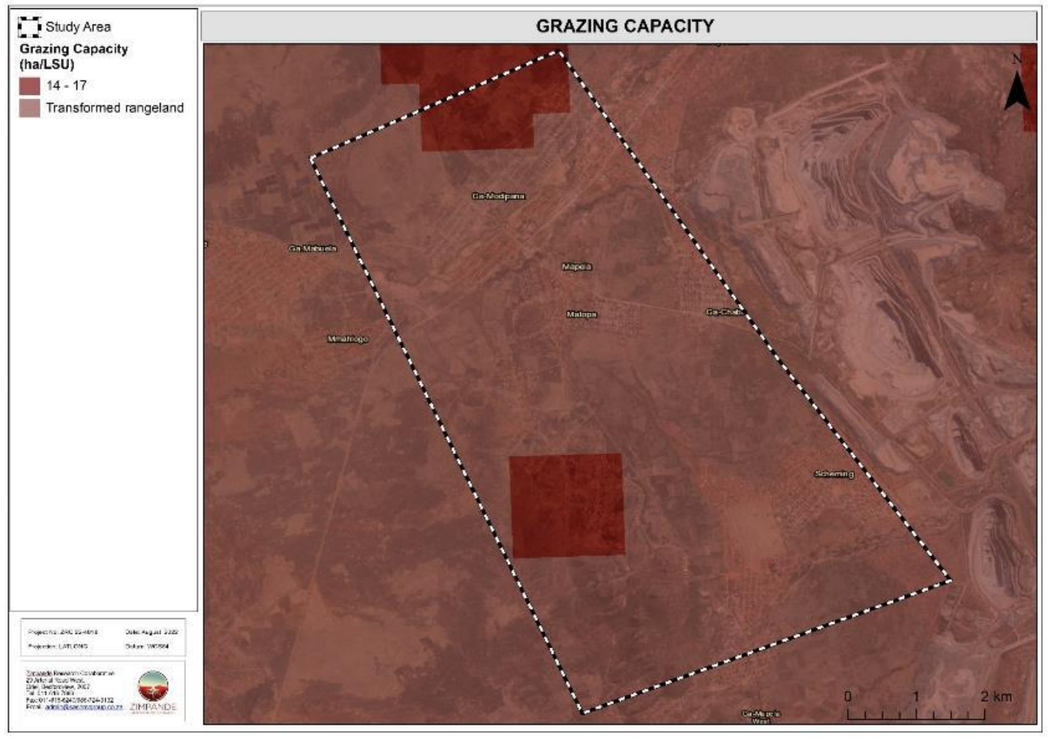


Figure 12: Grazing capacity associated with the study area

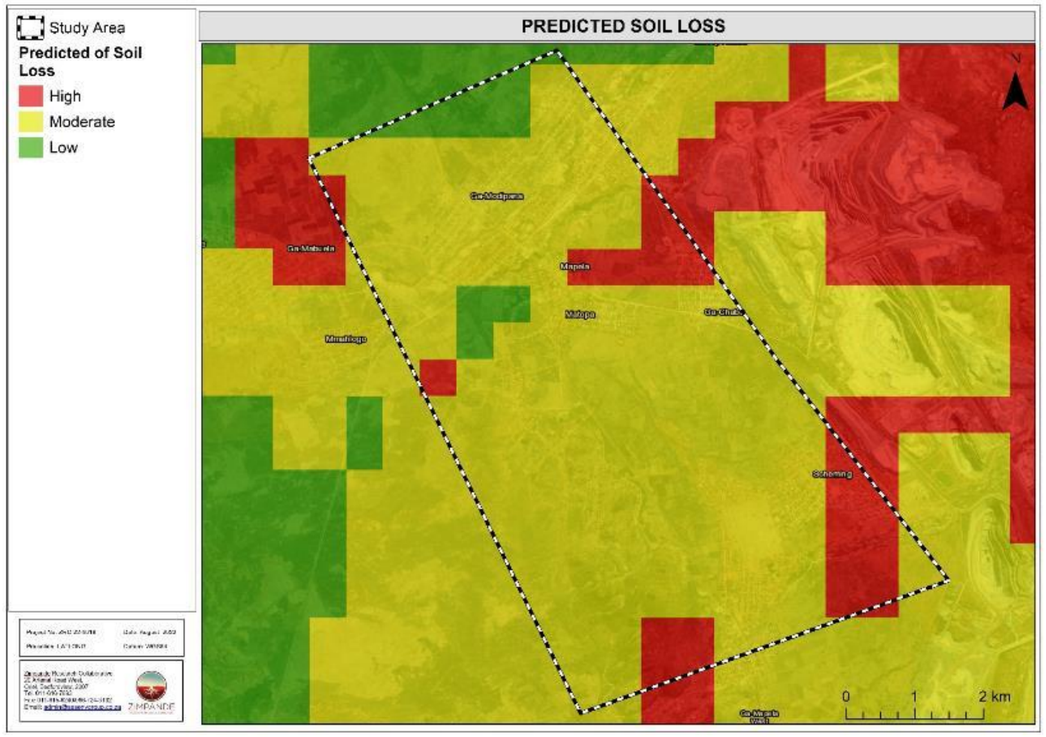


Figure 13: Predicted soil loss associated with the study area

b. VERIFICATION OUTCOME

Verified Land Use

According to observations made during the site assessment the study area is dominated by open veld (often utilised for grazing) while the remaining portions are occupied by residential areas and soccer fields. The immediate surroundings are also comprised of large-scale mining activities. However, during the time of assessment no large-scale cultivation of crops was observed.

Error! Reference source not found. provides photographs illustrating the dominant land use within the study area.

Verified Soil Forms

The identified soil forms within the study area include the soils of Mispah/Glenrosa and Mayo associated with the rocky outcrops, Arcadia/Swartland, Nkonkoni/Vaalbos, Immerpan, Clovelly, Dundee associated with watercourses and the Witbank formations. Of these identified soils, the Arcadia/Swartland soil forms were the most dominant within the study area. ***Table 9*** and ***Figure 14*** below presents the dominant soils identified within the study area.

The Mispah/Glenrosa and rock outcrops are typically shallow in nature. The shallow depth can be attributed to limited rock weathering and convex topographical conditions at the crest or scarp of a hillslope resulting in removal of soil and in some instance leaving rocky outcrops behind. Based on the degree of weathering some lithic material of varying sizes can be mixed closely with soil material. These types of soils are usually avoided for intensive use and thus left for grazing, forestry, and wildlife land uses.

The soils of duplex character such as the Arcadia, Darnall and Swartland formation dominate the study area. The Arcadia soil form is of a Vertic nature and is associated with depressional areas or lower lying landscape positions (zones of accumulation) and base rich parent material associated with semi-arid areas. The Arcadia soil form is characterised by strongly structured, dark clay horizons, with swell-shrink processes due to the high smectitic clay content. The soils swell or shrink in response to the changes in water content thus causing the soils to crack extensively when dry and becomes sticky when wet. Whereas, the Swartland and Darnall soil forms are characterised by moderately to strong structure with a clear textural distinction between a sandier surface horizon and a higher clay upper subsurface horizon. These types of soils are typically not preferred for cultivation due to the high clay content, strong structure and are prone to waterlogging conditions (highly impermeable when wet). Waterlogging conditions make these soils prone experiencing runoff during high rainfall events and thus the formation of erosion gullies over time. Nonetheless, should the soils be cultivated, intensive management practices will have to be implemented.

The Nkonkoni/Vaalbos soil form is characterised by development in well-drained oxidising environmental conditions (warm and moist) which allows for iron oxide (hematite) coating on soil particles thus resulting in the dominating red colours of the soils. In some instances, the red colour can be as a result of the iron-rich parent material. Besides depth limitations these soils can be considered marginally suitable for cultivation due their well-drained conditions, good aeration and sandy to loam textural class. However, the lack of inherent soil fertility may increase input costs.

The Dundee soils form is associated with watercourses due to the unconsolidated soil material as a result of deposition by water. These soils are characterised by little evidence of pedogenic horizonation and the presence of clear stratifications may be observed. These soils may contain weathered hard rock fragments sometimes identified as pebbles. These soils typically occur on low lying terrain positions.

The Witbank (Anthrosols) soil forms are soils which have been subjected to physical disturbance because of human interventions. Such interventions include transportation and deposition of the earth material containing soil. As a result, these soils are not ideal for agricultural cultivation.

The least dominant soils were of the Immerpan formation which were observed along the residential areas located north of the study area.

Table 9: Identified soil forms associated with the study area.

SOIL FORM	DIAGNOSTIC HORIZONS
Clovelly	Orthic A/Yellow Brown Apedal B/Lithic
Nkonkoni/Vaalbos	Orthic A/Red Apedal/ Lithic
Dundee	Orthic A/Alluvial or Alluvial
Glen/Swartland	Vertic A or Orthic A /Pedocutanic B/ Lithic
Swartland/Darnall	Orthic/ Pedocutanic B/ Lithic or Hard Rock
Immerpan	Melanic A/ Pedocutanic B/ Hard Carbonate
Rocky Outcrops (Mispah/Glenrosa/Mayo)	Solid rock
Witbank	Transported Technosols

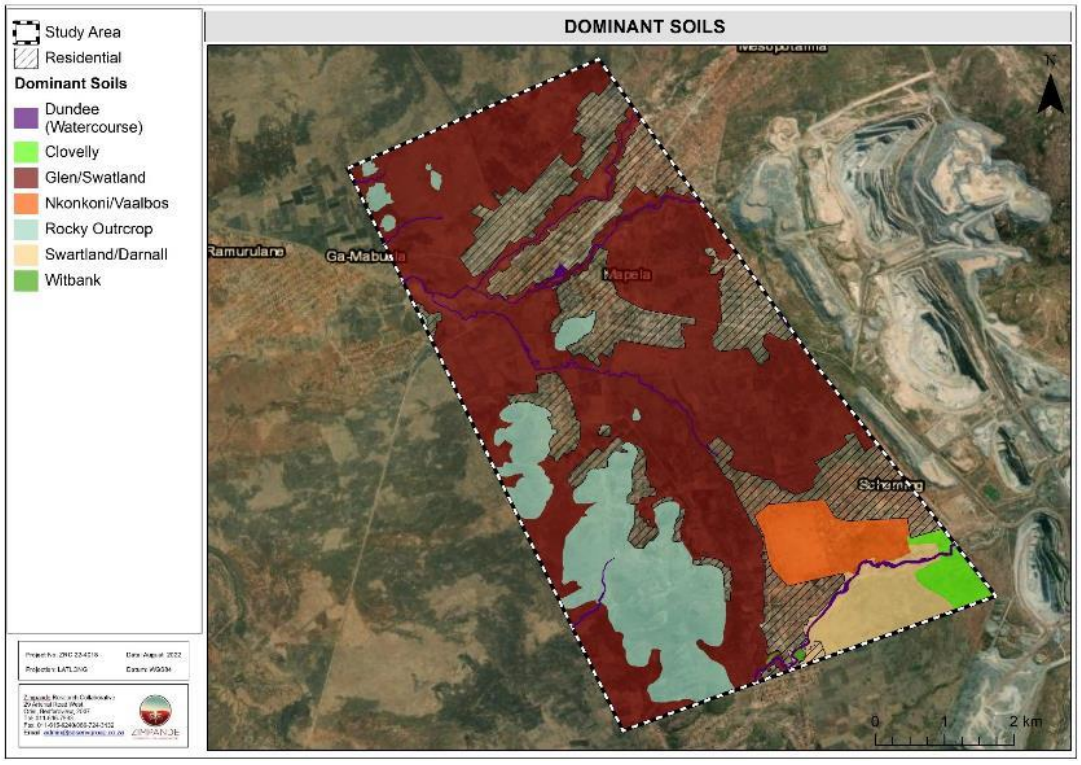


Figure 14: Dominant soil forms associated with the study area

Verified Land Capability Classification

In the South Africa context, agricultural land capability is generally restricted by climatic conditions, particularly water availability. However, even within similar climatic zones, different soil types typically have different land use capabilities attributed to their inherent characteristics.

High potential agricultural land is defined as having the soil and terrain quality, growing season and adequate available moisture supply needed to produce sustained economically high crops yields when treated and managed according to best possible farming practices (Scotney et al., 1987). For the purpose of this assessment, land capability was inferred in consideration of observed limitations to land use due to physical soil properties and prevailing climatic conditions. Climate Capability (measured on a scale of 1 to 8) was therefore considered in the agricultural potential classification. The study area falls into Climate Capability Class 5 at best, with moderate to severe limitations for arable crops. ***Table 10*** below presents the identified soil forms with their respective land capability. The dashboards presented from Table 8 to 12 below present the land capability of the identified soil forms in a summarised and comprehensive manner.

Table 10: Land capability associated with the soils occurring within the study area.

SOIL FORM	LAND CAPABILITY
Clovelly	Arable (Class II)
Nkonkoni/Vaalbos	Arable (Class III)
Glen/Swatland/Darnall	Arable (Class IV)
Dundee	Watercourse (Class V)
Rock Outcrops (Mispah/Glenrosa/Mayo)	Wilderness (Class VIII)
Witbank	Wilderness (Class VIII)

Table 11: Summary discussion of Arable (Class II) land capability class

<table>
<tr><th colspan="4">LAND CAPABILITY: ARABLE - CLASS II</th></tr>
<tr><td colspan="4">View of the Clovelly soil form.
  </td></tr>
<tr><td>Terrain Morphological Unit (TMU)</td><td>Flat terrain with less than 1% slope</td><td rowspan="2">Photograph notes</td><td rowspan="2">View of the identified yellow brown apedal B and lithic horizons associated with the Clovelly soil form.</td></tr>
<tr><td>Soil Form(s)</td><td>Clovelly</td></tr>
<tr><td>Diagnostic Horizon Sequence</td><td>Orthic A/ Yellow Brown Apedal B/ Lithic</td><td colspan="2" rowspan="2">Land Capability

These soil forms are considered high potential agricultural soils with high (Class II) land capability, suitable for arable agricultural land use with minimal management interventions. Therefore, these soils are considered suitable for use for crop cultivation, and are also well-suited for other less intensive land uses such as grazing, forestry, etc. However, emphasis is directed to their agricultural crop productivity due to the scarcity of such soil resources on a national scale and food security concerns.</td></tr>
<tr><td>Physical Limitations</td><td>None. These soils have enough depth (greater than 100 cm) for most cultivated crops and good drainage characteristics.</td></tr>
</table>

Business case, Conclusion and Mitigation Requirements:

The spatial extent of these soils within the study area is limited, this is attributed to the residential areas which are situated on these soils in effort to avoid building on duplex soils which dominate the study area. The spatial extent of these soils is limited to allow for any commercial cultivation. However, the integrated mitigation measures must be implemented accordingly, with the aim of minimizing the potential loss of these valuable soils.

Table 12: Summary discussion of the Arable (Class III) land capability class

LAND CAPABILITY: ARABLE - CLASS III			
View of the Nkonkoni/Vaalbos soil form			
			
Terrain Morphological Unit (TMU)	Crest positions and gently landscapes of < 0.5% slope gradient	**Photograph notes**	View of the identified red apedal horizons associated with the Nkonkoni/Vaalbos soil forms.
Soil Form(s)	Nkonkoni/Vaalbos		
Diagnostic Horizon Sequence	Orthic/ Red Apedal B/ Lithic or Hard Rock	**Land Capability**	

Physical Limitations	The occurrence an impermeable layer at somewhat shallow depth (60 cm) is the primary land capability limitation of the Nkonkoni and Vaalbos.	The identified soil forms are of moderate (Class III) land capability, and suitable for arable agricultural land use with restrictions. Therefore, these soils are considered to make a moderate contribution to agricultural productivity on a regional and national scale.
Business case, Conclusion and Mitigation Requirements: The spatial extent of these soils within the study area is limited, this is attributed to the residential areas which are situated on these soils in effort to avoid building on duplex soils which dominate the study area. The spatial extent of these soils is limited to allow for any commercial cultivation. Also, the inherent soil properties such as shallow depth, stoniness and site conditions such as steep slopes may potentially limit the choice of crop and may require intensive management for commercial production. However, the integrated mitigation measures must be implemented accordingly, with the aim of minimizing the potential loss of these valuable soils.		

Table 13: Summary discussion of the Arable (Class IV) land capability class for the Glen, Swartland and Darnall soil forms

LAND CAPABILITY: ARABLE - CLASS IV			
Occurrence of Glen, Swartland and Darnall soil forms within the study area. 			
Terrain Morphological Unit (TMU)	Depressional areas, flat and lower lying landscape	**Photograph notes**	View of the Vertic, pedocutanic and lithic horizons associated with the Swartland, Glen and Darnall soil forms occurring within the soil profile of the identified soil forms.
Soil Form(s)	Glen, Swartland and Darnall		

Diagnostic Horizon Sequence	Vertic A or Orthic A/Pedocutanic/ Lithic	**Land Capability** The identified soil forms are of moderate (Class IV) land capability, and suitable for arable agricultural land use with restrictions. Therefore, these soils are considered to make a moderate contribution to agricultural productivity on a regional and national scale.
Physical Limitations	Shallow effective rooting depth and the shrink and swell properties of the topsoil which damages the root system of crops.	
Business case and Conclusion: The identified soils are generally not considered significant in terms of agricultural productivity. These soils are known for their shrinking and expansion characteristics upon wetting and drying thus necessitating intense management practices to be applied, which are usually costly and not economical based on the expected yields from these soils. This is exacerbated by the climate of the area. These soils are thus typically suited for subsistence agriculture for both cropping and grazing.		

Table 14: Summary discussion of the watercourse (Class V) land capability class for the alluvial soils

LAND CAPABILITY: WATERCOURSE - CLASS V			
View of the Dundee soils form (watercourses) identified. 			
Terrain Morphological Unit (TMU)	Valley bottoms and gently landscapes of < 0.5% slope gradient	**Photograph notes**	View of the identified Alluvial soils with stratifications in some instances, associated with the watercourses.
Soil Form(s)	Alluvial (Dundee)		

Diagnostic Horizon Sequence	Orthic/ Alluvial	**Land Capability** These soils were classified as class V land capability due to land use limitations related to their occurrence within a water course. These soils are not considered to contribute significantly to local, provincial and/or national agricultural productivity.
Physical Limitations	These soils are not ideal for cultivation due to their occurrence within watercourses. Furthermore, the lack of soil structure and nutrients disqualifies these soils from commercial agriculture.	
Business case, Conclusion and Mitigation Requirements: Although not considered to be of significant agricultural productivity, these soils are considered of significant value as part of the freshwater habitats, and as such the recommendations and management measures of the freshwater resource assessment report conducted as part of the EIA and WULA process take precedence.		

Table 15: Summary discussion of the Wilderness (Class VIII) land capability class for the rocky outcrops and anthropogenically disturbed soils

LAND CAPABILITY: WILDERNESS - CLASS VIII			
Occurrence of Mispah/Glenrosa/Mayo associated with rocky outcrops and anthropogenically disturbed soils within the study area. 			
Terrain Morphological Unit (TMU)	Very Steep landscapes	**Photograph notes**	

<table>
<tr><td>Soil Form(s)</td><td>Mispah/Glenrosa/Mayo and Witbank</td><td></td><td>View of the morphology of the identified Mispah/Glenrosa/Mayo soil forms associated with the rocky outcrops and the anthropogenically disturbed soils of the Witbank formation.</td></tr>
<tr><td>Diagnostic Horizon Sequence</td><td>0-35 cm: Orthic A/ Melanic A
≥ 35 cm: Hard rock/Lithic</td><td colspan="2" rowspan="2">Land Capability
The identified Mispah/Glenrosa soil forms are of poor (Class VIII) land capability and are not suitable for arable agricultural land use. Theses soils are, at best, suitable for natural pastures for light grazing. Therefore, these soils are not considered to make a substantial contribution to extensive subsistence farming on a local scale. These identified Witbank soils also have very poor (class VIII) land capability attributed to human impacts.</td></tr>
<tr><td>Physical Limitations</td><td>Shallow effective rooting depth is the primary limitation of the land capability of the Mispah/Glenrosa/Mayo soil forms, which is due to the occurrence of a rocky layer at relatively shallow depth, which hinders penetration of plant roots. Physically disturbed soils which may require rehabilitation before cultivation.</td></tr>
<tr><td colspan="4">Business case and Conclusion:
The identified soil forms are, at best, suited for grazing and/or wilderness practices. These soils are generally not considered of significant agricultural productivity. These soils, at best are suited for grazing. The proposed developments can be viable on these soils due to their low agricultural potential although their importance in terms of biodiversity support must be considered. Mitigation measures should this put in place to minimise further disruption of other adjacent soils which can potentially be used for grazing. The current state of these of the Witbank soils may requires significant rehabilitation already, as they consist of general waste material from the nearby communities.</td></tr>
</table>

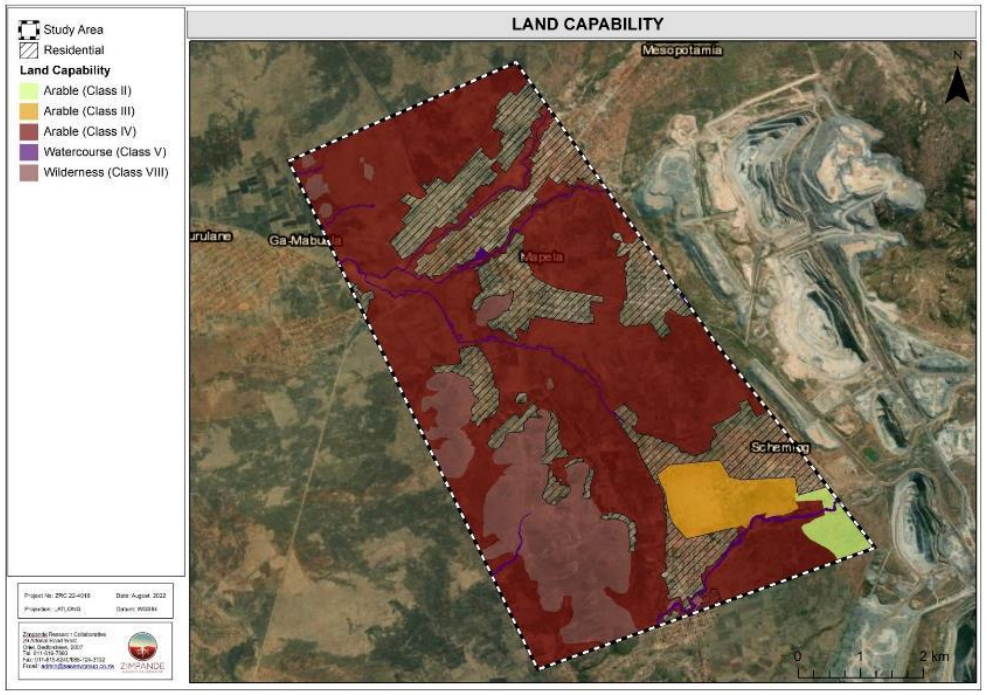


Figure 15: Verified land capability of the soil forms associated with the study area

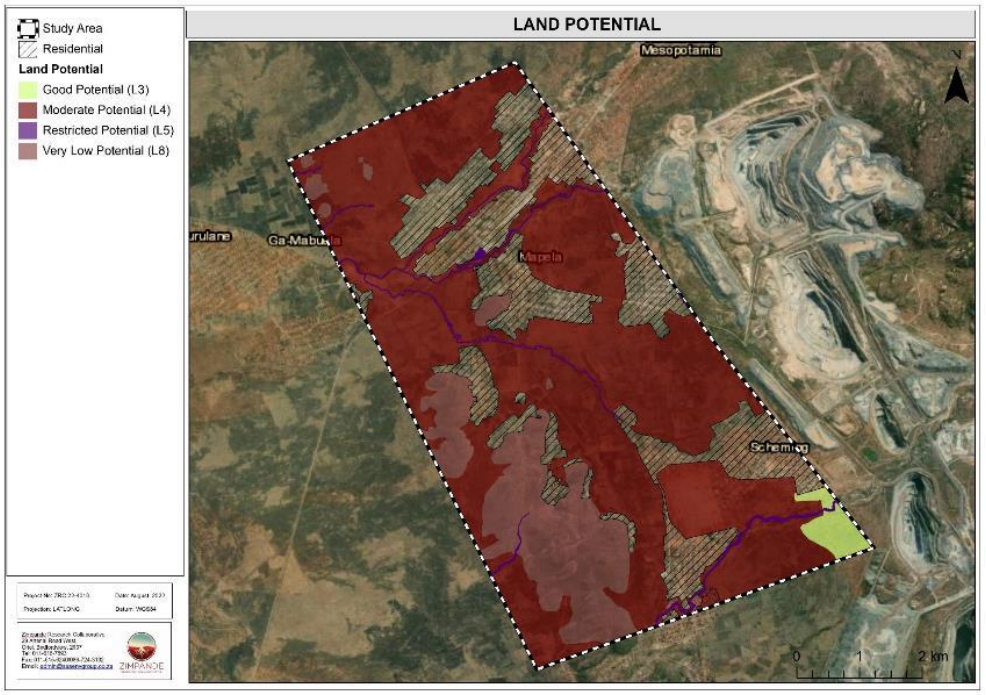


Figure 16: Verified land potential of the soil forms associated with the study area

c. VERIFICATION STATEMENT

The screening tool analysis indicated the study area to be of very high to high agricultural sensitivity, however the field verified data indicates that the study area is of moderate to low agricultural sensitivity. This can be attributed to the inherent duplex soil properties which dominates the study area, which includes soils of Swartland, Darnall and Glen formation.

d. IMPACT STATEMENT

The verified soils observed on site, present a challenge in a sense of root impediment presented by the high in clay top soil and subsoil horizons. Under the right circumstances these soils can be very productive for annual crops but they require intensive management and may not be economically viable to cultivate on a large scale. The soils which are most suitable for cultivation such as the Clovelly and Nkonkoni formation have been utilised for residential developments so as to avoid building on soils of duplex character and thus limiting the spatial extent of these soils. Therefore, the overall impact is anticipated to be low and within acceptable levels from a soil and land capability point of view.

e. REASONED OPINION FOR ISSUING THE EA

Overall, the duplex nature (hard to cultivate) of the dominant soils and the erratic rainfall associated with the study area coupled with high input costs further diminishes economically viable crop production. However, some of the areas used for grazing and subsistence cultivation will potentially be impacted, which will ultimately impact on the local and regional livestock production. Although agricultural studies under the CARA Act 1983 prioritise crop cultivated agriculture, it is imperative that land with grazing capability is also conserved where feasible. It should be noted that this soil assessment was done at a high level due the low quantum of risk presented by the proposed development and therefore should not be used for any other purpose then it is intended for. Should the quantum of risk of the project change for any reason, then a detailed soil investigation, delineation and classification may have to be undertaken in fulfilment of the applicable legislation.

III. ARCHAEOLOGICAL, CULTURAL AND PALAEONTOLOGY

Beyond Heritage was appointed by Environmental Management Assistance (Pty) Ltd on behalf of BCR Projects (Pty) Ltd to conduct a baseline Archaeological, Cultural and Palaeontological assessment and to conduct the required desktop and site verification.

The following sections summarises the outcome.

The detailed report is attached as ***Appendix F.2 – Archaeological, Cultural, and Palaeontology***.

a. SUMMARY OF DESKTOP ASSESSMENT

Heritage Resources

The archaeological record for the greater study area consists of the Stone Age and Iron Age.

South Africa has a long and complex Stone Age sequence of more than 2 million years. The broad sequence includes the Later Stone Age, the Middle Stone Age and the Earlier Stone Age. Each of these phases contains sub-phases or industrial complexes, and within these we can expect regional variation regarding characteristics and time ranges. For Cultural Resources Management (CRM) purposes it is often only expected/ possible to identify the presence of the three main phases.

Yet sometimes the recognition of cultural groups, affinities or trends in technology and/or subsistence practices, as represented by the sub-phases or industrial complexes, is achievable. The three main phases can be divided as follows:

- Later Stone Age (LSA): associated with Khoi and San societies and their immediate predecessors. Recently to ~30 thousand years ago
- Middle Stone Age (MSA): associated with Homo sapiens and archaic modern humans. 30-300 thousand years ago.
- Earlier Stone Age (ESA): associated with early Homo groups such as Homo habilis and Homo erectus. 400 000-> 2 million years ago.

Evidence suggests that the region surrounding the project area has been inhabited during all periods of the Stone Age, including the Early Stone Age (ESA), Middle Stone Age (MSA) and Later Stone Age (LSA). This is most evident and extensively documented at the Cave of Hearths in the Makapans Valley some 57 km to the south east (McNabb & Binyon, 2004; Phillipson, 2005). Fourie (2002) reported on a possible ESA core found on the surface to the west of the study area.

Makapans Valley was declared a World Heritage Site in 2005. The UNESCO website states the following: “Fossils found in the many archaeological caves of the Makapan Valley have enabled the identification of several specimens of early hominids, more particularly of Paranthropus, dating back between 4.5 million and 2.5 million years, and evidence of the domestication of fire 1.8 million to 1 million years ago.” (UNESCO, 2013).

The proposed project is not expected to have a visual impact on the Makapans Valley and is located adjacent to existing mining activities in the area and is not expected to have an impact on the World Heritage Site.

Some known sites in the Waterberg are a small rock shelter with MSA and LSA components, North Brabant, (Schoonraad and Beaumont 1968, Van der Ryst 1998). MSA material was also recorded from a rock shelter at Schurfpoort 112 KR and Goergap 113 KR on the Waterberg plateau (van der Ryst 1998). Olieboomspoort rock shelter is an MSA site of considerable significance (Mason 1962) that underlies a long LSA sequence (van der Ryst 2006).

Relatively few MSA sites have been studied on the Waterberg plateau and none is dated (Wadley et al 2016). In contrast, several late LSA sites have been excavated (van der Ryst 1998). The hiatus between MSA and LSA occupations on the plateau requires further research; LSA settlements are not present before the late eleventh/early twelfth century AD when Iron Age agro pastoralists also entered the region (van der Ryst 1998; Wadley 2016).

San rock art has a well-earned reputation for aesthetic appeal and symbolic complexity (Lewis-Williams, 1981). In addition to art, LSA sites contain diagnostic artefacts, including microlithic scrapers and segments made from very fine-grained rock (Wadley, 1987). Spear hunting probably continued, but LSA people also hunted small game with bows and poisoned arrows. Important LSA deposits have been excavated in Olieboompoort Cave (Mason, 1962) and other sites in the Waterberg to the West (Van der Ryst, 1998).

According to Bergh (1999) some rock paintings, are known 20 to 30 km north east of Mokopane and the Archaeological database at Wits also have paintings on record to the east of the study area on the Planknek Mountain range.

According to the most recent archaeological cultural distribution sequences by Huffman (2007), the study area falls within the distribution area of various cultural groupings originating out of both the Urewe Tradition (eastern stream of migration) and the Kalundu Tradition (western stream of migration).

The ceramic facies that may be present are:

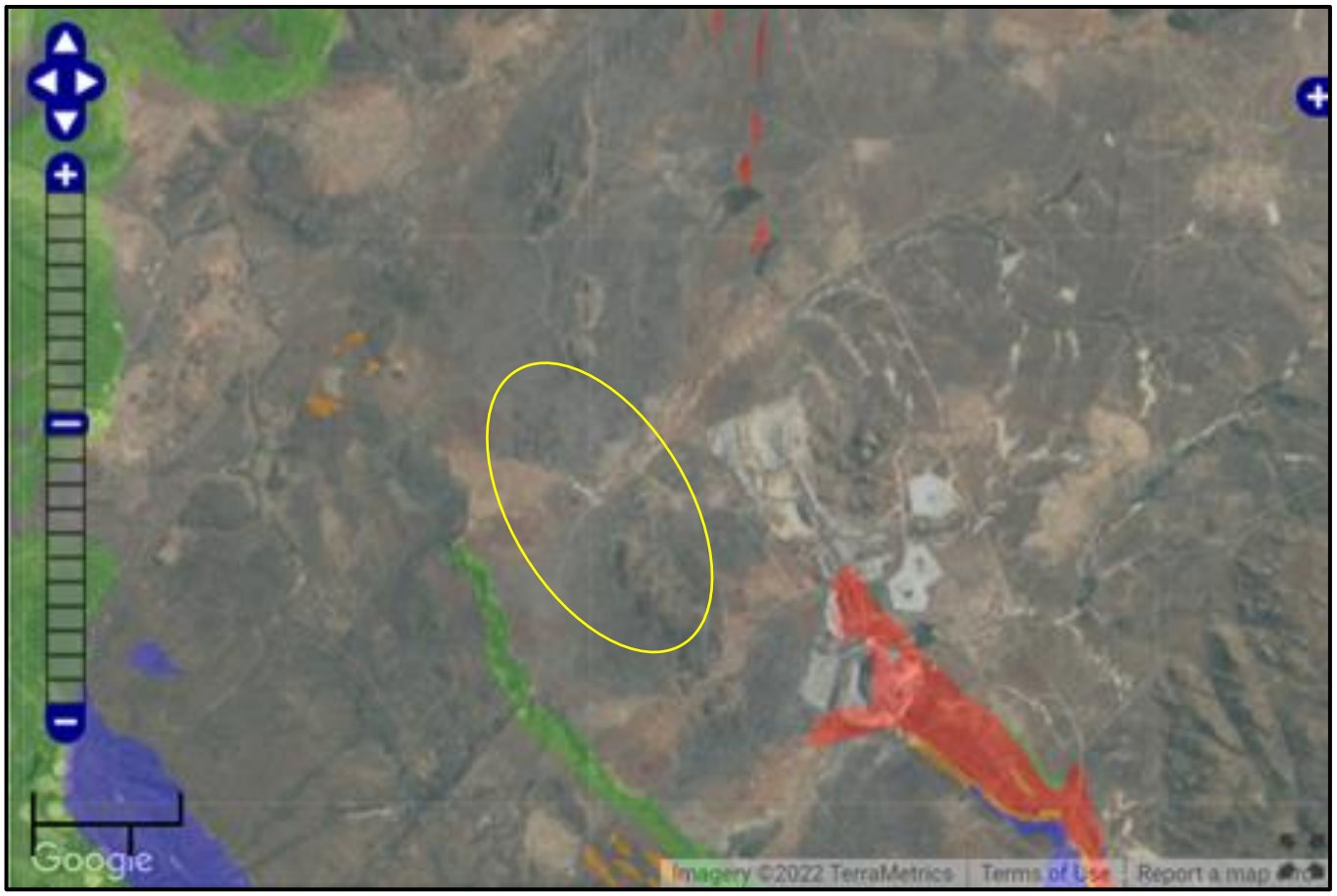
- Urewe Tradition:Kwale branch
  - Mzonjani facies AD 450 – 750 (Early Iron Age); and
  - Moloko branch- Icon facies AD 1300 - 1500 (Late Iron Age)
- Kalundu Tradition:
  - Happy Rest sub-branch - Doornkop facies AD 750 - 1000 (Early Iron Age);
  - Eiland facies AD 1000 – 1300 (Middle Iron Age);
  - Klingbeil facies AD 1000 - 1200 (Middle Iron Age);
  - Letaba facies AD 1600 - 1840 (Late Iron Age); and
  - Uitkoms Facies AD 1650 – 1820 (Late Iron Age)

Cultural Landscape

The greater study area is part of an interesting cultural landscape rich in heritage resources dating back to the Stone Age, Iron Age and historical period. This study area has been part of rural township areas that has been developed to some extent and is characterised by township development, road development, previous water infrastructure developments and extensive cultivation.

Paleontological Heritage

The Screening Report (*Error! Reference source not found.*) indicated the study area to be of medium sensitivity, the study area i s indicated to be of insignificant palaeontological sensitivity (see next section) on the SAHRIS paleontological map and no further studies are required for this aspect.



Colour	Sensitivity	Required Action
RED	VERY HIGH	Field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	Desktop study is required and based on the outcome of the desktop study; a field assessment is likely
GREEN	MODERATE	Desktop study is required
BLUE	LOW	No palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	No palaeontological studies are required
WHITE/CLEAR	UNKNOWN	These areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

Figure 17: Palaeontological sensitivity map of the approximate study area (yellow polygon).

b. *VERIFICATION OUTCOME*

Probability of occurrence of sites

Based on the above information, it is possible to determined the probability of finding archaeological and cultural heritage sites within the study area to a certain degree. For the purposes of this section of the report the following terms are used – low, medium and high probability. ***"Low"*** indicates that no known occurrences of sites have been found previously in the general study area. ***"Medium"*** probability indicates some known occurrences in the general study area are documented and can therefore be

expected in the study area. A ***"high"*** probability indicates that occurrences have been documented close to or in the study area and that the environment of the study area has a high degree of probability having sites.

Table 16 summarises the sensitivity probability following the verification.

Table 16: Sensitivity probability

SENSITIVITY	PROBABILITY
PALAEONTOLOGICAL LANDSCAPE	
Fossil remains	***Low*** Probability
ARCHAEOLOGICAL AND CULTURAL HERITAGE LANDSCAPE	
Early Stone Age (ESA)	***Low*** Probability
Middle Stone Age (MSA)	***High*** Probability
Late Stone Age (LSA)	***Medium*** Probability
LSA –Herder	***Low*** Probability
Early Iron Age (EIA)	***Low*** Probability
Middle Iron Age (MIA)	***Low*** Probability
Late Iron Age (LIA)	***High*** Probability
Historical period	***Medium*** Probability
Historical dumps	***Low*** to ***Medium*** Probability
Structural remains	***Medium*** to ***High*** Probability
Cultural Landscape	***Medium*** Probability
For example, rainmaking sites	***Medium*** Probability
Burials over 100 years	***High*** Probability
Burials younger than 60 years	***High*** Probability

Heritage resources

Large sections of the study area used to be cultivated in the past and currently used for grazing and township development. The study area has been largely disturbed and the Department Forestry Fisheries and the Environment (DFFE) screening tool indicated the study area as of low heritage sensitivity with isolated areas of high heritage sensitivity on the periphery of the impact area (*Error! Reference source not found.*). However, the verified sensitivity shows sites of significance (mostly cemeteries) and a reas with high heritage potential and is illustrated in ***Figure 18***. The sites on record for the proposed study area are mostly derived from Pistorius (2021) and Van der Walt (2019). The site of Fothane Hill (Moordkoppie) is located in the study area. Chief Mapela moved his village to this hill from where he ruled until he passed away in 1825. This is also the location of a skirmish between the Langa Ndebele and the Voortrekkers in 1854. Hills and mountains are also of high heritage potential especially the Molotswi mountain range in the southwest of the study area. The importance of this area was confirmed by local informants who indicated initiation sites (intangible heritage) to the Ecology specialist. Heritage sites and areas of heritage potential are spatially illustrated in *Figure 18* and outlined in ***Table 17***. A selection of heritage resources is illustrated in ***Figure 19*** to ***Figure 22***.

Table 17: Known sites in the study area

LABEL	LONGITUDE	LATITUDE	SOURCE	HERITAGE SIGNIFICANCE

G01	28° 53' 34.5001" E	23° 59' 39.5001" S	Pistorius 2021	High Social Significance GP A
G02	28° 53' 34.3000" E	23° 59' 39.0001" S	Pistorius 2021	High Social Significance GP A
G03	28° 53' 34.3999" E	23° 59' 38.1999" S	Pistorius 2021	High Social Significance GP A
G04	28° 53' 30.5001" E	23° 59' 37.1000" S	Pistorius 2021	High Social Significance GP A
G05 and G06	28° 53' 26.1601" E	24° 00' 01.2000" S	Pistorius 2021	High Social Significance GP A
G06	28° 53' 29.8800" E	23° 59' 10.9800" S	Pistorius 2021	High Social Significance GP A
G07 TO G10	28° 53' 26.2201" E	24° 00' 01.5000" S	Pistorius 2021	High Social Significance GP A
G09	28° 53' 26.1601" E	24° 00' 01.4399" S	Pistorius 2021	High Social Significance GP A
G10	28° 53' 26.0400" E	24° 00' 01.4399" S	Pistorius 2021	High Social Significance GP A
GO8	28° 53' 26.1000" E	24° 00' 01.5600" S	Pistorius 2021	High Social Significance GP A
Grave 01	28° 53' 38.9400" E	23° 59' 57.1201" S	Pistorius 2021	High Social Significance GP A
Grave 02	28° 53' 38.8800" E	23° 59' 57.1201" S	Pistorius 2021	High Social Significance GP A
Grave 04	28° 53' 39.0001" E	23° 59' 57.5999" S	Pistorius 2021	High Social Significance GP A
Grave 11	28° 53' 23.6399" E	24° 00' 01.3799" S	Pistorius 2021	High Social Significance GP A
Grave 12	28° 53' 23.4600" E	24° 00' 01.3799" S	Pistorius 2021	High Social Significance GP A
Grave 13	28° 53' 23.4600" E	24° 00' 01.5000" S	Pistorius 2021	High Social Significance GP A
Grave 14	28° 53' 23.6999" E	24° 00' 01.4399" S	Pistorius 2021	High Social Significance GP A
Grave 3	28° 53' 39.0001" E	23° 59' 57.8401" S	Pistorius 2021	High Social Significance GP A
Cemetery 1	28° 51' 17.1632" E	24° 00' 11.3870" S	Current Assessment	High Social Significance GP A
Cemetery 2	28° 52' 58.4300" E	23° 59' 33.0591" S	Current Assessment	High Social Significance

				GP A
Cemetery 3	28° 53' 27.9176" E	23° 59' 11.4105" S	Current Assessment	High Social Significance GP A
Cemetery 4	28° 49' 24.7160" E	23° 57' 03.9488" S	Current Assessment	High Social Significance GP A
Cemetery 5	28° 49' 32.4148" E	23° 57' 21.0932" S	Current Assessment	High Social Significance GP A
Moordkoppie	28° 50' 38.3470" E	23° 57' 41.3773" S	Current Assessment	Local Significance (LS)
Intangible Heritage sites	28° 50' 59.1324" E	23° 59' 51.7632" S	Shown by local informants to the Ecology specialist	Generally Protected A

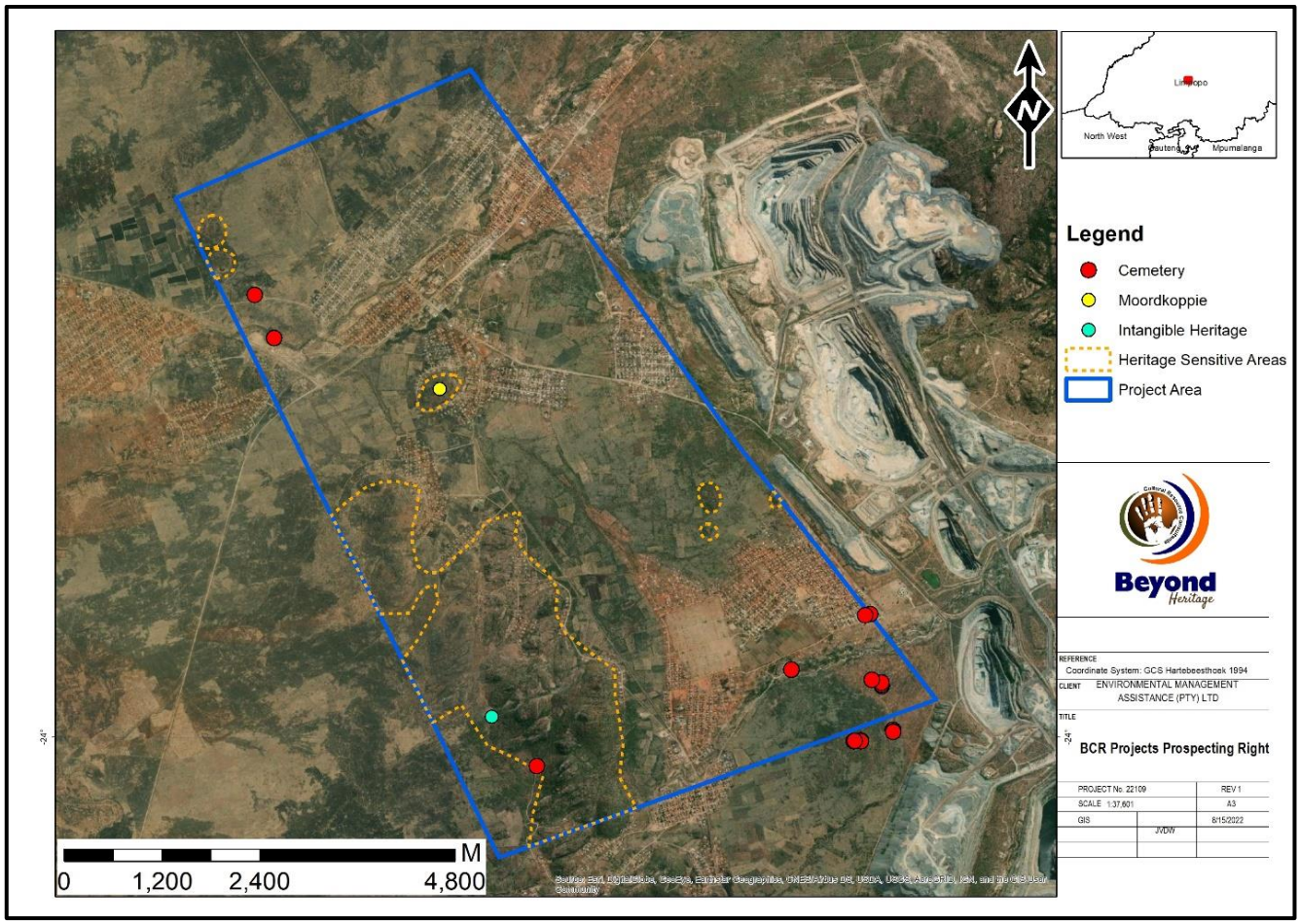


Figure 18: Known heritage sites and heritage sensitive areas in relation to the proposed non-invasive prospect right area

Figure 19: Typical example of MSA artefacts found in the study area.

Figure 20: Intangible site marked by upright stones indicating an initiation site.

Figure 21: Formal graves in the study area.

Figure 22: Stone packed grave in the study area.

c. VERIFICATION STATEMENT

Table 18 provides the verification statement summary associated with Archaeological, Cultural and Paleontology baseline assessment.

Table 18: Verification statement summary

ASPECT	SCREENING TOOL SENSITIVITY	VERIFIED SENSITIVITY	OUTCOME STATEMENT/PLAN OF STUDY
Palaeontology	*Medium*	*Low*	No further studies are required.
Cultural Heritage	*Low* to *high*	*Medium* to *high*	Prior to invasive activities the impact areas should be subjected to the heritage walkdown.

To comply with the National Heritage Resources Act (Act 25 of 1999) it is recommended that should invasive activities be required in future, impact areas should be subjected to a heritage walkdown prior to development as a condition of authorisation.

d. IMPACT STATEMENT

Based on the current information obtained for the area at a desktop level it is anticipated that any heritage resources that occur within the proposed development area will have a Local Significance (LS), Grade 3B or lower field rating and all sites should be mitigatable. Graves are of high social significance (Field rating GP A) and can be expected anywhere on the landscape.

Table 19 provides a summary of the expected impacts related to the non-invasive prospecting activites.

Table 19: Expected impact on heritage resource

Impact on Heritage resources No impact is expected on heritage resources as prospecting will be non-invasive and consist of data search, field mapping and desktop studies, logging and sampling historical core; and scoping and (pre) feasibility studies.			
ISSUE	**NATURE OF IMPACT**	**EXTENT OF IMPACT**	**NO-GO AREAS**
No direct or indirect impacts are expected on heritage resources through non intrusive prospecting.	Not Applicable	No impact expected	Where graves occur
Description of expected significance of impact Not applicable			
Gaps in knowledge & recommendations for further study It is recommended that if invasive activities are required the impact areas should be subjected to a heritage walkdown down to comply with Section 38 (8) of the National Heritage Resources Act.			

e. REASONED OPINION FOR ISSUING THE EA

Based on the current information obtained for the area at a desktop level no red flags were identified, and non-invasive prospecting will not negatively affect the cultural resources of the area.

IV. TERRESTRIAL BIODIVERSITY

Dimela ECO Consulting and Dr Barbara Kasl was appointed by Environmental Management Assistance (Pty) Ltd on behalf of BCR Projects (Pty) Ltd to conduct a baseline Terrestrial Biodiversity assessment and to conduct the required desktop and site verification.

The following sections summarises the outcome.

The detailed report is attached as ***Appendix F.3 - Terrestrial Assessment***.

a. SUMMARY OF DESKTOP ASSESSMENT

Vegetation and Plant Specie

Error! Reference source not found. provides a summary of baseline information that guided the vegetation and plant species d esktop verification process.

Table 20: Summary of baseline information informing the desktop and site verification

PROTECTED AREAS:	The Rossouw Snyman Private Nature Reserve is about 20km south of the site.
STRATEGIC WATER SOURCE AREAS (SWSA)	The project is not located within a Strategic Water Source Area. According to Le Maitre *et al*. (2018), the project is located about 14km to the northeast of the closet SWSA, Nyl and Dorps River Valley Groundwater Strategic Water Source Area.
LIMPOPO BIODIVERSITY ASSESSMENT AND CONSERVATION PLAN: ***Figure 23***	The site stretches over Other Natural Areas, and areas listed as having No Natural Habitat. A small Ecological Support Area 2 is present on the north-western boundary of the site. Other Natural Areas (ONAs) are open spaces between township areas where grazing and cultivation likely takes place. ONAs are not required to meet conservation targets and are not identified or functional as CBAs or ESAs. No management objectives, land management recommendations or land-use guidelines are prescribed in such areas These areas are nevertheless subject to all applicable town and regional planning guidelines and policy. No Natural Habitat comprises developed and cultivated areas. These areas should be favoured for development before "Other natural areas" Ecological Support Areas (ESA) play an important role in supporting the ecological functioning of a protected area or Critical Biodiversity Area, in delivering ecosystem services. In most cases ESA2 sites are those with degradation (as is within the prospecting area), whereas ESA1 are near-natural to natural. No Critical Biodiversity Area (CBA) are present within the prospecting rights area.
VEGETATION (MUCINA AND RUTHERFORD, 2006): ***Figure 24***	The study site is situated within the Savanna Biome of South Africa and in specific, the Mukhado Sweet Bushveld. This bushveld comprises short shrubby bushveld, dominated by *Vachellia* and *Senegalia* trees, with a poorly developed grass layer. This vegetation type is poorly protected and classified as Vulnerable to extinction.
THREATENED ECOSYSTEM:	According to the 2011 Listed Ecosystems, the site is not situated within a Listed Ecosystems published in terms of the Biodiversity Act in 2011. Also, the recent National Biodiversity Assessment (NBA) 2018 which represents an update of the assessment of threat status for terrestrial ecosystems, classified the Mukhado Sweet Bushveld ecosystems as Least Concern, albeit poorly protected (Skowno, *et al,* 2019).
ECOLOGICAL PROCESSES AND DRIVERS IN THE BUSHVELD:	Summer rainfall coupled with winter fire and regular grazing ensures that the grass layer remains dominant in the bushveld. In addition, the lack of sufficient rainfall prevents the upper layer (trees) from dominating. However, where disturbances and development are present, the tree layer could become increasingly dominant. Also, increased moisture, and soil disturbances will result in a densification of the tree layer, particularly in the presence of grazing, in the absence of fire and around frequently used areas.

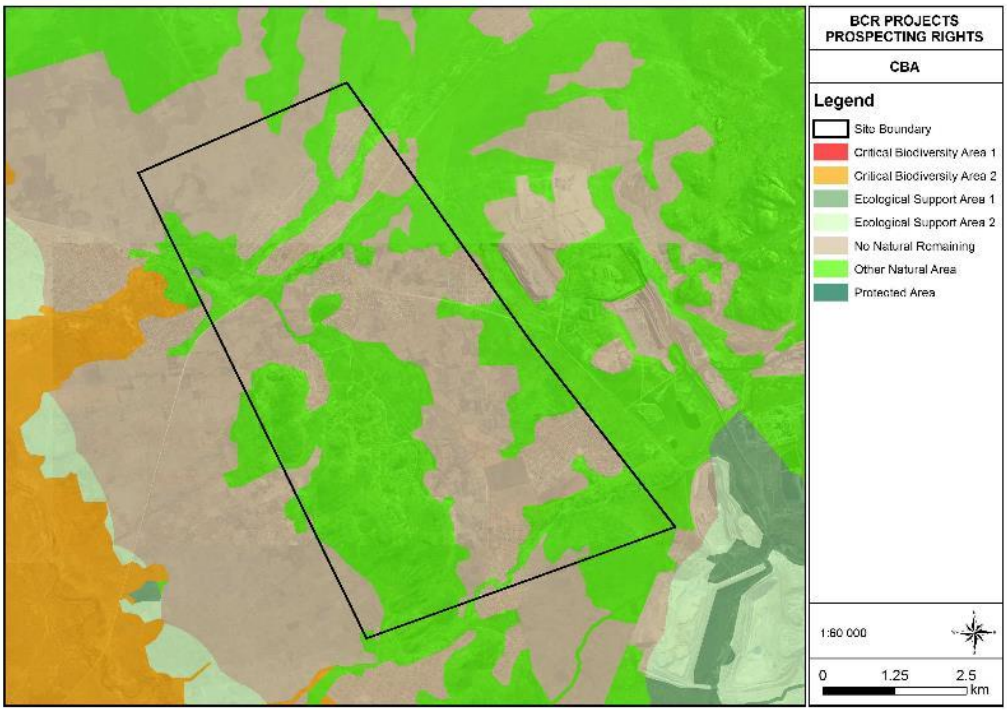


Figure 23: Limpopo Biodiversity Assessment Conservation Plan

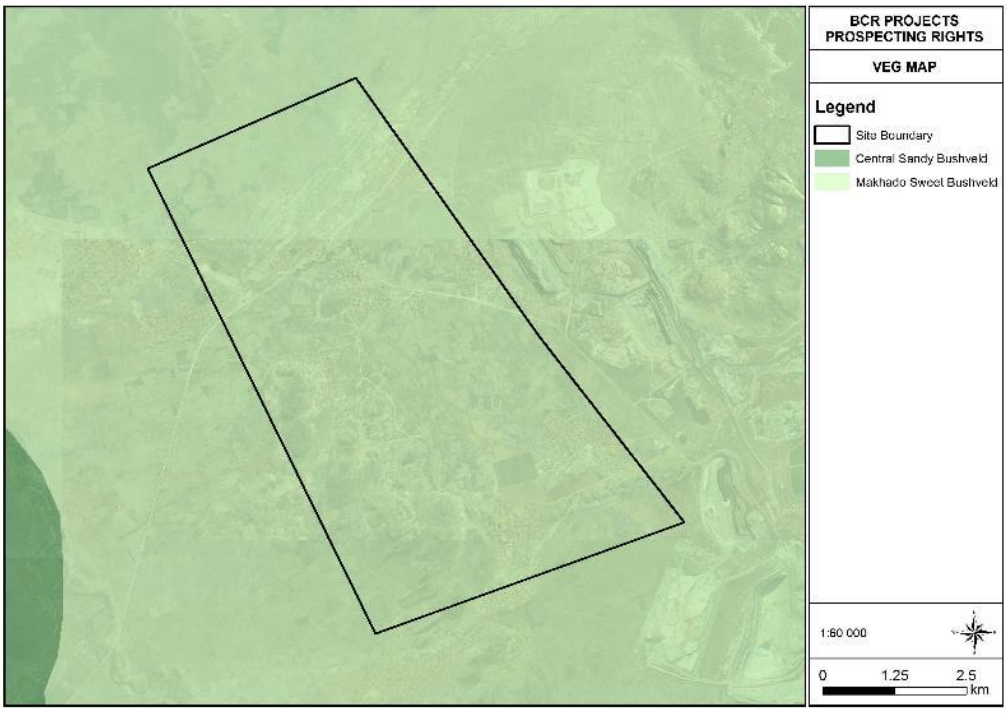


Figure 24: The proposed non-invasive prospecting right in relation to the national vegetation map

Historical aerial imagery dated 1963, shows that the prospecting area comprised rocky areas with lower lying valleys, which were largely cultivated (***Figure 25***). By the year 1983, residential development around the koppies and drainage lines increased.

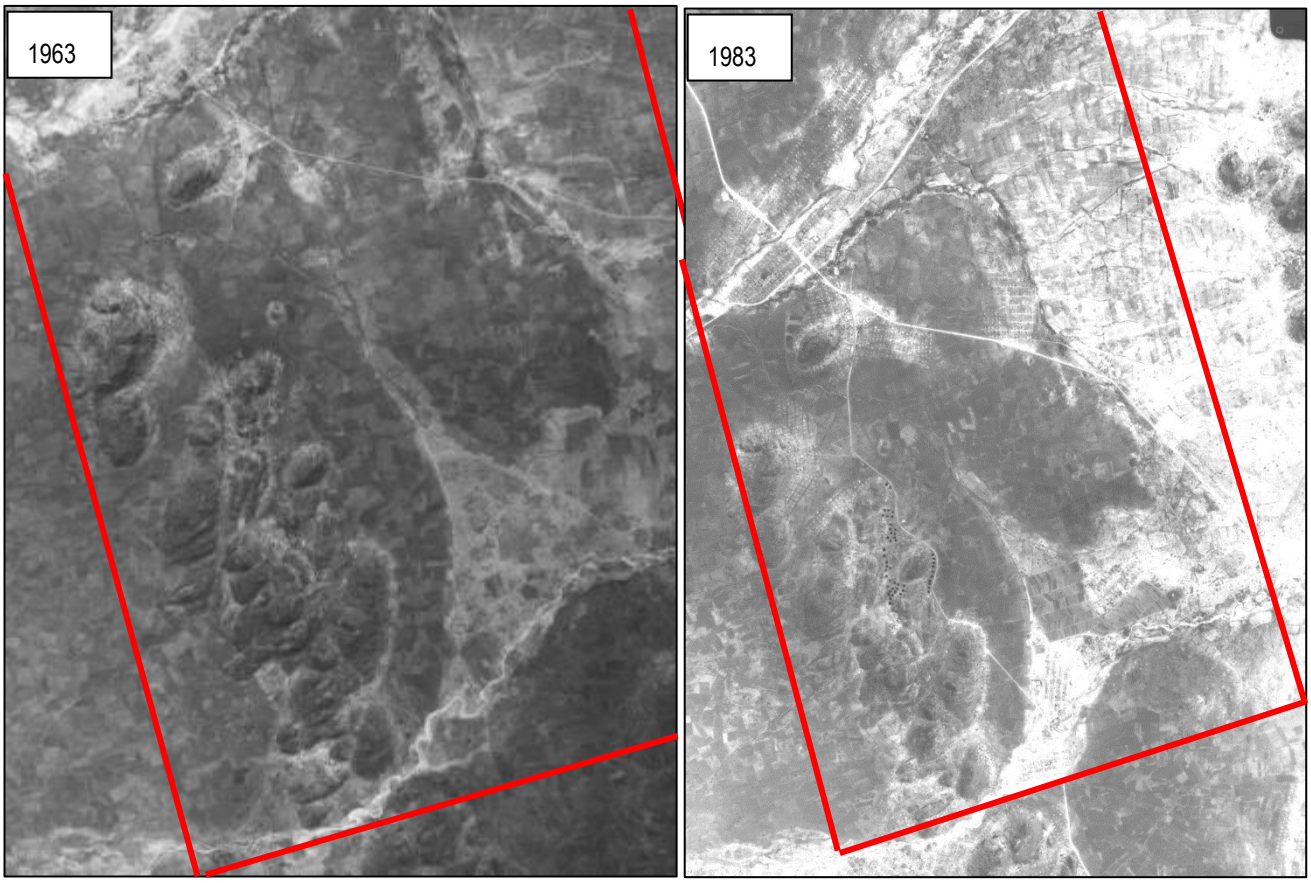


Figure 25: Historical aerial image of the site in the year 1963 (left) and 1983 (right) (Chief Directorate National Geospatial Information Geospatial Portal). The site area is estimated in red

Subsequent Google Earth Satellite imagery shows the commencement of mining to the east of the site and the increase in the residential footprint (***Figure 26***). Natural vegetation seems restricted to the rocky areas while drainage lines were largely built-up and disturbed. The valleys were cultivated or utilised for grazing.

Figure 26: Google Earth Satellite imagery of the prospecting rights area in the year 2021.

Animal Specie

Table 21 summarises desktop ecological features.

Table 21: Summary of desktop ecological features

ECOLOGICAL FEATURE / AREA	DESCRIPTION OF FEATURE RELEVANT TO THE SITE
International Conservation	No World Heritage Sites or RAMSAR Wetlands occur within 50km of site. The Nylsvley RAMSAR Wetlands are the nearest; almost 60km south of site in the upper catchment.
Important Bird Areas (IBAs) (Plan 2) (Marnewick *et al*., 2015)	The Waterberg IBA lies 8km south-west of site. Main threats to the IBA include uncontrolled fires, poisoning of vultures, and collisions of vultures with radio and television towers and power lines.
Protected Areas (PA) and National Protected Areas Expansion Strategy (NPAES) (Plan 2)	The formally protected Witvinger Nature Reserve is 8.5km east of site, but disconnected from site in terms of direct ecological connectivity (prospectings and villages occur between the two areas) and in terms of surface water flow (in the same quaternary catchment but opposite side of the Groot Sandsloot River which flows between the two areas). No other formally or informally protected areas occur within 10km of site. NPAES are scattered around site, but only one is within 10km of site; NPAES targeting the protection of Limpopo Central Bushveld occur approximately 8.5km south of site (up-slope in the foothills of Waterberg and across the Mogalakwena River).
National Freshwater Ecology Priority Areas (NFEPA) (Plan 3)	The site is within an Upstream NFEPA Catchment. The bulk of the site drains into the non-perennial tributary within the north of the prospecting area. This tributary flows west to confluence with the largely modified (PES C) Mogalakwena River, approximately 3.5km west of site. The south western area is separated from the rest of the prospecting area by a series of koppies, and drains west via non-perennial tributaries into the Mogalakwena River, approximately 3km west of site. Two NFEPA wetlands within the entire prospecting area and all nearby NFEPA wetlands are all Rank 6 wetlands; no Rank 1 or 2 wetlands (important habitat for TOP water birds, cranes and / or frogs) occur on or near site.
Biome and Ecosystem	The area falls within the Savanna Biome and the Makhado Sweet Bushveld vegetation type, which is not a TOP ecosystem (NEM:BA, GN1002, 2011). Much of the area is under township development and was cleared historically for crop agriculture with bushveld habitat largely limited to the koppies along the south-west, an isolated section in the south-eastern part of the prospecting area, along sections of tributaries and where it has reclaimed old agricultural lands (most are utilised for grazing and overgrazing has kept areas largely clear of bushveld).
Strategic Water Source Areas (SWSA)	The Nyl and Dorps River Valley strategic groundwater resource is the nearest (12km south of site) but lies in the upstream catchment. No other SWSAs occur within the catchment area of the site or within 10km of the downstream catchment.
Limpopo Conservation Plan (Plan 4)	Other than a small Ecological Support Area 2 (ESA2) corresponding to the northern Rank 6 NFEPA Wetland, the area is designated almost equally as 'No Natural Habitat Remaining' or 'Other Natural Areas' (parts of the latter has also succumb to town development and would form part of

ECOLOGICAL FEATURE / AREA	DESCRIPTION OF FEATURE RELEVANT TO THE SITE
	the former). No other ESAs or Critical Biodiversity Areas (CBAs) are associated with the prospecting area. A CBA2 is associated with the receiving water body, the Mogalakwena River, west of site.
Koppies and Ridges	The most significant representation of natural bushveld habitat occurs along the koppies, which form a small north-south terrestrial corridor in the area. The township areas have encroached on these and fragmented these, but connectivity is retained to the Mogalakwena River west of site by way of old agricultural areas cleared of bushveld.

a. *VERIFICATION OUTCOME*

Vegetation and Plant Specie

The prospecting rights area include rocky outcrops and hills, and lower lying flat valleys on clay soils. Some red soils were noted in the south-eastern quadrant of the site. the lower lying areas were used for grazing or were historically cultivated for subsistence farming. However, most plots are currently fallow and grazing of goats and cattle is the main land use on much of the site.

Due to the historical disturbances and increase in residential infrastructure, most vegetation within the prospecting area was modified from the reference state of Makhado Sweet Bushveld. Natural vegetation was recorded on the higher lying rocky outcrops within the western portion of the site, while some natural vegetation remains along drainage lines.

Based on the land use, historical disturbance and the results of the site verification, the broad vegetation groups on the site were classified as follows:

- Built-up and modified
- Degraded and secondary bushveld
- Semi-natural Makhado Sweet Bushveld
- Rocky bushveld vegetation
- Vegetation along drainage lines

The vegetation groups are discussed in ***Table 23***

The vegetation groups are shortly discussed below and geographically represented in *Error! Reference source not found.*.

From the desktop and site verification's perspective the identified broad vegetation groups within the PAQI is considered to be suitable habitat for eight (8) species of conservation concern and was observed during the site visit.

The plant *Harpagophytum procumbens* (devil's claw), a species identified as Threatened or Protected Species (TOPS), are present in the project area and are highly likely to be present on the site. This species is listed as a protected medicinal plant.

Several provincially protected plant species are likely present in the area, including *Spirostachys africana* (tamboti) and succulent species such as *Orbea, Duvhlaia* species, and *Brachystema.*

Table 22 lists the protected trees that were recorded within the prospecting areas.

Table 22: National protected trees recorded and likely to occur

Species name	Common name
Sclerocarya birrea subsp *caffra*	Morula
Combretum imberbe	Leadwood
Boscia albitrunca	Shepherds' tree
Adansonia digitata (Planted around historic homestead (Mr Langa, *perss comm*))	Baobab

Table 23: Summary of the broad vegetation groups within the PAQI

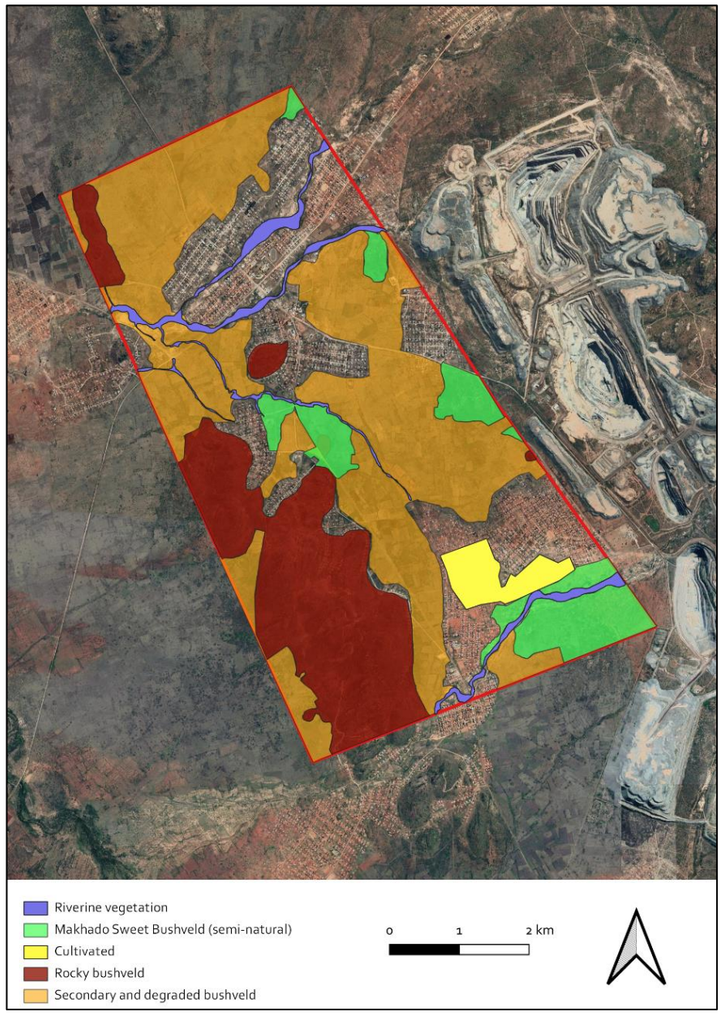


Figure 27: Vegetation groups based on desktop assessment and site verification (modified areas not indicated)

BUILT-UP AND MODIFIED

The prospecting area includes modified and built-up land where no natural habitat for vegetation remains. These areas include urban areas, historic quarries, and cultivated fields. Other than national protected tree species that may be present along roads, in yards or open fields, no plant species of conservation concern are expected to be present within this modified vegetation group.

DEGRADED AND SECONDARY BUSHVELD

Much of the clay soils were historically cultivated, while some areas were cleared for building or ceremonies (Langa, pers comm). These areas were found to be dominated by a few tree species. The degraded and secondary bushveld on turf soils were present thorough most of the lower lying areas.

Grass species colonising disturbed areas are readily grazed and the historically disturbed areas, and areas where degradation took place, were dominated by encroacher tree and shrub species such as Dichrostachys cinerea (sickle bush), Vachellia karoo (sweet thorn), Tarchonanthus camphoratus (camphor bush), and Dodonea angustifolia (sand olive). These species are not alien plants, but indigenous plants that tend to become abnormally abundant when the area is degraded. The plants themselves are thus not the problem, but their increased abundance or encroachment into open thornveld / bushveld serves as an indicator of poor land management practices.

No plant species of conservation concern are expected to be present in this group (Appendix B). However, protected tree species, and provincial protected species such as the succulents Oreba, Huernia and Duvhalia could be present.

Table 23 continued

ROCKY BUSHVELD	MAKHADO SWEET BUSHWELD
The higher lying western boundary of the site include rocky hills and outcrops (Photo plate 4). Several smaller outcrops are also embedded in the secondary bushveld vegetation. The vegetation differed markedly from the secondary and semi-natural bushveld vegetation in the lower lying portions of the site and a re more likely representative of the Waterberg Mountain Bushveld. The white stem of the tree *Albizia tanganyicensis* (paper-barked False-thorn) was most notable against the rocks, along with the protected *Sclerocarya birrea subcp caffra* (marula). Succulents include *Euphorbia ingens* and *Aloe marlothii.* These areas were minimally disturbed by footpaths and grazing, while deeper soils in-between the hills were used for small cemeteries. The rocky areas are expected to include the highest indigenous species diversity within the prospecting area and are also the most likely to support plant species of conservation concern (Appendix B). Hills and koppies are further characterized by high spatial heterogeneity due to the range of differing, slopes and altitudes all resulting in differing soil, light and hydrological conditions. Landscapes composed of spatially heterogeneous abiotic conditions provide a greater diversity of potential niches for plants and animals than do homogeneous landscapes. Ridges provide future refuge for biodiversity in an urbanized landscape as they function as islands even within a natural landscape due to their structural and environmental isolation from the landscape (Samways & Hatton, 2000). According to climate change modelling, level topography will be sensitive to future climate change and as such, in a landscape affected by climate change chances of species survival will be higher on ridges. 	Small portions of near-natural Makhado Sweet Bushveld are present in patches through the site. These are mainly confined to foot slopes of the rocky outcrops, and around cultivated and modified land and drainage lines. The vegetation is grazed and disturbances such as dumping were noted.  These areas were mapped on Google Earth and vegetation sampling may find the area to be secondary or in a better condition from what was perceived during the site verification. These areas were seemingly not cultivated or directly disturbed and may include plant species of conservation concern.

Table 23 continued

VEGETATION WITHIN DRAINAGE LINES
The drainage lines ranged form areas where standing water was noted to drier areas that support plant species with an affinity to moist or at least temporary saturated conditions. Most of the perennial and non-perennial streams were heavily impacted by grazing and dumping, and encroachment from buildings. The perennial Witrivier and Mohlosane River drain the site in a westerly direction and included permanent water. Parts of Witrivier included large stands of Cyperus species (likely C sexangularis), while other parts of the river were eroded and devoid of vegetation.  The Mohlosane River seems to be the least impacted on with a dense grassy layer and diversity of tree noted.  At least one plant species of conservation concern could be present along the drainage lines, only in areas that was not historically disturbed. Several protected tree species could be present, including the provincially protected Spirostachys africana (tamboti).

Animal Specie

Several previously recorded species are relevant to the proposed non-invasive prospecting area. To list a few, the following species may be expected:

- *Canis mesomelas* (Black-backed Jackal) represent the Animal Demographic Unit (ADU) *Canis* sp.;

- *Trachylepis damarana* (Damara Variable Skin) is assumed to be within the *T. varia* complex (Variable Skink complex), which is still under taxonomic review;
- Globally threatened species: Cape Vulture, Secretarybird, Martial Eagle, Blue Crane, Denham's Bustard and Southern Ground-Hornbill;
- Regionally threatened species: White-backed Night Heron, Lanner Falcon, White-bellied Korhaan, African Grass Owl, Tawny Eagle, African Finfoot and Half-collared Kingfisher; and
- Biome-restricted species: Kurrichane Thrush, White-bellied Sunbird, Barred Wren-Warbler, Burchell's Starling, White-throated Robin-Chat, Buff-streaked Chat, Kalahari Scrub Robin and Gurney's Sugarbird.

Table 3 lists Species of Conservation Concern (SCC), Threatened or Protected (TOP) and endemic species historically recorded in the area as obtained from various citizen science sites. iNaturalist was also consulted and species included where relevant. In addition, the TOP species identified as highly likely (distribution overlaps the site, habitat for the species is available on site and site provides other species requirements such as nesting sites, water, micro-habitats) to occur in the area are also included in Table 3.

The following is relevant regarding the species in Table 3:

Mammals:

- Mammal SCCs are not considered as likely species on site due to a combination of poor correlation to known distribution ranges and lack of historical records, coupled with extensive anthropogenic activity in the project area. There is also inadequate habitat for wetland species. The following species is data deficient and as per limitations a cautionary approach is taken with this species:
  - Maquassie Musk Shrew (*Crocidura maquassiensis*) (RL Vulnerable) (Taylor *et al*., 2016).

Main threats are loss or degradation of moist, productive areas such as wetlands and rank grasslands within suitable habitat due to abstraction of surface water and draining of wetlands through industrial and residential expansion and overgrazing of moist grasslands.

The project area is within the larger distribution range of the species but no recent records occur for the species in the area or within the Quarter Degree Grid Square (QDGS). No historical records occur for the species near the project area.

There is little conclusive information about the species, but the species is linked to moist habitats with dense matted vegetation, associated with wetlands. In terms of habitat, the species is not likely to occur on site. The species is retained as a possible species in the project area.

Only two of the previously recorded TOP carnivores are considered as likely species (Leopard and Brown Hyena), when considering their wide habitat tolerances. However, both species are likely to be chased from site as perceived danger to stock and the community and both are threatened due, in part, to direct human interaction. The following information is relevant:

- Leopard (*Panthera pardus*) (GN151 Vulnerable; RL Vulnerable; IUCN Vulnerable). Main threats include direct and indirect persecution, capture for cultural regalia and trophy hunting. Other significant and localised threats include the

injudicious use of radio-collars for research and recreational purpose; sub-adults exhibit rapid growth and collars can asphyxiate individuals collared to young. Species is also susceptible to road collisions (Swanepoel *et al*., 2016).

- Brown Hyaena (*Parahyaena brunnea*) (GN151 Protected). They are often shot, poisoned, trapped, snared and hunted with dogs in an attempt to reduce livestock predation events (Yarnell *et al*., 2016).

Three TOP species with distribution over the area and that cannot be excluded from the area due to available habitat on site or wide habitat tolerances have been identified for the area. The species are under direct threat from humans, reducing their likelihood to persist in the area and include:

- Honey Badger (*Mellivora capensis*) (GN151 Protected). Main threats to the species arises from conflict and persecution by bee farmers (Begg *et al*., 2016).
- Southern Mountain Reedbuck (*Redunca fulvorufula*) (RL Endangered; IUCN Endangered). Main threats include expansion of human settlements and associated increase in poaching, disturbance by cattle herders and their livestock, and increased predation levels from higher abundances of meso-predators (Taylor *et al*., 2016).
- Southern African Hedgehog (*Atelerix frontalis*) (GN151 Protected). Main threats include habitat loss, degradation and fragmentation from urban sprawl and agriculture. Also threatened by illegal harvesting from the wild for food, or for sale as pets and traditional medicine (Light *et al*., 2016).

The site is not part of an area of endemism for mammals.

Birds:

No avian SCCs were listed for the area.

One TOP bird, Verreaux's Eagle (*Aquila verreauxii*), was previously recorded in the area. The site is not considered to fully meet the birds roosting requirements, but the predominant prey, the Rock Hyrax, is confirmed based on latrine marks along rocky boulders in the koppies. Furthermore, the raptor is prone to persecution by stock farmers. The birds is retained as a possible species that may forage in the area.

One additional TOP species with distribution over the area and that cannot be excluded from site includes the:

- Lesser Kestrel (*Falco naumanni*) (GN151 Vulnerable). Mainly faces threats in Europe and Asia, but also threatened by control of insects through pesticides, felling of tall trees and collisions with vehicles (Taylor *et al*., 2015).

The limited on-site aquatic and wetland features limits the presence of congregatory water birds. Limited species may utilise the seasonal and ephemeral on-site rivers and dams intermittently during the rainy season.

Previously recorded and likely endemic birds (South African Cliff Swallow and Cape White-eye) are fairly common with large distribution ranges in South Africa and the site is not part of an area of endemism for birds.

Reptiles:

Nile Crocodile (*Crocodylus niloticus*) (GN151 Protected; RL Vulnerable) is listed as an SCC for the area. It is associated with fairly inundated habitats (swamps, rivers, estuaries) and habitat is considered absent on site, and the species is considered unlikely on site (Bates *et al*., 2014).

One TOP reptile was recorded for the QDGS:

- South African Python (*Python Natalensis*) (GN151 Protected) is retained as a likely species in the area as the site is within the species distribution range and meets the habitat requirements for the species. However, the proximity to human dwellings drastically reduces its likelihood to persist in the area. Species is threatened by habitat transformation (Bates *et al*., 2014), but also likely threatened by persecution and the pet / muti trade.

No other TOP reptiles with distribution across site are considered as likely to occur on site.

The site is within two main areas of reptile endemism, including the Waterberg west of site and the Witvinger Nature Reserve and the Percy Fyfe Nature Reserve east of site. Some of the Waterberg endemic reptiles have distribution ranges extending into the prospecting area and cannot be excluded from site (Table 3: Restricted Endemics). The reptiles are considered as restricted endemic species, but they are widespread and common within the Waterberg area.

Frogs:

No frog SCCs are listed for the area.

No TOP frogs were recorded for the QDGS.

The two species of Bullfrogs (the Giant Bullfrog and the African Bullfrog) cannot be excluded from site. The bullfrogs may also be associated with the seasonal dams / pans off-site and swarming juveniles may find their way to site if bullfrogs are present and breeding in the surrounds.

The site is not part of an area of endemism for frogs.

Invertebrates:

No invertebrate SCCs were listed for the project area.

No TOP scorpions, butterflies or dragonflies have been recorded for the QDGS / general area.

The TOP Baboon Spider (*Ceratogyrus darlingi*) cannot be excluded from site, but as a burrowing species may be deterred from areas of human activity (homesteads and agricultural lands). The species is more likely to occur in the less disturbed areas of the bushveld around the koppies and greater surrounds, where it should persist.

No provincially protected invertebrates have been recorded for the QDGS / general area.

Alien Invasive Species

Alien invasive (AI) species (AIS) recorded in the Pentad were limited to three Category 3 species (Rock Dove, the Common Myna and the House Sparrow). The species are common species in the peri-urban setting and occur throughout South Africa (Picker & Griffiths, 2011).

Table 24: Historical recorded and highly likely vertebrates of conservation concern

FAMILY	COMMON NAME	SPECIES	ENDEMISM	GN151	RED-LIST	IUCN	LIKELIHOOD
MAMMALS							
Carnivora	Wild Dog, African	*Lycaon Pictus*		EN	EN	EN	SCC – Unlikely
Rodentia	Rat, Robert's Marsh	*Dasymys robertsii*			VU		SCC – Possible
Eulipotyphla	Shrew, Maquassie Musk	*Crocidura maquassiensis*			VU		SCC – Possible
Sensitive Species 5	Sensitive Species 5	*Sensitive Species 5*		SCC			
Carnivora	Serval	*Leptailurus serval*		PR	NT		ADU – Possible
Carnivora	Leopard	*Panthera pardus*		VU	VU	VU	ADU – Likely
Carnivora	Hyaena, Brown	*Parahyaena brunnea*		PR	NT	NT	ADU – Likely
Carnivora	Honey Badger (Ratel)	*Mellivora capensis*		PR			Likely
Cetartiodactyla	Reedbuck, Southern Mountain	*Redunca fulvorufula*			EN	EN	Likely
Eulipotyphla	Hedgehog, Southern African	*Atelerix frontalis*		PR	NT		Likely
BIRDS							
Accipitridae	Eagle, Verreaux's	*Aquila verreauxii*			VU		SABAP – Possible
Zosteropidae	White-eye, Cape	*Zosterops virens*	Endemic				Likely
Falconidae	Kestrel, Lesser	*Falco naumanni*		VU			Likely
Hirundinidae	Swallow, South African Cliff	*Hirundo spilodera*	Breeding Endemic				Likely
REPTILES							
Agamidae	Agama, Eastern Ground	*Agama aculeata distanti*	Endemic				ADU – Likely
Pythonidae	Python, Southern African	*Python natalensis*		PR			ADU – Likely
Cordylidae	Lizard, Dwarf Flat	*Platysaurus guttatus*	RE West LP				Likely
Cordylidae	Lizard, Waterberg Flat	*Platysaurus minor*	RE West LP				Likely
Cordylidae	Lizard, Waterberg Girdled	*Smaug breyeri*	RE West LP				Likely
Gekkonidae	Gecko, Transvaal Thick-toed	*Pachydactylus affinis*	Endemic				Likely
Lamprophiidae	Snake, Striped Harlequin	*Homoroselaps dorsalis*	Endemic		NT		Likely
Lamprophiidae	Snake, Olive Ground	*Lycodonomorphus inornatus*	Endemic				Likely
FROGS							
Bufonidae	Toad, Raucous	*Amietophrynus rangeri*	Endemic				Likely
Pyxicephalidae	Bullfrog, Giant	*Pyxicephalus adspersus*		PR	NT		Likely
Pyxicephalidae	Bullfrog, African	*Pyxicephalus edulis*		PR			Likely
Pyxicephalidae	Stream Frog, Clicking	*Strongylopus grayii*	Endemic				Likely

CR: Critically Endangered; EN: Endangered; VU: Vulnerable; PR: Protected; NT: Near Threatened

b. *VERIFICATION STATEMENT*

Vegetation and Plant Specie

From a vegetation perspective, the Screening Report results that indicates the modified, degraded and secondary vegetation of low sensitivity. This is confirmed by the desktop and site verification. However, rocky bushveld and watercourses are areas of high sensitivity, and the screening tool only shows high sensitivity along the Mohlosane River and areas that include remaining Makhado Sweet Bushveld.

The site is classified by the Screening Report as low sensitivity for sensitive plant species, indicating that the site is unlikely to support plant species of conservation concern. However, eight (8) such plant species were shortlisted that was historically recorded in the region that the prospecting rights area is situated in. Suitable habitat for these species is present in the rocky bushveld vegetation, and along drainage lines. Therefore, portions of the site are rather of a medium plant species sensitivity. These areas should be searched and classified as high or low, depending on whether plant species of conservation concern are recorded.

Table 25 summarises the outcome of the desktop and site verification associated with the terrestrial vegetation and plant species.

Table 25: Summary of desktop and site verification

SCREENING TOOL SENSITIVITY	DESKTOP PRELIMINARY SENSITIVITY	OUTCOME STATEMENT/PLAN OF STUDY
Low for most of the entire site Very high in southeastern corner	Low: Modified land, degraded and secondary bushveld Medium to low: Near-natural Mukhado Sweet Bushveld High: Rocky bushveld Vegetation along drainage lines	Desktop Assessment and Compliance Statement ***Should the prospecting rights application be altered or approved to allow any activities other than non-invasive activities as currently proposed, a Terrestrial Biodiversity Impact Assessment must be undertaken.***
Low for entire site	Medium Rocky bushveld and vegetation along drainage lines are suitable habitat for plant species of conservation concern and in the absence of a plant species assessment, this report disagrees with the low sensitivity rating of the screening tool. this sensitivity Low sensitivity areas correspond largely to the desktop delineated modified land, and secondary and degraded bushveld and are unlikely to support plant species of conservation concern	

Animal Specie

Table 26 provides a summary statement on the sensitivity verification based on the in-depth photographic assessment of site.

In general, the area ranked as very high sensitivity for terrestrial biodiversity. All rivers / streams are also considered as highly sensitive as they provide corridors, unique habitats within the terrestrial setting and water provision. All remaining natural bushveld along the koppies and the riverine areas are considered as medium sensitivity in terms of general habitat provision to existing faunal populations on site (retaining these areas should allow the on-site natural and indigenous fauna to persist in the area).

Table 26: Summary of Site Verification Outcome for terrestrial animal species

SCREENING TOOL REPORT SENSITIVITY RANK	VERIFIED SENSITIVITY (DESKTOP LEVEL ONLY)	PLAN OF STUDY
ANIMAL SPECIES		
Medium rank for four mammal SCCs and one aquatic reptile SCC	The two larger mammal SCCs (African Wild Dog and Sensitive Species 5) and the reptilian SCC (Nile Crocodile) are not considered likely species on site due to human presence and activity on site. Two smaller mammal SCCs are considered as possible species on site, associated with wetland habitats; the main rivers and tributaries on site, wetlands and designated buffers are considered highly sensitive (pending the aquatic biodiversity report).	Full Animal Species Specialist Report will be required if any additional prospecting activity proceeds.
AQUATIC BIODIVERSITY – AS FAR AS IT PERTAINS TO TERRESTRIAL ANIMAL SPECIES		
Very high rank areas limited to two riverine areas.	The main rivers and tributaries on site, wetlands and designated buffers are considered highly sensitive (pending the aquatic biodiversity report).	Habitat and ecological corridor must be evaluated if any additional prospecting activity proceeds.
TERRESTRIAL BIODIVERSITY – AS FAR AS IT PERTAINS TO TERRESTRIAL ANIMAL SPECIES		
Very high rank area (CBA1 trigger) limited to south-western extent of site.	No CBAs occur on site, but where the area overlaps ***natural bushveld*** areas, the **very high** rank is retained.	Habitat and ecological corridor must be evaluated if any additional prospecting activity proceeds.

c. *IMPACT STATEMENT*

Vegetation and Plant Specie

The desktop assessment of the available information and site verification results indicated that about half of the vegetation within the prospecting rights area were modified or in a semi-natural state.

Modified and built-up areas were irreversibly modified from the reference state of Makhado Sweet Bushveld. The vegetation is modified as the ecological function has been compromised in addition to structure and composition (SANBI, 2016). Such areas are in a poor ecological condition and of a low sensitivity to development. Such areas do not pose a constraint to prospecting.

Degraded and secondary vegetation are moderately modified systems in which some of the ecological function is maintained even though the vegetation composition and structure have been compromised (SANBI, 2016). Such areas are in a poor to fair ecological condition and of a low sensitivity to prospecting.

However, protected tree species may be present and should be avoided by any related activities, or a permit for their removal / pruning should be applied for. Most types of development can proceed within these areas with little to no impact on conservation worthy vegetation. Edge effects to other proximate sensitivity classes must be mitigated / prevented.

Remaining Makhado Sweet Bushveld are in a semi-natural state. The ecological function is maintained while the vegetation composition and structure are largely intact. Furthermore, this vegetation unit is classified as Vulnerable. The bushveld is considered as medium sensitivity to prospecting, provided that large tracks of this group is not cleared.

The bushveld vegetation on the rocky hills is in a natural state and in a very good ecological condition. These areas include a high species diversity and the structure, composition and function remain intact (SANBI, 2016). This vegetation group is also the most likely to support plant species of conservation concern.

Watercourses are protected environments (National Water Act 36 of 1998). Although most of the vegetation along the drainage lines were impacted on and degraded, the vegetation retains an important functional role, while species composition and structure are comprised, particularly where drainage lines are in proximity to urban areas.

Both these vegetation groups should be considered sensitive and if any prospecting takes place, this should be localised and limited in footprint. The footprint areas must be ground-truthed for plant species of conservation concern and national protected tree species prior to commencement of any activities.

From a vegetation perspective, this report agrees with the screening tool report results that indicates the modified, degraded and secondary vegetation of low sensitivity. However, rocky bushveld and watercourses are areas of high sensitivity, and the screening tool only shows high sensitivity along the Mohlosane River and areas that include remaining Makhado Sweet Bushveld.

Plant Specie

The current proposed prospecting right application process and associated administrative activities will not contribute to any significant direct or indirect impacts to indigenous animals in the area or their habitats or the existing ecological status of the site.

d. REASONED OPINION FOR ISSUING THE EA

Vegetation and Plant Specie

This assessment found that the vegetation within the PAOI does not pose a constraint for the application of prospecting rights. However, if any prospecting is undertaken, areas indicated as medium and high sensitivity must be assessed for sensitive vegetation groupings and plant species of conservation concern.

Plant Specie

In terms of the terrestrial fauna, if the following conditions are met there should be no reason not to authorise the activity:

- Should the prospecting application process require any activities on site, over and above the current proposed administrative activities, then a full fauna species assessment, including a specialist herpetology assessment, must be undertaken.

- No activities are to take place in the riverine areas or wetlands without the necessary environmental and water use authorisations.
- The recommendations of the flora specialists must be included in the environmental management plan and implemented on site.

V. AQUATIC BIODIVERSITY

Scientific Aquatic Services (SAS) was appointed by Environmental Management Assistance (Pty) Ltd on behalf of BCR Projects (Pty) Ltd to conduct a baseline Aquatic Biodiversity assessment and the required desktop and site verification.

The following sections summarises the outcome.

The detailed report is attached as ***Appendix F.4 – Aquatic Biodiversity Assessment***.

a. *SUMMARY OF DESKTOP ASSESSMENT*

Table 27 provides a summary of the background information that was used to aid in defining the presence of any freshwater ecosystems prior to the site verification.

Table 27: Desktop data relating to the characteristics of the freshwater ecosystem/features associated with the study and investigation area

Aquatic ecoregion and sub-regions in which the study and investigation areas are located		**Detail of the study and investigation areas in terms of the National Freshwater Ecosystem Priority Area (NFEPA) (2011) database (*Figure 29*)**	
Ecoregion	Limpopo Plain	FEPACODE	The study area is located within an Upstream Management Catchment which is required to prevent the downstream degradation of Freshwater Ecosystem Priority Areas (FEPAs) and Fish Support Areas (FSAs).
Catchment	Limpopo		
Quaternary Catchment (Figure A3)	A61G		
WMA	Mogalakwena	NFEPA Wetlands	According to the NFEPA Database, only limited wetlands occur within the study or investigation areas. A depression wetland is located in the north-western part of the study area (PES: AB - natural / largely natural state) and a wetland flat is located in the south-eastern part of the study area (PES Z3 – heavily to critically modified state).
subWMA	Limpopo		
Dominant characteristics of the Limpopo Plain Aquatic Ecoregion Level 2 (1.03) (Kleynhans et al., 2007)			
Dominant primary terrain morphology	Plains; low and moderate relief, lowlands, hills and mountains; moderate and high relief (limited)		
Dominant primary vegetation types	Mixed Bushveld	Wetland Vegetation Type	The study area is situated within the Central Bushveld Group 4 Wetland Vegetation Type, considered Vulnerable as provided by Mbona *et al.* (2015).
Altitude (m a.m.s.l)	700 to 1300		
MAP (mm)	300 to 600		
Coefficient of Variation (% of MAP)	25 to 34	NFEPA Rivers	According to the NFEPA Database, no rivers occur within the study or investigation areas. The closest river is the Groot Sandsloot to the south-east and the Mogalakwena River to the west.
Rainfall concentration index	60 to >65		
Rainfall seasonality	Early to mid-summer		
Mean annual temp. (°C)	18 to 22	**National Biodiversity Assessment (2018): South African Inventory of Inland Aquatic Ecosystems (SAIIAE) (*Figure 30*)**	
Winter temperature (July)	18 to 24 (max) 2 to 5 (min)	According to the NBA SAIIAE (2018) database, wetlands are located in the study area; a channelled valley bottom system along with a depression wetland are located in the northern part of the study area and a river system is located in the southern part of the study area. The depression wetland is classified as being in a largely natural ecological condition (WETCON A/B). The Ecosystem Threat Status (ETS) of the depression wetland is Least Concern (LC) and the	
Summer temperature (Feb)	28 to 32 (max) 16 to 19 (min)		
Median annual simulated runoff (mm)	<5 to 60		
Importance of the study area according to the Limpopo Conservation Plan (2018) (Waterberg District Municipality Bioregional Plan) (*Figure 31*).			

Other Natural Areas	According to the Limpopo Conservation Plan, large parts of the study area, particularly the south-western hilly ground and corridors in the north and south of the site are classified as **Other Natural Areas**. These are natural and intact areas, which are not required to meet targets, nor has it been identified as a CBA or ESA.	Ecosystem Protection Level (EPL) is Poorly Protected (PP). The channelled valley bottom wetland is classified as being in a largely to critically modified ecological condition (WETCON D/E/F). The ETS of the channelled valley bottom wetland is Critically Endangered (CR) and the EPL is Not Protected (NP). No ecological condition, ETS or EPL data is provided for the river in the southern part of the study area.
No Natural Remaining	The remaining portions of the study area fall within an area classified as **No Natural Remaining areas**. These are areas with no significant direct biodiversity value. These are either not natural areas or degraded natural areas that are not required as ESA. These areas include intensive agriculture, urban, industry; and human infrastructure.	**National Web Based Environmental Screening Tool (2020) (*Error! Reference source not found.*).**
Ecological Support Area	A very small area in the north-western part of the study area is classified as **an ESA 1**. Ecological Support Areas (ESAs) are areas that are important for maintaining the ecological processes on which Critical Biodiversity Area (CBAs) or protected areas depend. ESA1 areas are in at least fair ecological condition i.e. in at least a semi-natural state, with their basic ecological functioning intact.	The Screening Tool is intended to allow for pre-screening of sensitivities in the landscape to be assessed within the EA process. This assists with implementing the mitigation hierarchy by allowing developers to adjust their proposed residential development footprint to avoid sensitive areas. The wetland features identified by the NBA (2018) database are classified as being of very high aquatic biodiversity sensitivity. The rest of the study area is classified as being of low aquatic biodiversity sensitivity.

Importance according to the Mining and Biodiversity Guidelines (2013) (*Figure 32*)

Large parts of the study area, in particular the vacant, undeveloped areas are considered to be of **High Biodiversity Importance**. The remaining portions of the study area are currently not ranked.
During the prospecting stage of the mining life cycle relevant information on the potentially significant impacts on biodiversity and ecosystem services must be gathered as the basis for assessing impacts and providing adequate and appropriate mitigation measures. Prospecting plans should be developed to avoid impacts on key biodiversity features, particularly in high biodiversity priority areas, and/or to minimise and remedy impacts on other biodiversity in accordance with the mitigation hierarchy.

Landtype Data (*Figure 33*)

A number of landtypes are located across the study area; the northern and central parts of the study area is characterised by the **Ea208** landtype. Soils within the Ea landtype grouping are dark brown / black or red coloured strongly to very strongly structured (topsoil and subsoil) of varying depths. These soils have high clay content, displaying a high water-holding capacity and mostly containing a high percentage of swelling clay prospectingrals. Vertic and melanic soils commonly occur in this landtype grouping. Within the EA208 landtype valley floors, midslopes and footslopes are characterised by melanic and vertic topsoils, with pedocutanic and lithocutanic subsoils and limited areas characterised by wetland-related soil forms in the form of Willowbrook and Rensburg Soil Forms.
A linear band surrounding the Thwathwe Watercourse in the northern part of the site is characterised by the **Ia168** landtype. Ia landtype groupings are characterised by undifferentiated deep soil deposits, being typically deep pedologically youthful soils, which occur mostly along river courses, valley bottoms and in lower lying areas. In the Ia168 landtype valley floors, footslopes and midslopes are characterised by a mix of soils forms typically characterised by heavy clay topsoils and subsoils, with some occurrence of the Dundee soil form (characterised by alluvial material) along watercourses.
The hilly ground in the south-western part of the study area is characterised by the **Ib447** landtype. Ib447 landtype groupings are areas where 60-80% of the surface is occupied by exposed rock and stones/boulders and the slopes are usually steep. The rest of the area comprises mostly shallow soils, directly underlain by hard or weathered rock.

The south-eastern part of the site is occupied by the **Ae227** landtype. Ae landtype groupings consists of red, high base status soils. Valley floors within the Ae227 landtype are characterised by a relatively high percentage of wetland soil forms, including the Pinedene, Longlands and Kroonstad soil forms and the Dundee soil form. These soil forms suggest the presence of soft plinthic B, E horizons and G horizons which are diagnostic wetland soil horizons. A much smaller proportion of such soil forms characterised the footslopes and midslopes in this landtype, suggesting wetland occurrence primarily on valley floors in this part of the study area.

CBA = Critical Biodiversity Area; DWS = Department of Water and Sanitation; EI = Ecological Importance; ES = Ecological Sensitivity; EPL = Ecosystem Protection Level; ESA = Ecological Support Area; ETS = Ecosystem Threat Status; m.a.m.s.l = Metres Above Mean Sea Level; MAP = Mean Annual Precipitation; NBA = National Biodiversity Assessment; NFEPA = National Freshwater Ecosystem Priority Areas; PES = Present Ecological State; SAIIAE = South African Inventory of Inland Aquatic Ecosystems; WMA = Water Management Area.

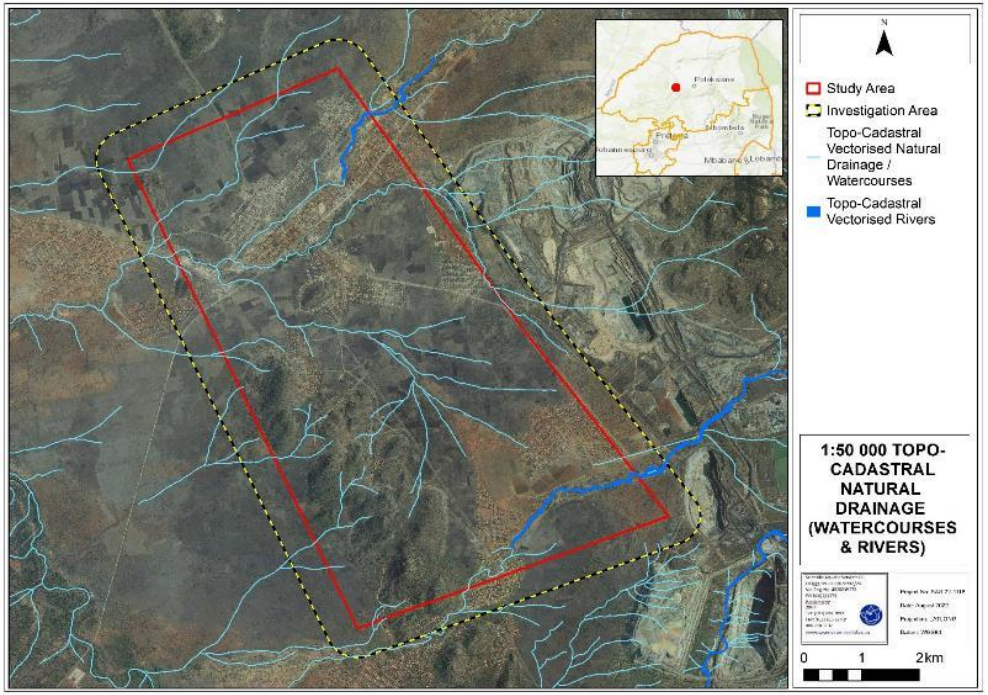


Figure 28: Map of natural surface water drainage in the study and investigation area, as presented on the 1:50 000-scale topo-cadastral map for the area

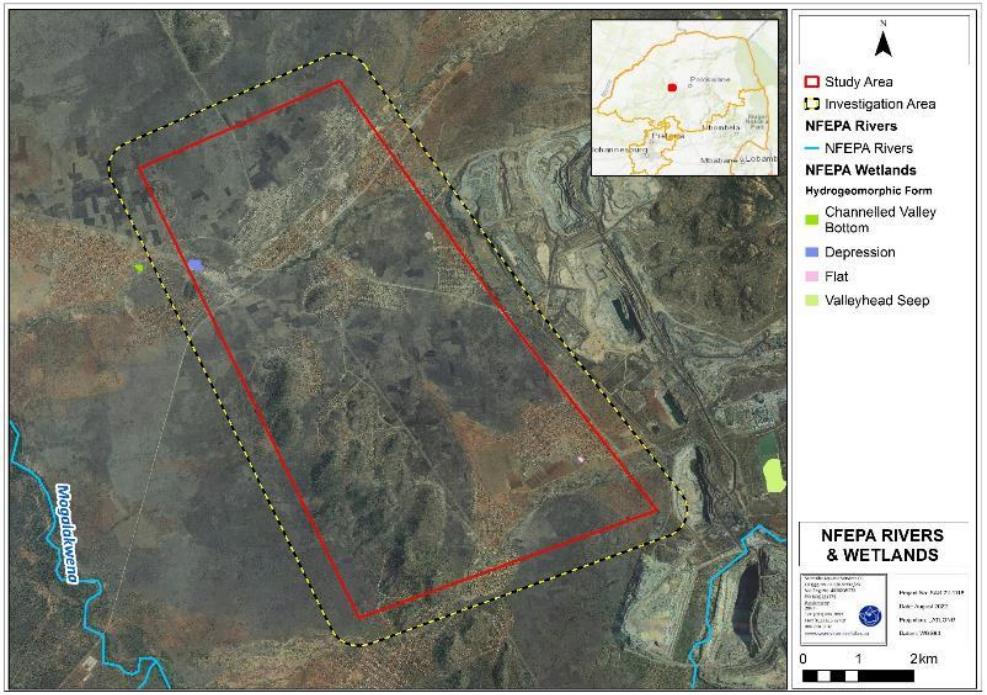


Figure 29: Wetlands and Rivers within the investigation area indicated by the NFEPAA database

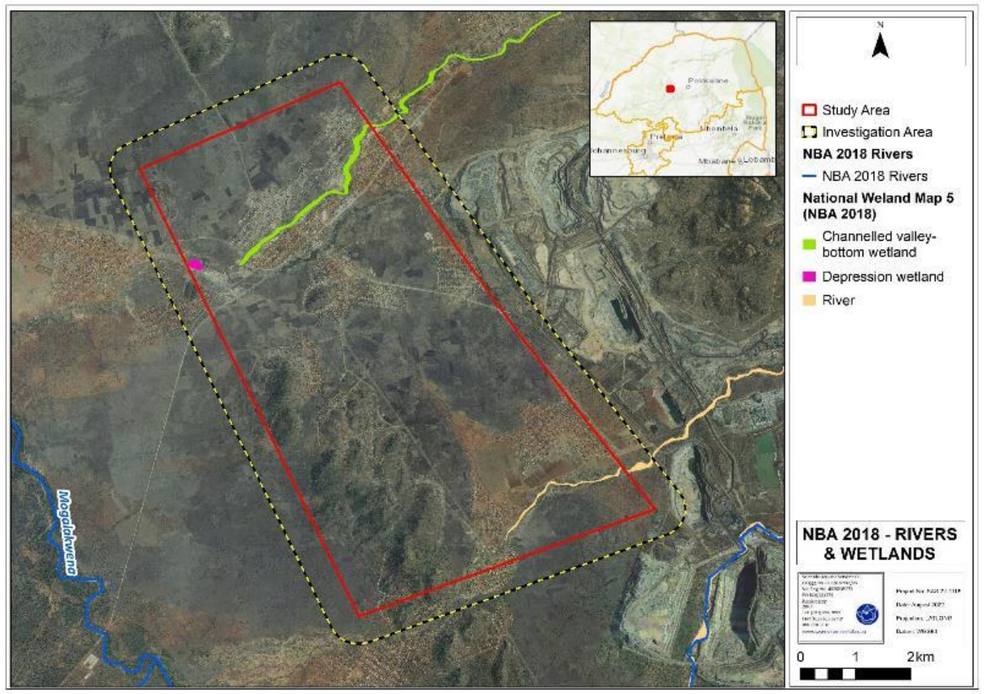


Figure 30:Wetlands and Rivers within the investigation area indicated by the National Biodiversity Assessment, 2018

Figure 31: Designations in the study areas according to the Limpopo Conservation Plan 2018 (Waterberg Bioregional Plan)

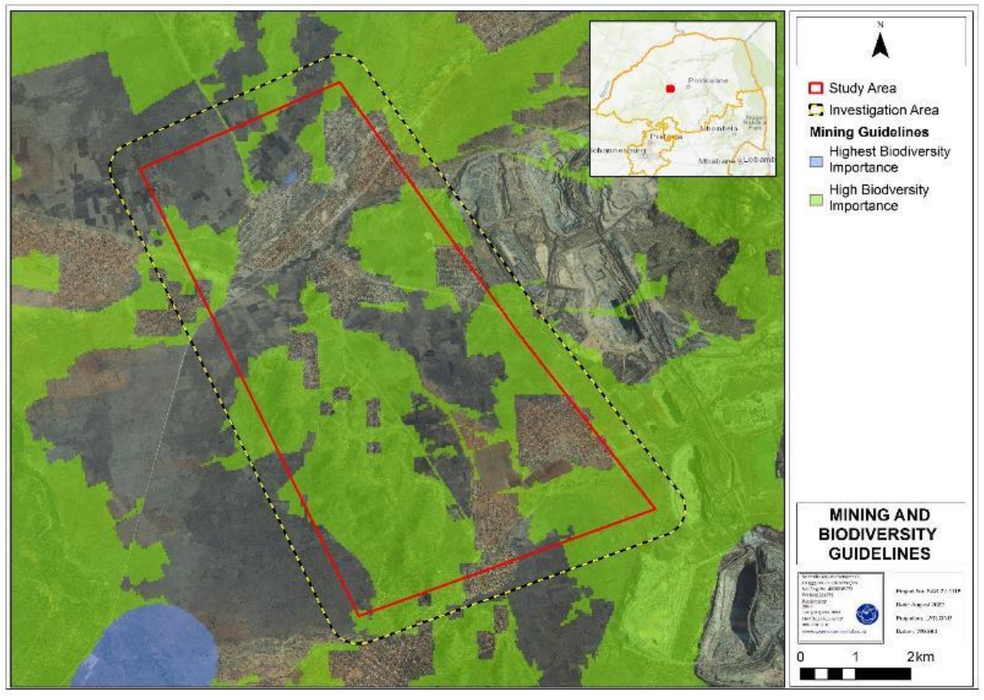


Figure 32: Areas of sensitivity and investigation areas according to Mining and Biodiversity Guideline

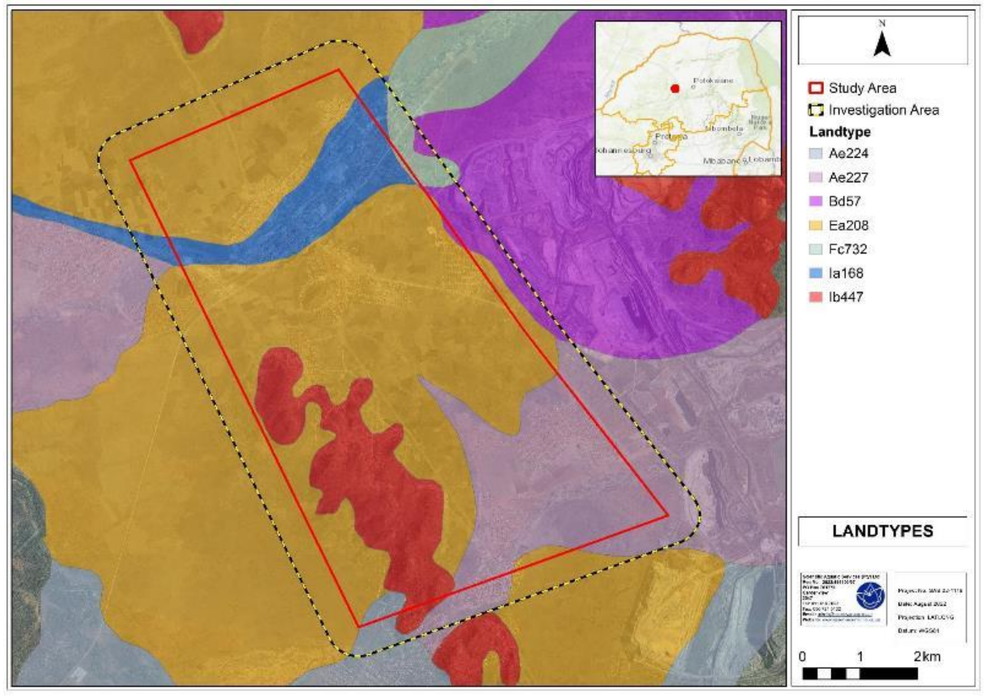


Figure 33: Land types within the study and investigation area

b. VERIFICATION OUTCOME

The site assessment confirmed that, as indicated in the topo-cadastral depiction of natural drainage in the wider area (**Figure 28)**, there are various fluvial surface water features which largely drain westward into the Mogalakwena River that is located to the west of the study area. Importantly not all components of the surface water drainage on the site as indicated by the topo-cadastral depiction of natural drainage were confirmed to be visible freshwater features, with many drainage features that are indicated as watercourses on the topo-cadastral layer either being non-existent or taking the form of preferential flow paths which were not considered to be watercourses.

The primary form of surface water feature in the study area and surrounds as confirmed by the site assessment is the watercourse – a fluvial feature that is characterised by a single macro-channel, and which is in some areas characterised by woody riparian vegetation on the channel margins, although widespread removal / felling of woody vegetation along watercourses is expected to be a significant impact in the context of the study area and accordingly under natural conditions a greater coverage of woody riparian species along most watercourses could be expected. The channel of such watercourses was often eroded to bedrock, with most of the reaches having channel beds consisting of fine to coarse alluvial material.

The majority of watercourses in the study area are ephemeral or episodic in nature, and although certain were noted to be characterised by active flow of surface water at the time of the assessment, none are expected to be characterised by perennial flows even under normal circumstances. Notably the reaches of the Thwathwe Watercourse located downstream of the seep wetland (***Figure 37***) confirmed on the site were noted to be characterised by active water flow, whereas the reaches of this system upstream were not, suggesting that this seep performs an important role in providing stream flow recharge and regulation to the lower reaches of the watercourse and the downstream unchannelled valley bottom wetland.

The downstream (western) reaches of the watercourses in the study area, and particularly the lower reaches of the Thwathwe and Mohlosane Watercourses were noted to be characterised by a wider macro channel and a more defined wooded riparian zone.

The presence of the Ea 208 landtype (***Figure 33***) and its associated highly expansive turf clay (vertic and melanic) soils appears to have a strong influence on the spatial distribution and physical characteristics of watercourses in the parts of the study area in which it is located. Large parts of the study area are located in areas characterised by clay soils which are highly expansive in nature in response to their high moisture retention capacity. In the study area the Ea 208 landtype is typified by very flat terrain in which surface drainage is very poorly defined or largely absent. The absence of surface water drainage features is particularly prevalent in the upper parts of sub-catchments of the watercourses that drain the EA208 landtype in the study area, with highly inconspicuous diffuse flow paths the only expression of surface drainage in these parts of the site. Where watercourses subsequently develop, they take the form of a narrow somewhat incised channels that are not typically characterised by the presence of a distinct riparian zone or wetland characteristics, either in the context of vegetation structure or species composition. Surface water drainage is typically better defined in the Ae227 landtype, with its redder, apedal soils (e.g. the watercourse in ***Figure 36***).

Along the channel margins and beds of mist watercourses that drain the study area limited hydrophytic plants were typically encountered, and the channel banks were typically characterised by an assemblage of terrestrial grass species which are not associated with watercourses. Hydrophytes such as the grass species Imperata cylindica and the sedge species Cyperus sexangularis were only encountered in scattered localities, being indicative of the episodic / ephemeral nature of flow and associated limited inundation / hydrological activation of channels and their associated marginal zones.

Only two wetlands were identified within the study area. In its lower reaches the Thwathwe Watercourse widens to form a broad unchannelled lateral extent with no distinct flow channel. This reach was classified as an unchannelled valley bottom wetland. Hydromorphic soils were encountered within the channel bed, characterised by distinctive gleying and leaching of prospectingrals from these soils.(***Figure 39***). Vegetatively the wetland is characterised primarily by extensive stands of the sedge Cyperus sexangularis (***Figure 38***), and other facultative wetland species such as Panicum repens and Setaria sphacelata var. sphacelata

A second wetland, a seep wetland was encountered close to the Mapela Clinic (***Figure 35***). The seep is characterised by extensive calcrete deposits which according to members of the community has been previously quarried at this location. The presence of a wetland was confirmed by active seepage, the presence of extensive communities of obligate hydrophytes, and primarily the presence of hydromorphic soils in the form of highly gleyed soils which as encountered within in a G horizon are characteristic of the permanent saturation of soils be water and associated anaerobic conditions, leading to the development of hydromorphy (***Figure: 34***). The seep wetland was vegetatively characterised by extensive stands of the obligate hydrophyte Typha capensis and other hydrophytes including Cyperus sexangularis, Juncus rigidus, Andropogon eucomus and Cynodon nlemfuensis. The hydrophytic grass species Paspalum distichum was noted to be present in areas of surface water within the wetland.

Although a detailed assessment of freshwater state (PES) for the study area has not been undertaken as part of the scope of this assessment, observations relating to anthropogenic influences acting on the watercourses and wetlands in the study area were made during the field investigation. Impacts on freshwater features primarily relate to landuse-related pressures. The uncontrolled grazing of livestock appears to have resulted in overgrazing in certain parts of the study area, primarily areas that are located close to human settlements. This has been likely to promote the development of accelerated erosion in parts of the site in the form of gullying (donga development) and sheet erosion. Many watercourses in the vicinity of settlements were noted to subject to dumping of household and other waste, which is likely to result in the pollution and associated deterioration in water quality of the affected watercourses (***Figure 37***). The dumping of large numbers of disposable nappies into watercourse channels was noted to be particularly prevalent near areas of human settlement, and this factor is likely to be introducing faecal coliforms to the watercourses where flow occurs.

The removal / felling of woody vegetation, particularly larger shrubs and trees was noted to be prevalent across the study area, and this practice is likely to have resulted in changes to the species and structural composition of riparian zones in watercourses across the study area.

Lastly, the presence of the Mogalakwena Prospecting has resulted in indirect and direct impacts on watercourses in the study area. The Mogalakwena Prospecting and its associated waste rock dumps occupy large parts of the area to the east of the study area and accordingly of the catchments of certain of the larger watercourses on the site. This has resulted in the loss of catchment

yield for these watercourses which has likely altered the hydrology of these watercourses. Direct impacts have occurred in the form of channelisation (straightening) of a watercourse reach near the village of Ga-Tshaba and the complete physical transformation of a reach of the same watercourse to the north (within the investigation area) where the footprint of the waste rock dump has completely encroached upon the watercourse reach, thus completely transforming all freshwater habitat within the affected reach.

It should be noted that the pan / depression wetland that is indicated to occur in the western part of the study area by both the NBA 2018 and NFEPA wetland databases was confirmed to not be a wetland or freshwater feature. The area indicated as a wetland is a flat area of shallow outcropping of calcrete that is currently used as an informal football field.

The distribution and classification of freshwater features in the study area and associated investigation area is indicated in Figures 16 to 18.

Figure: 34 The channel and associated riparian zone of the Mohlosane Watercourse in the southern part of the study area, one of the watercourses reaches in the study area that displays an intact woody riparian zone.

Figure 35 – The seep wetland located close to the Mapela Clinic

Figure 36 – An example of an episodic watercourse located to the north of the village of Ga-Masenya in the study area

Figure 37 – Example of extensive dumping of household waste into a watercourse located to the south of the Mapela Clinic and downstream of the seep wetland

Figure 38 – The unchannelled valley bottom (Thwathwe) wetland located close to the western edge of the study area

Figure 39 – Examples of gleyed hydromorphic soils from the wetlands on the site – left from the unchanneled valley bottom and right: from the seep wetland

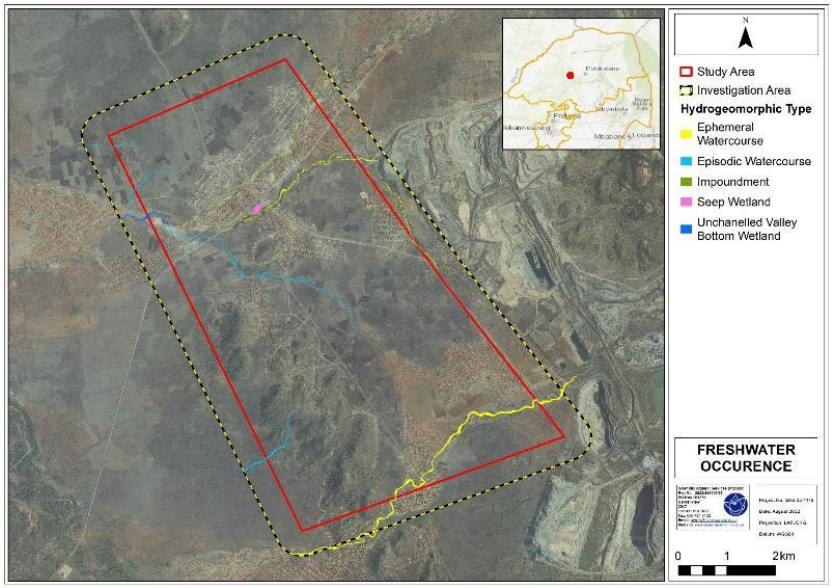


Figure 40: Freshwater features located within the study and investigation area

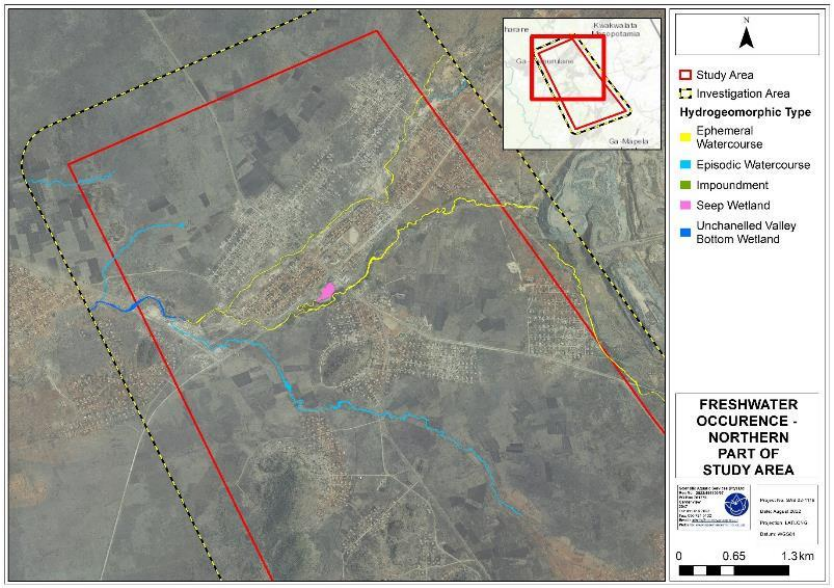


Figure 41: Freshwater features located within the northern parts of the study and investigation area

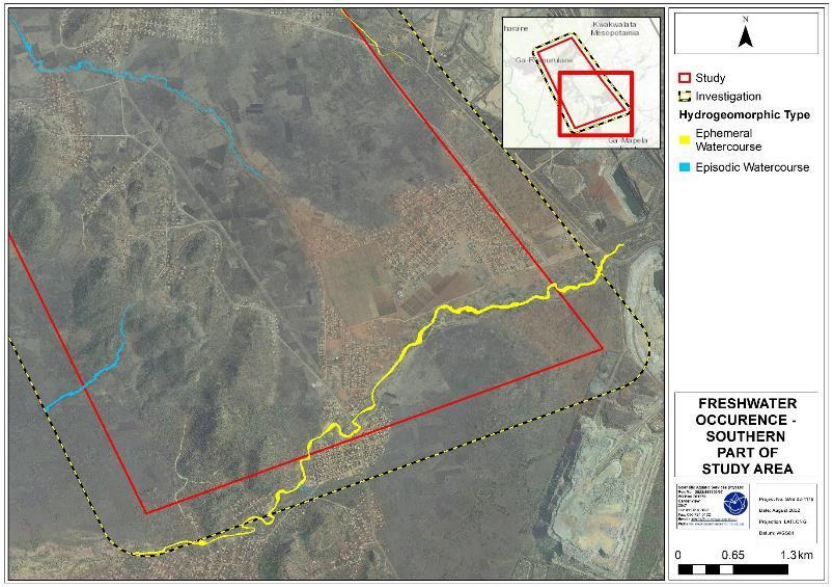


Figure 42: Freshwater features located within the southern parts of the study and investigation areas

Due to the non-invasive nature of the proposed prospecting, it will not trigger a Water Use Licence (WUL) in terms of Section 21 (c) and (i) of the National Water Act (NWA, Act No. 36 of 1998).

However if the nature of the prospecting changed to involve any physical activity, then these legislative triggers may become relevant along with the applicable zones of regulation and their associated environmental authorisations which would apply to the identified natural watercourses:

- A 32 m Zone of Regulation (ZoR), see ***Figure 43*** and ***Figure 44***, in accordance with the National Environmental Management Act, 1998 (Act No. 107 of 1998), applying to all identified watercourses and wetlands; and
- A 100 m, and a 500m ZoR, see ***Figure 43*** and ***Figure 44***, in accordance with the National Water Act, 1998 (Act No. 36 of 1998) applying to all identified watercourses (with the 500m ZoR applying to all wetlands).

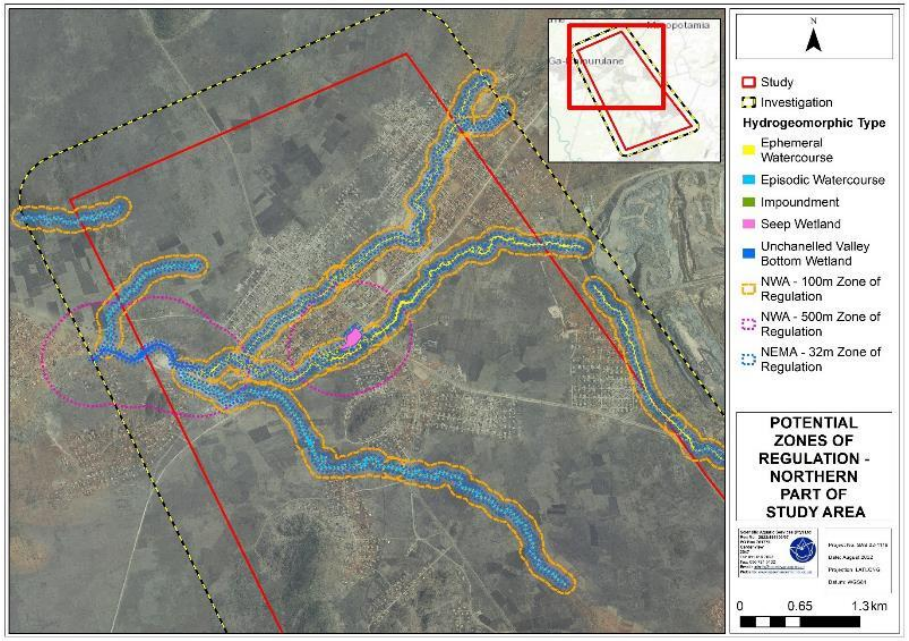


Figure 43: Potential regulated zones within the northern part of the study area

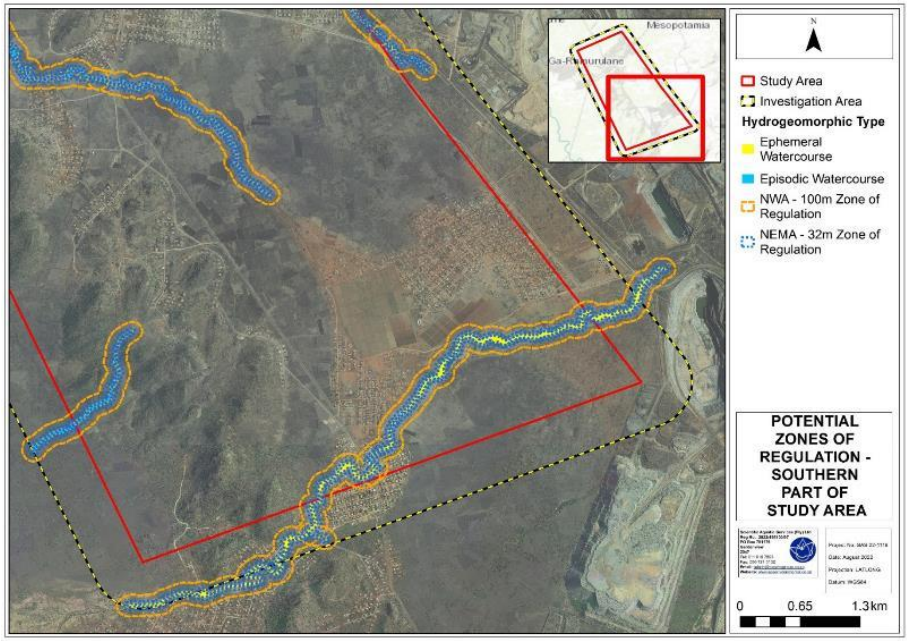


Figure 44: Potential regulated zones in the southern parts of the study area

c. VERIFICATION STATEMENT

Based on the site verification undertaken by SAS and the findings thereof presented in this report, numerous freshwater features were confirmed to occur in the study area associated with the application for prospecting rights. The majority of these freshwater features are watercourses that are episodic or ephemeral in terms of their hydrology regime, but two wetlands, an unchanneled valley bottom wetland and a seep wetland are located within the study area.

The designation of very high sensitivity to wetland features in the study area by the Screening Report has been supported through the findings of the freshwater assessment that has confirmed the presence of wetlands in the study area. However as wetlands cannot be considered in isolation from the other components of the freshwater drainage system in the study area all freshwater features in the study area must be considered to be of very high sensitivity.

Under the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity, (GN320 of March 2020), for areas of low aquatic biodiversity sensitivity an Aquatic Biodiversity Compliance Statement must be produced. Due to the designation of most of the study area as being of low aquatic biodiversity sensitivity, and due to the non-invasive nature of the proposed prospecting activity (i.e. comprising of no physical activities and thus no prospecting-related impacts on the freshwater features in thew study area) the approach of producing such a compliance statement was taken. However the findings of the study that all freshwater features are of high sensitivity has implications for the assessment type as discussed in ***Table 28*** below.

Table 28: Sensitivity verification summary following the freshwater assessment

SCREENING TOOL ASSIGNED SENSITIVITY	VERIFIED SENSITIVITY	OUTCOME STATEMENT / PLAN OF STUDY
Very High (applicable to the Thwathwe and Mohlosane Watercourses / wetlands); Remainder of Study Area – Low	All wetlands and watercourses on the site have a **very high** aquatic biodiversity sensitivity	It recommended that a future Aquatic Biodiversity Specialist Assessment must be undertaken ***should the prospecting rights application be altered or approved to allow any activities other than non-invasive activities as currently proposed by the applicant that would result in the potential for impacts on freshwater resources to result from such prospecting activities***.

d. IMPACT STATEMENT

The prospecting right, as being applied for would entail non-invasive prospecting activities in the study area, thus no physical activities are proposed to be undertaken. Accordingly, no impacts to the freshwater environment or freshwater features in the study area are envisioned and the risk profile to the freshwater environment is considered low to negligible. The freshwater features in the study area have been confirmed to be of very high aquatic biodiversity / freshwater sensitivity. Should the prospecting activities, as proposed, remain non-invasive (with no physical activity on the site), the prospecting activities will not result in an impact (new or cumulative) on the freshwater features in the study area and the prospecting right in its current form is associated with a low risk to the freshwater environment in the study area. The risk profile would change if any physical activities on the site were introduced.

e. REASONED OPINION FOR ISSUING THE EA

Due to the non-invasive nature of the proposed prospecting on the site (i.e. no associated physical activities and use of previous data), no impact on the freshwater environment in the site is anticipated. As such it is the professional opinion of the freshwater specialist that the prospecting right application be granted Environmental Authorisation, subject to prospecting remaining non-invasive with no associated physical activities in the study area. Due to the high sensitivity associated with the freshwater features in the study area, it is recommended that a future Aquatic Biodiversity Specialist Assessment must be undertaken should the prospecting rights application be altered or approved to allow any activities other than non-invasive activities as currently proposed by the applicant that would result in the potential for impacts on freshwater resources to result from such prospecting activities.

VI. HYDROLOGICAL (FLOOD LINE DETERMINATION)

Isikhungusethu Environmental Services (Pty) Ltd was appointed by EMA on behalf of BCR Projects (Pty) Ltd to conduct a desktop flood line assessment.

The following sections summarises the outcome.

The detailed report is attached as ***Appendix F.5 – Hydrological Flood line Determination***.

a. OUTCOME OF DESKTOP FLOOD LINE DETERMINATION

A detailed desktop assessment was undertaken for the site. This was the point of departure for the calculation of design flood volumes. These adopted values were then used in the HEC-RAS and HEC-geoRAS models to route this flood event through the channel.

Desktop hydrological assessment

A detailed assessment of the climate was undertaken. Rainfall stations were considered based on their proximity to the site (contributing catchment), altitude and length/reliability of the data record. The long-term mean annual rainfall of the site that was used in the design was 481 mm (***Table 29***).

Table 29. Comparison of values from some of the rainfall stations that were assessed during the data analysis

STATION NO.	OBSERVED MAP (MM)	YEARS	ALTITUDE (M)	STATION NAME
0676705 W	481	50	1082	N/A
0633482 W	635	41	1052	Groenfontein
0633393 W	630	59	1204	Zaaiplaas
0677259 W	427	55	1295	Bergzicht
0633881 A	603	66	1094	Potgieterus

Allowable abstraction and water registration

Quaternary Catchment (QC) site: A61G (Limpopo/Mogalakwena). According to GN 538 (2016), the General Authorization (GA) limits for this QC are as follows:

- Abstraction of surface water: 2 000 m^3 / year @ 1 l/s from throughout the year;

- Storage of water: 2 000 m^3; and
- Groundwater abstraction: 0 m^3/ha/year (allowed under GA).

These limits show that this catchment area is water limited and restricted water use applies.

Catchment

Contour lines were used to calculate the slope of each of the banks. These were further improved through height measurements taken on-site. The soils and geology were obtained from GIS layers obtained from the Soil Science department at the University of KwaZulu-Natal (UKZN). Various vegetation databases were used to determined the likely or expected vegetation types (Mucina & Rutherford, 2006; Scott-Shaw & Escott, 2011). A number of recognized databases were utilized in achieving a comprehensive review, and allowing any regional or provincial conservation and biodiversity concerns to be highlighted.

This site is dominated by Makhado Sweet Bushveld (SVcb 20, Mucina and Rutherford, 2006). This occurs within the sub-escarpment savanna biome. The desktop analysis revealed that the area is largely transformed, with the possibility for some flagged fauna and flora (e.g. red data species and endangered wildlife) being found from the C-plan, SEA and MINSET databases. However, this does not necessarily mean that rare or endangered species will occur in the area of interest. The following information was collected for the vegetation unit SVcb 20 (Mucina & Rutherford, 2006; Scott-Shaw & Escott, 2011):

- **Distribution:** Limpopo Province: Straddling the Tropic of Capricorn, occurs on the plains south of the Soutpansberg, east of the Waterberg and on the apron surrounding the Blouberg and Lerataupje Mountains, and north of the Polokwane Plateau and west of the escarpment, with extensions to Mokopane to the south and to the north near Vivo.
- **Altitude:** about 850–1 200 m (***Figure 46***).
- **Vegetation & Landscape Features:** Slightly to moderately undulating plains sloping generally down to the north, with some hills in the southwest. Short and shrubby bushveld with a poorly developed grass layer (***Figure 45***).
- **Geology & Soils:** The area is underlain by the gneisses and migmatites of the Hout River Gneiss (Randian Erathem) and the potassium-deficient gneisses of the Goudplaats Gneiss (Swazian Erathem). Sandstones and mudstones of the Matlabas Subgroup (Mokolian Waterberg Group) are also found. Soils include deep, greyish sands, eutrophic plinthic catenas, red-yellow apedal freely drained soils with high base status, clayey in bottomlands. Land types mainly Bd, Bc, Ae and Ia.
- **Climate:** Summer rainfall with very dry winters. MAP about 350–550 mm. Frost fairly infrequent. Mean monthly maximum and minimum temperatures for Mara-Agr 36.5°C and –0.8°C for November and June, respectively. See also climate diagram for SVcb 20 Makhado Sweet Bushveld.

Table 30: Land cover area for the contributing catchment areas

LAND COVER	CATCHMENT 1 AREA (HA)	CATCHMENT 1 PERCENTAGE	CATCHMENT 2 AREA (HA)	CATCHMENT 2 PERCENTAGE
Bare Ground	638.23	2.84	480.52	9.90
Cultivated commercial annual crops non-pivot	17.13	0.08	0.00	0.00
Cultivated commercial permanent orchards	72.31	0.32	10.04	0.21
Cultivated subsistence crops	2591.68	11.55	331.91	6.84
Degraded	730.05	3.25	226.33	4.66
Grasslands	2102.50	9.37	84.46	1.74

Low shrubland	458.67	2.04	171.43	3.53
Prospectings	1004.03	4.47	819.52	16.89
Plantations / Woodlots	0.27	0.00	0.00	0.00
Settlements	1751.94	7.80	698.82	14.40
Thicket /Dense bush	377.41	1.68	130.62	2.69
Waterbodies	51.62	0.23	2.20	0.05
Wetlands	5.94	0.03	3.33	0.07
Woodland/Open bush	12646.17	56.34	1893.12	39.01
Total	**22447.94**	**100.00**	**4852.30**	**100.00**

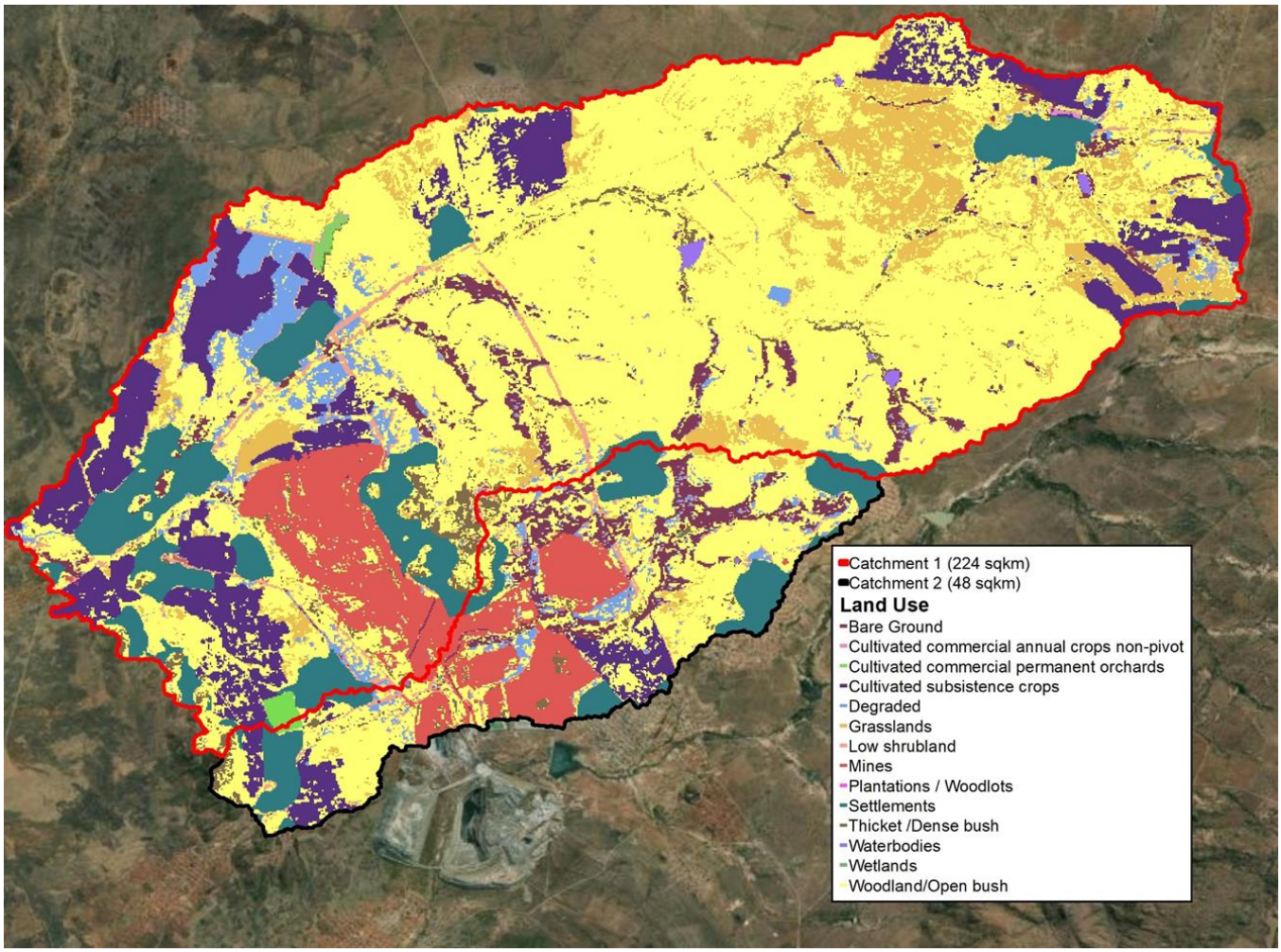


Figure 45: Existing land use for the catchment area of the proposed site

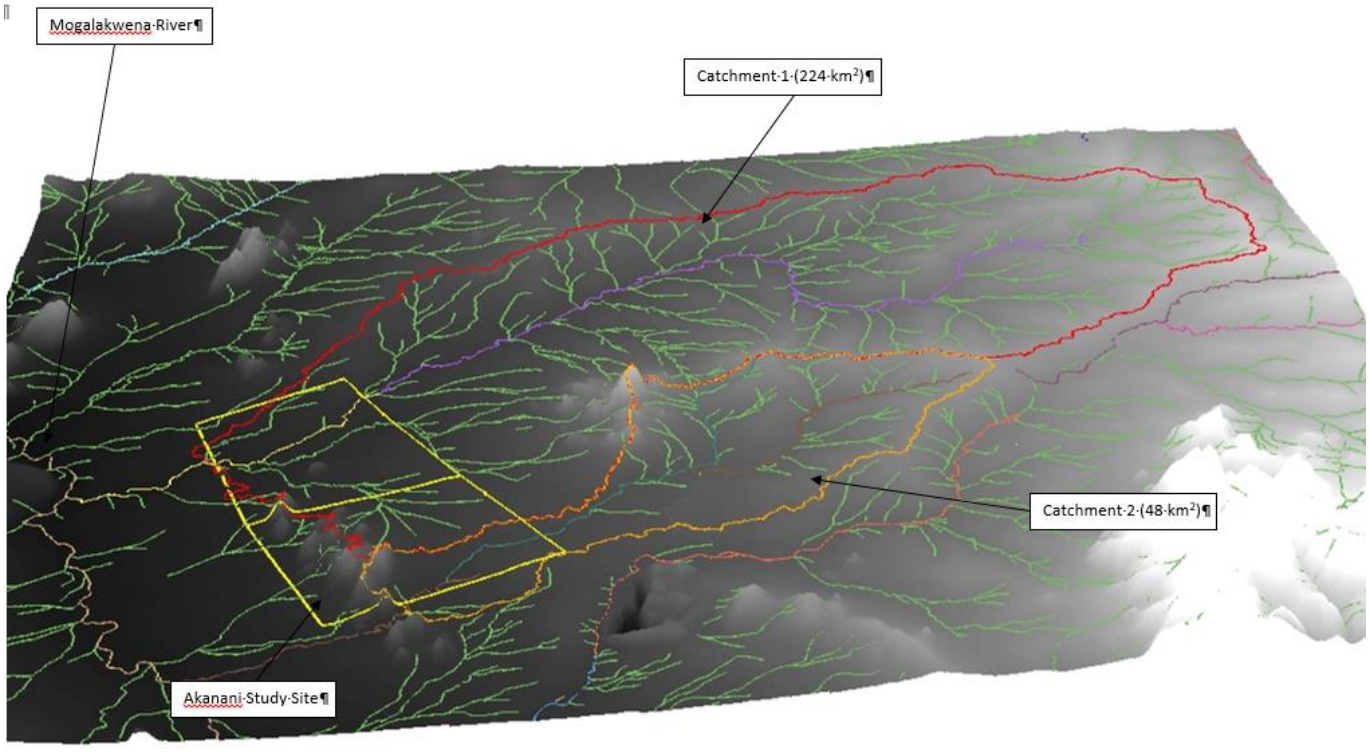


Figure 46: Exaggerated (×3) Digital Elevation Model (DEM) of the catchment surrounding the proposed site

Design rainfall

Design rainfall differs from mean annual rainfall as it is rainfall associated with an events rainfall depth for a specified storm duration and a recurrence interval (frequency of occurrence). The design rainfall used is dependent on the method used to determined the peak discharge. The SCS-SA method use 1 day-rainfall for various return periods while the Rational and SDF Methods use rainfall intensity linked to the catchments Time of Concentration (Tc) and Storm Duration.

Table 31 provides a summary of the results of design rainfall analysis.

Table 31: Comparison between the various one-day design rainfall estimation techniques available for the study area

RETURN PERIOD	DESIGN RAINFALL DEPTH (MM)		
	SDF	SCS-SA (USING DRE)	RATIONAL
10 Year Return Period	96.71	102	96.71
50 Year Return Period	150.3	155	150.3
100 Year Return Period	175.34	181	175.34

Design peak discharge

The design runoff results obtained for the 1:20, 1:50 and 1:100 year flood events for the various river reaches are summarized in ***Table 32***. The high contrast in values is due to the catchment size limitations of the design approaches. It is expected by the hydrologist that the estimates from the SDF are unrealistic. This is likely due to build up nature of the catchment areas and rainfall value that may not be representative of the entire catchment (the area is known for localised storm events). Furthermore, the lack of vegetation and the presence of roads has resulted in a much shorter time of concentration than what would have occurred in past decades. The design values indicate that the larger design events were vastly different between models whereas the smaller more frequent events were similar between models. This is likely due to the recommended catchment areas that these models are designed for. Given the results, the rational model was considered to be the most appropriate model if design rainfall were to be used, based on the larger catchment area, while the SCS-SA method was used for the smaller catchment 2.

Table 32: Adopted design peak discharge values run through HEC-RAS for the catchment area

PEAK DISCHARGE ($M^3.S^{-1}$)	RETURN PERIOD						
	2	5	10	20	50	100	200
RATIONAL	81.397	141.130	193.242	257.015	376.318	501.860	574.963
SDF	14.65	67.10	116.19	173.28	261.13	337.35	421.04
SCS-SA	37.4	74.8	107.8	147.4	212.3	268.0	334.5

Hydraulic modelling

Various hydraulic models were produced in HEC-RAS and exported to HEC-geoRAS by importing river centreline, cross sections, water surfaces and flow data from GIS layers and the hydrologic model. This allowed for inundation mapping and flood line polygons to be generated. The water surface TIN was converted to a GRID, and then the actual elevation model was subtracted from the water surface grid. The area with positive results (meaning the water surface is higher than the terrain) illustrated the flood area, whereas the area with negative results illustrated the dry areas not inundated by the flood. Inundation can be seen at various locations such as around bends.

The 1:2, 1:5, 1:10, 1:20, 1:50, 1:100 and 1:200 year combined flood hydrograph showed a moderate time of concentration and a high combined peak. The 1:100 year flood extent (***Figure 47***) for the current state indicated that the low lying banks and some floodplain areas surrounding the site are within the flood extent. However, most of the area is not within the flood extent. The proposed development should take cognisance of likely flood areas. The flood extents that fall within the site boundary are small and the velocity risk of damage would be very low due to the very gentle slope of the catchment. As such, if a flood event were to occur, the site would be at low/minimal risk of damage but may be inundated with slow flowing water.

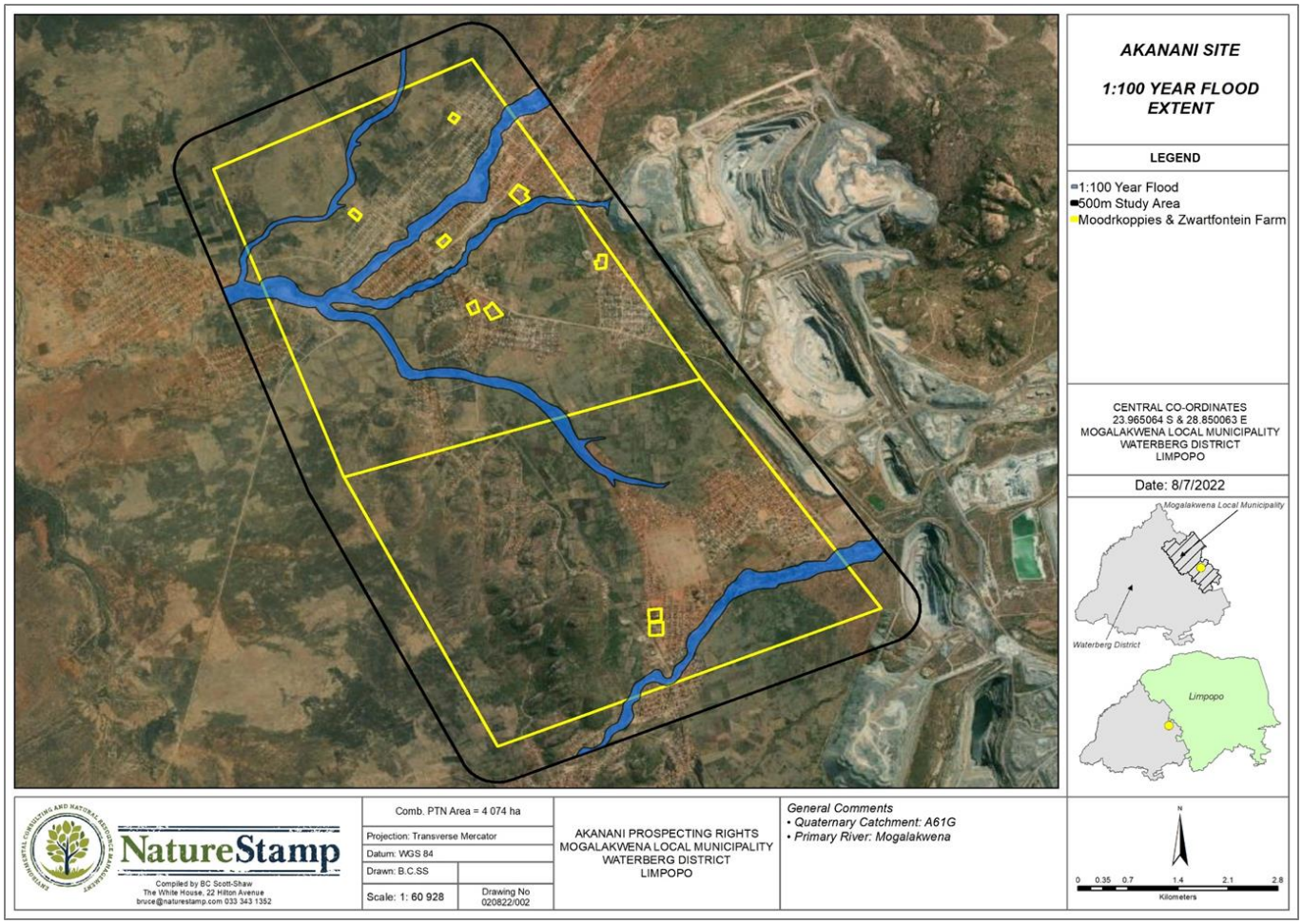


Figure 47: 1:100 year flood extent for the proposed site

b. VERIFICATION STATEMENT

The sensitivity of the water resources in relation to the proposed activity was considered to be high, within the 100m buffer of the floodline. However, due to the non-invasive prospecting activities no impacts are expected.

A high sensitivity classification is defined as a water resource that is located in the vicinity of a high risk activity such as mining. In this instance if prospecting occurs within 100m of the 1 in 100 year floodline it will be considered high sensitivity.

In the context of this study this area was classified as high sensitivity due to the following:

- Water courses are located downstream of the proposed activity. As such any spillage of pollutants or incidents could result in these chemicals entering the water system.

- Potentially there will be a removal and replacement of the current surface vegetation on site. Until the closure of the prospecting site a large portion of this site could be exposed to the elements which could result in considerable erosion and therefore, potential pollution of the downslope water courses.
- If there are contaminants from the excess prospecting water stored in the proposed raw water dam, it is possible that in an extreme rainfall event that this dam may overflow into the water courses downslope.

Table 33 provides a summary of the verified sensitivity in relation to the determinedd flood lines.

Table 33: Verified sensitivity in relation to the determinedd flood line

SCREENING TOOL SENSITIVITY	VERIFIED SENSITIVITY	OUTCOME STATEMENT/PLAN OF STUDY
N/A	**High**, within the 100m buffer of the flood line **Low** outside of the flood line	Compliance and Mitigation Plan

c. *IMPACT STATEMENT*

This site proposed activity on this site is non-invasive prospecting for platinum metals group. It should be noted that at this stage that there is no plan yet available for location of the proposed activities, or site layout plan should this proceed beyond the prospecting stage. As such the prospecting activities have been identified as low impact due their non-invasive methods and should have negligible effect on the hydrology of the system if they remain outside the 100m buffer of the 1 in 100-year flood line. If activities take place within the 100m buffer then they should be kept to minimum, to ensure that the riparian land scape, which impacts on the hydrology of the system, is not disturbed.

d. *REASONED OPINION FOR ISSUING EA*

Due to the non-invasive nature of the proposed prospecting, there is no reason identified why the EA should not be issued. However, should the scope of the proposed prospecting change to intrusive the following must be considered:

- The current activities on the proposed prospecting right area have a considerable impact on the water resources both onsite and downstream in terms of water quality. From the satellite imagery and the current land use maps, there is considerable degradation and subsistence farming occurring which result in a deterioration of this system. As such it possible that there currently pollutants in the form of sediments and possibly agricultural chemicals in the river system. This highlights that the risks associated with intrusive prospecting on this site, is the exposing soil surface already vulnerable. Hence, it is recommended that the activities within the 100m buffer be kept to minimum and a detailed mitigation plan and measures be followed.
- Despite the disturbance of the natural vegetation on this site there are still areas in which this vegetation is present. These areas of natural vegetation must remain intact. If the prospecting proceeds to more invasive methods and eventually a mining site is proposed then it is recommended that the site be re-assessed with this information available.

VII. NOISE

EARES Enviro-Acoustic Research was appointed by EMA on behalf of BCR Projects (Pty) Ltd to conduct a baseline Noise Compliance Statement and Screening Report.

The following sections summarises the outcome.

The detailed report is attached as ***Appendix F.6 – Noise Scoping Assessment***.

e. OUTCOME OF DESKTOP ASSESSMENT

Table 34 provides a summary of environmental components that may contribute or change the sound character within the general site area associated with the proposed prospecting right.

Table 34: Summary of environmental component that may contribute or change the sound character in the area

TOPOGRAPHY	The Environmental Potential Atlas of South Africa (ENPAT) (Van Riet *et al*, 1998) describes the topography as *"Lowlands with mountains"*. There are little natural features that could act as noise barriers considering practical distances at which noises may propagate.
SURROUNDING LAND USE	The area in the direct vicinity of the project focus area (PFA) is complex, having a developmental character ranging between that of a rural to urban area, with significant residential activities located within the PFA (see ***Figure 48***) and some subsistence activities. There are significant mining activities to the east of the PFA. Road traffic noises is a significant source of noise in the area (especially the Bakeng and Mapela Road).
GROUND CONDITIONS AND VEGETATION	The area falls within the Savanna biome with the natural vegetation being Mukhado Sweet Bushveld. The natural veldt has been significantly impacted by anthropogenic activities.
ROADS AND RAILWAY LINES	There are a number of local roads transecting the PFA, though traffic volumes on these roads being unknown. The effect of traffic noises on ambient sound levels will not be considered in this Screening Level Report.
EXISTING AMBIENT SOUND LEVELS	Ambient sound levels were measured by the Author (de Jager, 2021) over a two-night period approximately 35m from the N11 and Bankenberg Roads, with the findings summarized below: • **Ambient sound levels 35m from the N11 road** o 16-hour daytime period, the equivalent $L_{Aeq,f}$ value is 51.1 dBA, with the arithmetic average being 51.4 dBA. This is typical of the noise rating levels expected of a suburban urban noise district. Considering the arithmetic average value, the sound level is acceptable for daytime residential use; o two 8-hour night-time periods, the equivalent $L_{Aeq,f}$ value is 48.6 dBA, with the arithmetic average being 47.4 dBA. This is typical of the noise levels expected of an urban to busy urban (with main roads, workshops and business) noise district (and higher than the expected for the area – with the noise levels relating to the proximity to the N11 road). The sound levels are higher than the IFC noise limit for residential use at night.; o The statistical L_{A90} levels are significantly elevated for both the day- (40.9 dBA90) and night-time (35.7 dBA90) periods, indicating constant sounds that raised this statistical indicator. The source of this acoustic energy is mainly due to the road traffic noises in the area. • **Ambient sound levels 35m from Bakenberg road** o 16-hour daytime period, the equivalent $L_{Aeq,f}$ value is 55.3 dBA, with the arithmetic average being 55.6 dBA. This is typical of the noise rating levels expected of an urban noise district. Considering the arithmetic average value, the sound level is acceptable for daytime residential use; o two 8-hour night-time periods, the equivalent $L_{Aeq,f}$ value is 55.0 dBA, with the arithmetic average being 51.4 dBA. Considering the arithmetic average, this is

	typical of the noise levels expected of a busy urban (with main roads, workshops and business) noise district. The sound levels are higher than the IFC noise limit for residential use at night; ○ The statistical L_{A90} levels are significantly elevated for both the day- (39.7 dBA90) and night-time (35.3 dBA90) periods, indicating constant sounds that raised this statistical indicator. The source of this acoustic energy is mainly due to the road traffic noises in the area. Considering the ambient sound levels measured by the Author (de Jager, 2021) and the developmental character of the surrounding area, this report determinedd noise rating levels typical for: • a busy urban (with main roads, business and workshops) noise district for areas within 100m from the existing roads; • an urban noise district for areas further than 100m from the existing roads; and • a suburban to rural noise districts further than 1,000m from existing roads.
POTENTIAL SENSITIVE RECEPTORS	Residential areas and potential noise-sensitive developments/receptors (NSR) were identified using tools such as Google Earth®. The closest potential NSR (receptors identified within 2000m from the PFA) is highlighted in ***Figure 49***. Also indicated on this figure are the 500, 1000 and 2000 m buffer zones. Generally, noise from prospecting activities: • Could be significant within 500m from drilling activities (precautious approach, drilling not anticipated with only non-invasive prospecting anticipated); • may be clearly audible and potentially annoying during quiet periods up to 1000m from drilling activities (precautious approach, drilling not anticipated with only non-invasive prospecting anticipated); and • audible up to 2000m from drilling activities (precautious approach, drilling not anticipated with only non-invasive prospecting anticipated). Noise from any drilling activities should be of a low concern further than 2000m from such activities.

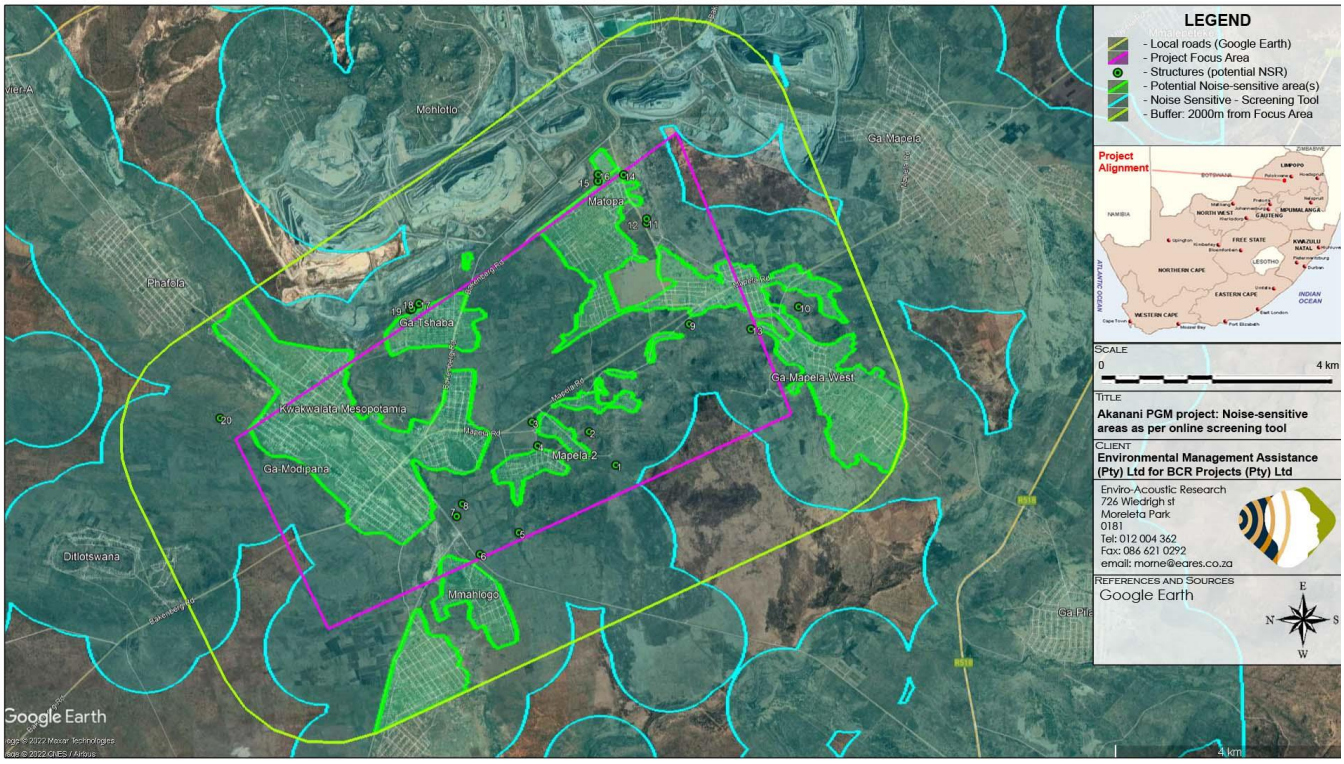


Figure 48: Noise sensitive areas identified by the Screening Tool

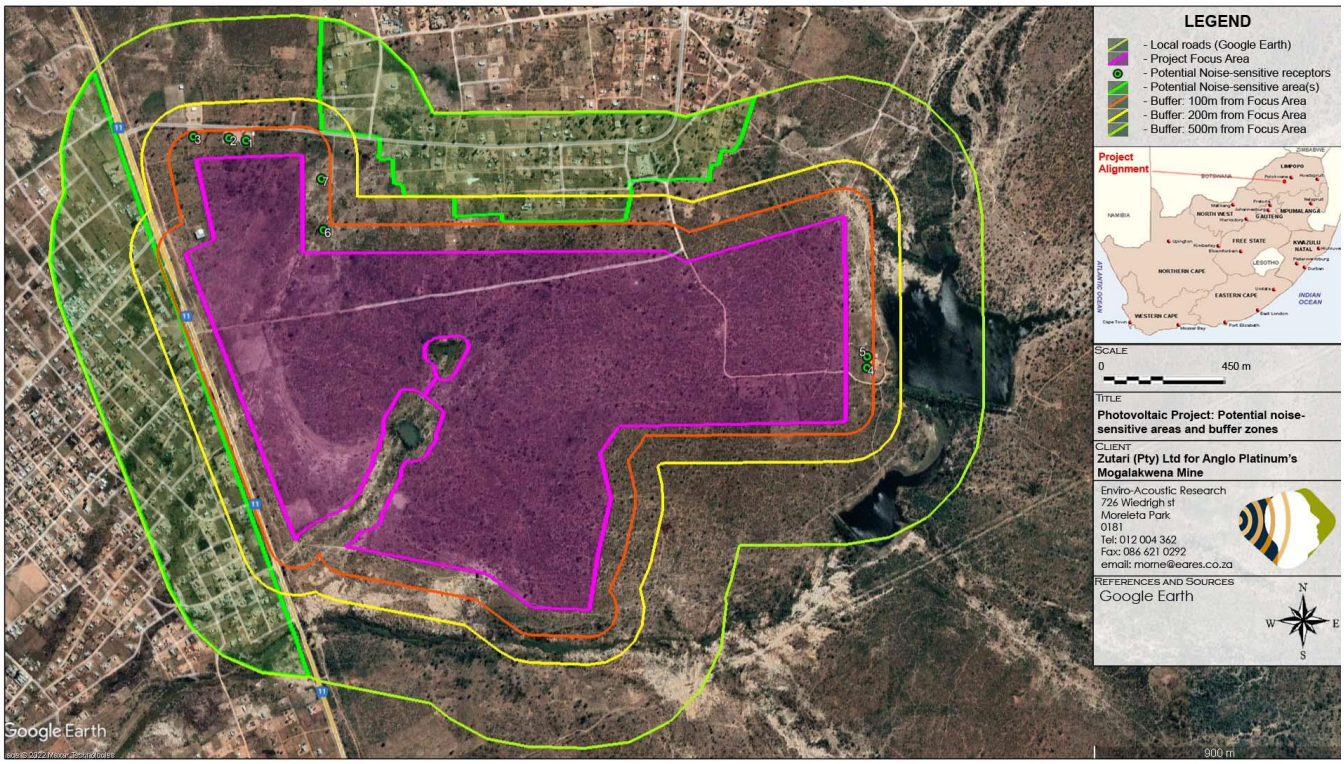


Figure 49: Noise sensitive areas and receptors close to the PFA of the proposed non-invasive prospecting rights area

f. VERIFICATION STATEMENT

An initial desktop verification was done, considering the noise layer as available from the National Web based Environmental Screening Tool and aerial imagery available on from Google Earth ©. Aerial images available on Google Earth © is recent (dated 3 March 2021) and of sufficient resolution to identify and verify potential noise sensitive areas as illustrated on ***Figure 48***.

This screening report will be sufficient for non-invasive (desktop analysis of data) prospecting and the available information is sufficient to advice on the way forward in terms of acoustics.

Table 35 provides the summary of the verification outcome.

Table 35: Verified sensitivity in terms of Noise

SCREENING TOOL SENSITIVITY	VERIFIED SENSITIVITY	OUTCOME STATEMENT/PLAN OF STUDY
Very High	**Very High**	Screening report in terms of SANS 10328:2998 for non-invasive prospecting.

g. IMPACT STATEMENT

While there are numerous potential NSR staying within the PFA, the proposed prospecting will be non-invasive and the proposed activities will not change ambient sound levels within the PFA, nor result in any unreasonable or annoying noises. The risk of a noise impact (for non-invasive prospecting) is of a low significance.

h. REASONED OPINION FOR ISSUING THE EA

As such it is recommended that the proposed prospecting activities be authorized from an acoustic perspective.

The recommendation in this report is therefore conditional that the prospecting activities are non-invasive as reported by the applicant, with no further Noise Scoping or other acoustical studies required. For non-invasive prospecting, no additional impact management or any noise monitoring are required for inclusion in the EMPr.

However, if a change in scope to intrusive prospecting are planned or anticipated, it is recommended that this be investigated in a full noise specialist assessment.

(b) DESCRIPTION OF THE CURRENT LAND USES

Short description of the current land uses of the surrounding environment.

Find ***Appendix C – Site Layout Plan, Sensitivities, and Land Use***.

(c) DESCRIPTION OF SPECIFIC ENVIRONMENTAL FEATURES AND INFRASTRUCTURE ON SITE

As part of the specialist desktop assessment and site sensitivity verification several environmentally and socially sensitive receptors were identified.

The defined sensitivities should be considered as “no-go” areas or “areas requiring further investigation and assessment”, should the proposed scope associated with this prospecting right change, i.e. intrusive prospecting.

*Find **Appendix C – Site Layout Plan, Sensitivities, and Land Use.***

(d) ENVIRONMENTAL AND CURRENT LAND USE MAP

(Show all environmental and current land use features)

Find ***Appendix C – Site Layout Plan, Sensitivities, and Land Use.***

iv) IMPACTS AND RISKS IDENTIFIED INCLUDING THE NATURE, SIGNIFICANCE, CONSEQUENCE, EXTEND, 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 summarises the potential impacts associated to the proposed non-invasive prospecting. For the purpose of this desktop impact assessment, the potential impacts that must be considered in the event of a change in scope (i.e. change from non-invasive prospecting to intrusive prospecting that includes drilling, trenching or bulk sampling) will be briefly highlighted. For this purpose, it will be considered as the "Planning Phase". The potential impacts and risks are explored by investigating each aspect (i.e. air quality, soil quality, water quality etc.) associated to the proposed activities.

The provided management and mitigation measures only summarise the approach taken to manage each risk. A detailed mitigation plan will form part of the EMPr (***Part B – Environmental Management Programme Report***).

Table 36 provides the explanation of colour indicating the significance of the assessed potential impacts.

Table 36: Explanation of colour indicator

COLOUR	SIGNIFICANCE POINTS	EXPLANATION
Green	≤ 30	**LOW** environmental significance
Orange	31 - 60	**MODERATE** environmental significance
Red	> 60	**HIGH** environmental significance

The significance rating represented in this section is from a desktop perspective based on the findings of the various specialists. It also excludes the following considerations:

- Assessment of alternatives, i.e. prospecting methods, site layout (only the proposed layout as provided by the applicant was considered);
- Mitigation measures; and
- Management measures.

NON-INVASIVE PROSPECTING AND PLANNING PHASE

AGRICULTURE AND SOIL

ASPECT	SOIL & AGRICULTURAL							
ACTIVITIES	POTENTIAL IMPACT/RISK	DESKTOP SIGNIFICANCE RATING (PRE-MITIGATION)					MITIGATION TYPE	MANAGEMENT AND/OR MITIGATION EXTEND SUMMARY
		D	E	M	P	S		
Non-invasive Prospecting	No activities are anticipated with the proposed non-invasive prospecting rights. However, should there be a change in scope, the process stipulated by the NEMA 2014 EIA Regulations for amending the EA, must ***further assess*** the ***potential impacts*** associated with the ***proposed intrusive prospecting***, including but not limited the impacts/risks listed below:	1	1	0	1	2		*DEGREE TO WHICH IMPACT/RISK CAN BE REVERSED* Field verified data indicates that the study area is of **moderate** to **low** agricultural sensitivity. This can be attributed to the inherent duplex soil properties which dominates the study area, which includes soils of Swartland, Darnall and Glen formation. These soils present a challenge in a sense of root impediment presented by the high in clay top soil and subsoil horizons. Under the right circumstances these soils can be very productive for annual crops but they require intensive management and may not be economically viable to cultivate on a large scale. The soils which are most suitable for cultivation such as the Clovelly and Nkonkoni formation have been utilised for residential developments so as to avoid building on soils of duplex character and thus limiting the spatial extent of these soils. *DEGREE TO WHICH IMPACT/RISK MAY CAUSE IRREPLACEABLE LOSS OF RESOURCE* The overall impact is anticipated to be **low** and within acceptable levels from a soil and land capability point of view. However, should intrusive prospecting be considered, areas used for grazing and subsistence cultivation will potentially be impacted, which will ultimately impact on the local and regional livestock production. Although agricultural studies under the CARA Act 1983 prioritise crop cultivated agriculture, it is imperative that land with grazing capability is also conserved where feasible. *DEGREE TO WHICH IMPACT/RISK CAN BE AVOIDED, MANAGED OR MITIGATED* The potential impacts/risks may potentially be further ***mitigated and or avoided*** by implementing the following measures: • Assessment of alternatives i.e. prospecting methods, location of infrastructures, and reduction of the prospecting footprint; • Control though soil conservation and management during intrusive prospecting; • Avoid the loss of fertile soil by effectively implementing storm water management and erosion control throughout the intrusive prospecting activties; • Avoid contamination of soil resources through the development, implementation and review of incident management and emergency preparedness plans; and • Remedy through effectively and concurrently rehabilitating disturbed areas. All mitigation options must be considered during the required process to amend the EA to determined the degree to which the impact/risks can be avoided, managed, or mitigated.
Planning for intrusive prospecting	**Loss of agricultural land** *Direct impact:* • Situating infrastructures associated with intrusive prospecting within areas identified as high sensitivity related to agricultural use may cause the loss of arable land within the site and adjacent properties. *Indirect impact:* • Loss of arable land and fertile soil leads to the degradation of the overall agricultural potential for the surrounding community. *Cumulative impact:* • Food scarcity and reduction in income generated from agricultural activities. **Erosion formation and soil pollution** *Direct impact:* • Inadequate planning and assessment of required stormwater management infrastructure associated with the proposed prospecting has a high potential of exposing soils to environmental factors including rainfall and wind. • Sediment release due to inadequate storm water management infrastructures into the receiving environment causing the degradation of the soil profile. *Indirect impact:* • Loss of arable land and fertile soil leads to the degradation of the overall agricultural potential for the surrounding community. • Formation of erosion gullies have an impact on nutrient cycling, with knock on effects on the fertility of the soil. This reduces the viability of the soils for use in the rehabilitation of areas and additional soils will need to be brought in for this purpose. • Pollutants entering the soil profile may have the potential to affect the water quality if stormwater is not treated or managed before release into the natural environment. *Cumulative impact:* • Food scarcity and reduction in income generated from agricultural activities. • Cost implication associated with rehabilitation due to import of soils and increases the likelihood of contaminant introduction within an area with alien invasive species (both floral and faunal). • Change in the baseline soil profile cumulatively effects the micro fauna and flora environment.	2	2	6	3	30	Avoid or Remedy	

ARCHAEOLOGY, CULTURAL, AND PALAEONTOLOGY

ASPECT	ARCHAEOLOGY, CULTURAL, AND PALAEONTOLOGY								
ACTIVITIES	POTENTIAL IMPACT/RISK	DESKTOP SIGNIFICANCE RATING (PRE-MITIGATION)					MITIGATION TYPE	MANAGEMENT AND/OR MITIGATION EXTEND SUMMARY	
		D	E	M	P	S			
Non-invasive Prospecting	No activities are anticipated with the proposed non-invasive prospecting rights. However, should there be a change in scope, the process stipulated by the NEMA 2014 EIA Regulations for amending the EA, must ***further assess*** the ***potential impacts*** associated with the ***proposed intrusive prospecting***, including but not limited the impacts/risks listed below:	1	1	0	1	2	Avoid	*DEGREE TO WHICH IMPACT/RISK CAN BE REVERSED*	
								Based on the current information obtained for the area at a desktop level it is anticipated that any heritage resources that occur within the proposed development area will have a Local Significance (LS), Grade 3B or lower field rating and all sites should be mitigatable. Graves are of high social significance (Field rating GP A) and can be expected anywhere on the landscape.	
Planning for intrusive prospecting	**Loss of heritage and cultural resources** *Direct impact:* • Site selection near or within close proximity to sites of historical and cultural importance leading to the destruction of heritage resources or graves. *Indirect impact:* • Loss of heritage and history for the future generation of the affected community. *Cumulative impact:* • Community unrest. • Permanent loss of sites of historical and cultural significance.	2	2	8	4	48		*DEGREE TO WHICH IMPACT/RISK MAY CAUSE IRREPLACEABLE LOSS OF RESOURCE*	
								Significance rating of sites, mitigation measures and magnitude of possible impacts can only be determined after the field based HIA, should the non-invasive nature of the proposed prospecting right change.	
								DEGREE TO WHICH IMPACT/RISK CAN BE AVOIDED, MANAGED OR MITIGATED	
								The potential impacts/risks may potentially be further ***avoided*** by implementing the following measures: • Management actions identified in the revised EMPr; and • Developing a chance find procedure during all phases of the proposed development. All mitigation options must be considered during the required process to amend the EA to determine the degree to which the impact/risks can be avoided, managed, or mitigated.	

TERRESTRIAL BIODIVERSITY

ASPECT	TERRESTRIAL BIODIVERSITY								
ACTIVITIES	POTENTIAL IMPACT/RISK	DESKTOP SIGNIFICANCE RATING (PRE-MITIGATION)					MITIGATION TYPE	MANAGEMENT AND/OR MITIGATION EXTEND SUMMARY	
		D	E	M	P	S			
Non-invasive Prospecting	No activities are anticipated with the proposed non-invasive prospecting rights. However, should there be a change in scope, the process stipulated by the NEMA 2014 EIA Regulations for amending the EA, must ***further assess*** the ***potential impacts*** associated with the ***proposed intrusive prospecting***, including but not limited the impacts/risks listed below:	1	1	0	1	2	Avoid /Control	*DEGREE TO WHICH IMPACT/RISK CAN BE REVERSED*	
								Due to the ***historical disturbances*** and increase in residential infrastructure, ***most vegetation*** within the prospecting area was ***modified from the reference state of Makhado Sweet Bushveld***. ***Natural*** vegetation was recorded on ***the higher lying rocky outcrops*** within the ***western portion*** of the site, while some natural vegetation remains along ***drainage lines***. The ***ecological corridor south*** of the proposed prospecting right area must not be allowed to deteriorate as a result of intrusive prospecting supporting the ***very high*** terrestrial, specifically from an animal species perspective, sensitivity. All ***rivers/streams*** within should be considered as ***highly sensitive*** as they provide corridors, unique habitats and water provision. All remaining ***natural bushveld along the koppies*** and the riverine areas are considered as ***medium sensitivity*** in terms of general habitat provision to existing faunal populations on site (retaining these areas should allow the on-site natural and indigenous fauna to persist in the area).	
Planning for intrusive prospecting	**Degradation of terrestrial biodiversity** *Direct impact:* • An increased disturbance of the natural environment associated with the overall footprint of intrusive prospecting. • Positioning of the proposed prospecting in a high terrestrial sensitive area, poses a risk of altering the habitat of protected and endangered fauna and flora species. • Positioning the prospecting area and corresponding infrastructures in areas classified as a high sensitivity, will significantly impact the terrestrial biodiversity. *Indirect impact:* • Intrusion on the surrounding ecological support areas. • Loss of protected and endangered fauna and flora species. • Failing to meet National Biodiversity Targets.	2	2	8	4	48		*DEGREE TO WHICH IMPACT/RISK MAY CAUSE IRREPLACEABLE LOSS OF RESOURCE*	
								The desktop assessment of the available information and site verification results indicated that about half of the vegetation within the prospecting rights area were modified or in a semi-natural state. Some remnant ***Makhado Sweet Bushveld*** is in a ***semi-natural state*** as its ecological function is maintained while the vegetation composition and structure are largely intact. The Makhado Sweet Bushveld is considered as ***medium sensitivity*** to intrusive prospecting, provided that large tracks of this group are not cleared.	

	Cumulative impact: • Loss of vegetation and habitat leads to the overall degradation of the terrestrial ecology. • Critical support regions to surrounding ecological support and protected areas are affected and may lead to the degradation of the protected area's ecology.							*DEGREE TO WHICH IMPACT/RISK CAN BE AVOIDED, MANAGED OR MITIGATED* The potential impacts/risks may potentially be further ***avoided or mitigated*** by implementing the following measures: • The implementation of a species search and rescue prior to the commencement of construction activities; • Appointing a suitably qualified Environmental Control Officer (ECO) prior to the commencement of any activities monitoring all vegetation clearance activities; • Obtaining the required permits for the removal of protected species; and • Awareness training of all contractors and permanent employees. All mitigation options must be considered during the required process to amend the EA to determine the degree to which the impact/risks can be avoided, managed, or mitigated.

AQUATIC BIODIVERSITY

ASPECT	AQUATIC BIODIVERSITY							
ACTIVITIES	POTENTIAL IMPACT/RISK	DESKTOP SIGNIFICANCE RATING (PRE-MITIGATION)					MITIGATION TYPE	MANAGEMENT AND/OR MITIGATION EXTEND SUMMARY
		D	E	M	P	S		
Non-invasive Prospecting	No activities are anticipated with the proposed non-invasive prospecting rights. However, should there be a change in scope, the process stipulated by the NEMA 2014 EIA Regulations for amending the EA, must ***further assess*** the ***potential impacts*** associated with the ***proposed intrusive prospecting***, including but not limited the impacts/risks listed below:	1	1	0	1	2		*DEGREE TO WHICH IMPACT/RISK CAN BE REVERSED* The ***low*** risk to the freshwater environment, due to ***non-invasive prospecting***, would change in the event of a change in nature of the proposed prospecting right. The ***freshwater features*** in the study area have been confirmed to be of ***very high aquatic biodiversity / freshwater sensitivity***.
Planning for intrusive prospecting	**Loss of aquatic biodiversity/ Direct Loss of Wetland Features** *Direct impact:* • Locating the intrusive prospecting activities within 500m of a wetland, poses a risk in altering the support regions into the wetland. • Site clearing and topsoil stripping in Wetlands will cause the loss of micro and macro aquatic species. The potential presence of wetland features with the proposed mining area is likely to result in the direct loss of potential wetland features present. *Indirect impact:* • Alteration of wetland support zones poses the risk of alien invasive species the invade, leading to the deterioration of the nearby wetland system. *Cumulative impact:* • Intrusive prospecting activities may result in impacts to drivers of wetland features adjacent to and/or downstream of the proposed prospecting right areas, resulting in the degradation and loss of ecosystem services provided by wetlands. • Intrusive prospecting may impact on national protected areas targets and provincial freshwater conservation targets, both of which are expected to be cumulative in the impact is to be considered with other regional impacts that have or are expected to have on such areas. • Loss of unique biodiversity features. **Erosion and sedimentation of Wetlands** *Direct impact:* • Locating access roads through drainage lines may cause sedimentation and siltation of watercourses if not managed properly. • Improper or ineffective storm water runoff management features poses a risk of contributing to the sedimentation and siltation of watercourses.	3	3	10	4	64	Avoid /Mitigate	*DEGREE TO WHICH IMPACT/RISK MAY CAUSE IRREPLACEABLE LOSS OF RESOURCE* Should the prospecting activities, as proposed, ***remain non-invasive*** (with no physical activity on the site), the prospecting activities will ***not result in an impact*** (new or cumulative) on the freshwater features in the study area. Due to the ***high sensitivity*** associated with the ***freshwater features*** in the study area, it is recommended that a future ***Aquatic Biodiversity Specialist Assessment*** must be undertaken should the ***prospecting*** rights application ***be altered or approved to allow any activities other than non-invasive*** activities as currently proposed by the applicant that would result in the potential for impacts on freshwater resources to result from such prospecting activities. *DEGREE TO WHICH IMPACT/RISK CAN BE AVOIDED, MANAGED OR MITIGATED* The potential impacts/risks may potentially be further ***avoided or mitigated*** by implementing the following measures: • Control through the implementation of storm water management and erosion control; • Avoid impacts through adequately managing effluent and runoff; • Avoid accidental release through the development, implementation, and review of incident management and emergency preparedness plans; • Control through the continuing awareness training of all personal throughout the entire life cycle of the proposed development; and • Remedy through the effective implementation of rehabilitation measures. All mitigation options must be considered during the required process to amend the EA to determine the degree to which the impact/risks can be avoided, managed, or mitigated.

	Indirect impact: • In addition, the presence of bare soil associated with stockpiles during mining activities will result in a change in the stormwater runoff volume and velocity entering adjacent wetland systems. • Various impacts have been attributed to sedimentation of aquatic ecosystems, including reduction of light penetration (resulting in reduction in photosynthesis and subsequently, productivity), alteration of foraging dynamics of both carnivores and herbivores, impacting on predator and prey relationships, clogging of gills, rendering the watercourse unfit for various aquatic organisms, truncating and shifting the trophic pyramid, absorption of nutrients onto suspended particles, rendering them unavailable and thereby reducing the productivity of the watercourse, and filling of interstitial spaces, thereby destroying habitat for macro invertebrates and vertebrates owing to sedimentation, etc. • Sediment deposition within the western tributary is further expected to smother available stones biotopes, leading to a reduction in abundance and diversity of flow-sensitive hydraulic habitat, ultimately resulting in a loss of sensitive aquatic biota noted to be present. *Cumulative impact:* • Alteration of aquatic ecology of direct affected watercourses and downstream watercourses. • Loss of unique biodiversity features. • The proposed activity is expected to impact on national protected areas targets and provincial freshwater conservation targets, both of which are expected to be cumulative if the impact is to be considered with other regional impacts that have or are expected to have on such areas. **Water Quality Deterioration/Contamination of Water Resource** *Direct impact:* • Dirty water runoff from intrusive prospecting footprint(s) enters the adjacent aquatic ecosystem, water quality deterioration is likely to result, including increases in turbidity, sulphates and metal concentrations (e.g. aluminium and iron), and potentially a drop in pH. Accordingly, aquatic assemblages are likely to be negatively affected, with a decrease in diversity expected. *Indirect impact:* • Over an extended period, the exposure to contamination will cause the degradation of fauna and flora habitats and affect the surface and sub-surface water quality. *Cumulative impact:* • Mismanagement of prospecting-generated waste and pollutants (including hydrocarbons, construction waste, hazardous chemicals, etc.) is likely to result in these substances or their derivatives entering and polluting the sensitive aquatic environments either directly through surface runoff during rainfall events, or subsurface water movement. • An increase in pollutants will lead to changes in the water quality of the wetlands and watercourses, affecting their ability to act as ecological corridors within the development landscape. • The linked nature of the wetland systems to downstream water resources will result in pollutants being carried downstream from the mine construction site having consequences on further downstream users. • The proposed activity is expected to impact on national protected areas targets and provincial freshwater conservation targets, both of which are expected to be cumulative if the impact is to be considered with other regional impacts that have or are expected to have on such areas. **Invasive alien plant encroachment** *Direct impact:* • Alien invasive trees and shrubs are expected to increase within the area as these species tend to invade areas that have been disturbed (e.g. on stockpiles and excavated or eroded areas). Such disturbed areas are likely to act as seed areas that will ultimately facilitate the invasion of associated watercourses and riparian areas.							

	Indirect impact: • Alien species generally out-compete indigenous species for water, light, space and nutrients as they are adaptable to changing conditions and are able to easily invade a wide range of ecological niches, posing an ecological threat as they alter habitat structure, lower biodiversity (both number and "quality" of species), change nutrient cycling and productivity, and modify food webs. *Cumulative impact:* • Critical support regions to surrounding ecological support and protected areas are affected and may lead to the degradation of the protected area's ecology.							

SURFACE WATER RESOURCE

ASPECT	SURFACE WATER RESOURCE							
ACTIVITIES	POTENTIAL IMPACT/RISK	DESKTOP SIGNIFICANCE RATING (PRE-MITIGATION)					MITIGATION TYPE	MANAGEMENT AND/OR MITIGATION EXTEND SUMMARY
		D	E	M	P	S		
Non-invasive Prospecting	No activities are anticipated with the proposed non-invasive prospecting rights. However, should there be a change in scope, the process stipulated by the NEMA 2014 EIA Regulations for amending the EA, must ***further assess*** the ***potential impacts*** associated with the ***proposed intrusive prospecting***, including but not limited the impacts/risks listed below:	1	1	0	1	2		*DEGREE TO WHICH IMPACT/RISK CAN BE REVERSED* The proposed ***non-invasive prospecting*** is identified as ***low with no impacts/risks*** associated with the determined flood line. However, should the nature of the proposed non-invasive prospecting change to ***intrusive prospecting***, all activities within the ***100m buffer of the 1:100-year flood line*** to be ***avoided***. *DEGREE TO WHICH IMPACT/RISK MAY CAUSE IRREPLACEABLE LOSS OF RESOURCE* A high sensitivity classification is defined as a water resource that is located in the vicinity of a high-risk activity such as intrusive prospecting. In this instance if prospecting occurs ***within 100m of the 1 in 100-year flood*** line it will be considered ***high sensitivity***. *DEGREE TO WHICH IMPACT/RISK CAN BE AVOIDED, MANAGED OR MITIGATED*
Planning for intrusive prospecting	**Degradation of natural water resources/Water resource contamination** *Direct impact:* • Locating intrusive prospecting activities within proximity to a natural drainage line or wetland, poses the risk of associated activities increasing the overall sediment load into the water resource. • Locating access roads through drainage lines may cause sedimentation and siltation of watercourses if not managed properly. • Improper or ineffective storm water runoff management features poses a risk of contributing to the sedimentation and siltation of watercourses. *Indirect impact:* • An increased sediment load decreases the overall water quality of surface water resources. • Over an extended period, the exposure to contamination will cause the degradation of fauna and flora habitats and affect the surface and sub-surface water quality. *Cumulative impact:* • Mismanagement of prospecting-generated waste and pollutants (including hydrocarbons, construction waste, hazardous chemicals, etc.) is likely to result in these substances or their derivatives entering and polluting the sensitive aquatic environments either directly through surface runoff during rainfall events, or subsurface water movement. • An increase in pollutants will lead to changes in the water quality of the wetlands and watercourses, affecting their ability to act as ecological corridors within the development landscape. • The linked nature of the wetland systems to downstream water resources will result in pollutants being carried downstream from the mine construction site having consequences on further downstream users. • The proposed activity is expected to impact on national protected areas targets and provincial freshwater conservation targets, both of which are expected to be cumulative if the impact is to be considered with other regional impacts that have or are expected to have on such areas. • Alteration of aquatic ecology of direct affected watercourses and downstream watercourses. • Loss of unique biodiversity features.	3	3	10	4	64	Avoid /Control	The potential impacts/risks may potentially be further ***managed (controlled)*** by implementing the following measures: • Control through the implementation of storm water management and erosion control; • Avoid impacts through adequately managing effluent and runoff; • Avoid accidental release through the development, implementation, and review of incident management and emergency preparedness plans; • Water conservation through monitoring water use and quality throughout the entire life cycle of the proposed development; • Control through the continuing awareness training of all personal throughout the entire life cycle of the proposed development; and • Remedy through the effective implementation of rehabilitation measures. All mitigation options must be considered during the required process to amend the EA to determine the degree to which the impact/risks can be avoided, managed, or mitigated.

	All potential impacts/risks identified under the "Aquatic Biodiversity" section directly or indirectly relates to surface and groundwater resources and should also be taken into consideration.							

NOISE

ASPECT	NOISE							
ACTIVITIES	POTENTIAL IMPACT/RISK	DESKTOP SIGNIFICANCE RATING (PRE-MITIGATION)					MITIGATION TYPE	MANAGEMENT AND/OR MITIGATION EXTEND SUMMARY
		D	E	M	P	S		
Non-invasive Prospecting	No activities are anticipated with the proposed non-invasive prospecting rights. However, should there be a change in scope, the process stipulated by the NEMA 2014 EIA Regulations for amending the EA, must ***further assess*** the ***potential impacts*** associated with the ***proposed intrusive prospecting***, including but not limited the impacts/risks listed below:	1	1	0	1	2	Control	*DEGREE TO WHICH IMPACT/RISK CAN BE REVERSED* While there are numerous potential noise sensitive receptors staying within the proposed prospecting right area, the proposed non-invasive nature will ***not change the current ambient sound levels***, nor result in any unreasonable or annoying noises. *DEGREE TO WHICH IMPACT/RISK MAY CAUSE IRREPLACEABLE LOSS OF RESOURCE* The risk of a noise impact (for ***non-invasive prospecting***) is of a ***low significance***. However, should the scope of the proposed prospecting change as being intrusive, the impacts associated must be further investigated in a full noise specialist assessment. *DEGREE TO WHICH IMPACT/RISK CAN BE AVOIDED, MANAGED OR MITIGATED* The potential impacts/risks may potentially be further ***managed (controlled)*** by implementing the following measures: • Implementation of the monitoring programme as specified in the EMPr; and • Ensuring sufficient noise screening measures should any specific activity exceed the 85 dBA threshold. All mitigation options must be considered during the required process to amend the EA to determine the degree to which the impact/risks can be avoided, managed, or mitigated.
Planning for intrusive prospecting	**Noise generation** *Direct impact:* • Increase in noise level at receptors. Disturbing noises. Increased noises or disturbing noises may increase annoyance levels with project. • Locating the proposed development within close proximity to sensitive receptors poses a risk of the overall sense of place to the surrounding community. • Degradation of employees and community hearing health. *Indirect impact:* • Potential increase of community unrest and complaints. • Hearing loss of employees and community members. *Cumulative impact:* • Loss of production due to community strikes.	2	2	8	4	48		

OTHER ASPECTS TO BE CONSIDERED IN THE PLANNING FOR INTRUSIVE PROSPECTING

If the non-invasive nature of the proposed prospecting right change to intrusive prospecting, the following aspects and all associated impacts/risks will be required to be further assessed:

- ***Air Quality*** – Depending on the type of intrusive activity, i.e. bulk sampling, trenching or core drilling, a baseline assessment will be required to determine if the potential impacts/risks that may affect the surrounding air quality. Specific mitigation measure to ensure activities conforms to relevant regulations must be identified. As a result, the EMPr (***Part B – Environmental Management Programme Report***) must be amended to include all management and mitigation measures.
- ***Waste Management*** – All waste streams associated with intrusive prospecting activities must be defined. Based on the identified waste streams, a Waste Management Plan must be developed and the EMPr (***Part B – Environmental Management Programme Report***) must be updated accordingly.
- ***Socio-economic*** – The socio-economic contribution related to intrusive prospecting activities must be further assessed in line with the "Needs and Desirability" questionnaire as per ***Table 5: Questions indicated how the proposed development justified economic and social development*** in ***Section f).***

v) 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 significance (quantification) of potential environmental impacts identified during the preliminary assessment have been determined using a ranking scale, based on the following (terminology has been taken from the Guideline Documentation on EIA Regulations, of the Department of Environmental Affairs and Tourism, April 1998):

Occurrence

- Probability of occurrence (how likely is it that the impact may occur?)
- Duration of occurrence (how long may it last?)

Severity

- Magnitude (severity) of impact (will the impact be of high, moderate or low severity?)
- Scale/extent of impact (will the impact affect the national, regional or local environment, or only that of the site?)

Each of these factors has been assessed for each potential impact using the ranking scales represented by ***Table 37***.

Table 37: Ranking scale of the four factors considered to determined significance rating

PROBABILITY	DURATION
1 - very improbable (probably will not happen 2 - improbable (some possibility, but low likelihood) 3 - probable (distinct possibility) 4 - highly probable (most likely) 5 - definite (impact will occur regardless of any prevention measures)	1 - of a very short duration (0–1 years) 2 - of a short duration (2-5 years) 3 - medium-term (5–15 years) 4 - long term (> 15 years) 5 - permanent
EXTENT	**MAGNITUDE**
1 - limited to the site 2 - limited to the local area 3 - limited to the region 4 - will be national 5 - will be international	0 - small and will have no effect on the environment 2 - minor and will not result in an impact on processes 4 - low and will cause a slight impact on processes 6 - moderate and will result in processes continuing but in a modified way 8 - high (processes are altered to the extent that they temporarily cease) 10 - very high and results in complete destruction of patterns and permanent cessation of processes

The environmental significance of each potential impact is assessed using the following formula:

Significance Points (SP) = (Magnitude + Duration + Extent) x Probability

The maximum value is 100 Significance Points (SP). Potential environmental impacts were rated as high, moderate or low significance on the following basis:

- < 30 significance points = **LOW** environmental significance.
- 31- 60 significance points = **MODERATE** environmental significance
- 60 significance points = **HIGH** environmental significance

vi) 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)

As discussed in ***Section g),h), and i)***,due to the non-invasive prospecting nature of the proposed prospecting right application, no alternatives where considered.

vii) 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)

As indicated in ***Section iv)***, no impacts are anticipated to be associated with the proposed non-invasive prospecting. However, should the nature change to intrusive prospecting, potential impacts/risks have been identified that will be required to be further assessed as part of the amendment process as defined by the NEMA 2014 Regulations (including any current and future amendments).

Part B – Environmental Management Programme Report, provides measures to be implemented to plan for intrusive prospecting and will be required to be amended.

viii) MOTIVATION WHERE NO ALTERNATIVE SITES WERE CONSIDERED

As discussed in ***Section g),h), and i)***,due to the non-invasive prospecting nature of the proposed prospecting right application, no alternatives where considered.

ix) STATEMENT MOTIVATING THE ALTERNATIVE DEVELOPMENT LOCATION WITHIN THE OVERALL SITE

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

As discussed in ***Section g),h), and i)***,due to the non-invasive prospecting nature of the proposed prospecting right application, no alternatives where considered.

J) FULL DESCRIPTION OF THE PROCESS UNDERTAKEN TO IDENTIFY, ASSESS, AND RANK THE IMPACTS AND RISKS THE ACTIVITY WILL IMPOSE ON THE PREFFERED 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.)

(I) *DESCRIPTION OF ALL ENVIRONMENTAL ISSUES AND RISKS THAT WERE IDENTIFIED DURING THE EIA PROCESS*

See Section iv) for the detailed outcome of the impact assessment process.

(II) *AN ASSESSMENT OF THE SIGNIFICANCE OF EACH ISSUE AND RISK AND AN INDICATION OF THE EXTENT TO WHICH THE ISSUE COULD BE AVOIDED OR ADDRESSED BY THE ADOPTION OF MITIGATION MEASURES*

See Section iv) for the detailed outcome of the impact assessment process.

K) ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK

(This section of the report must consider all the known typical impacts of each of the activities (including those that could or should have been identified by knowledgeable persons) and not only those that were raised by registered interested and affected parties)

Table 38 provides the summary of potential significant impacts and risks associated with the proposed non-invasive prospecting right following the detailed impact assessment as provided in ***Section iv)***.

Table 38: Summary of potentially significant impacts and risks

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
Non-invasive prospecting	No activities are anticipated with the proposed non-invasive prospecting rights. However, should there be a change in scope, the process stipulated by the NEMA 2014 EIA Regulations for amending the EA, must ***further assess*** the ***potential impacts*** associated with the ***proposed intrusive prospecting.***	Agriculture and Soil Archaeological, Cultural, and Palaeontology Terrestrial Biodiversity Aquatic Biodiversity Hydrology Noise	Desktop non-invasive Prospecting	2	No mitigation measures associated to the non-invasive prospecting proposed. **However, should the scope change from non-invasive to intrusive prospecting activities, the required amendment process as per NEMA 2014 EIA Regulations (as current and future amendments) must include the review of *Part B – Environmental Management Programme Report.***	2

In the event of considering the change in scope from the proposed non-invasive to intrusive prospecting, the following must be considered:

- The site sensitivities as defined by the specialist desktop assessment and site verification (***Appendix C – Site Layout Plan, Sensitivities, and Land Use***), must be considered as potential "no-go" or "areas requiring further assessment".
- The potential impacts and aspects identified in ***Section iv)*** requires to be assessed following a detailed impact assessment process.

- All management actions identified in Part B – Environmental Management Programme Report associated with planning for a change in scope, must be implemented as part of the application process, defined by NEMA 2014 EIA Regulations (as amended), before considering an amendment to the issued EA.

L) SUMMARY OF SPECIALIST REPORTS

(This summary must be completed if any specialist reports informed the impact assessment and final site layout process and must be in the following tabular form)

Table 39 provides the summary of the specialist desktop assessment and site sensitivity verification conducted as part of the application process for the proposed non-invasive prospecting right.

Table 39: Summary of specialist desktop and site sensitivity verification conducted

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMEN-DATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
Agricultural and Soil Assessment Archaeological, Cultural and Palaeontological Assessment Terrestrial Biodiversity Assessment (including Plant and Animal species) Aquatic Biodiversity Assessment Hydrological flood-line determination Noise Assessment	Due to the non-invasive nature of the proposed prospecting right application, all specialists have determined that there is no impact or risk. **However, should the scope change of the non-invasive to intrusive prospecting be considered, it is concluded that further assessment of all aspects, deemed applicable by the independent EAP, are required.** From the desktop and site sensitivity verification, ***Appendix C – Site Layout Plan, Sensitivities, and Land Use*** provides defined areas that are potential "no-go" or "areas requiring further assessment". Intrusive prospecting in these areas should be avoided or limited pending the final impact assessment.	**X**	Recommendations have been incorporated throughout this document. See the following specific sections: (1)(a)***; and*** ***iv)***

M) ENVIRONMENTAL IMPACT STATEMENT

In accordance with the Appendix 3 Section 3 (q) of the NEMA 2014 EIA Regulations (as amended), the EAP must provide an opinion as to whether the activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation must be stated (see ***Section q)***).

A desktop based, followed by a site sensitivity verification (***Appendix D – Site Sensitivity Verification***), impact assessment has been undertaken, which has incorporated consultation with appointed independent specialist, and resulted in this report.

No alternatives was considered (see ***Sections g),h), and i)***) due to the non-invasive nature of the proposed prospecting right application. However, verified sensitive areas were defined (***Appendix C – Site Layout Plan, Sensitivities, and Land Use***) and should be considered as potential "no-go" or "area requiring further investigation" should there be a planned change in scope. A change in scope from non-invasive to intrusive prospecting will require that the relevant amendment process as per the NEMA 2014 EIA Regulations (as amended), be initiated to review the issued EA.

It is the EAP's opinion that due process has been followed in terms of identifying potential impacts and or risks found to be potentially significant, and that should be further assessed if a change in scope is required.

It is recommended that the proposed ***non-invasive prospecting*** is allowed to proceed on the assumption that the environmental and social management commitments are adhered to, the scope of the prospecting remains as per the description provided in this document and considering the positive social impacts associated with the proposed prospecting right.

No intrusive prospecting activities shall continue without following the required EA amendment process as stipulated in the NEMA 2014 EIA regulations.

i) SUMMARY OF THE KEY FINDINGS OF THE ENVIRONMENTAL IMPACT ASSESSMENT

Due to the ***non-invasive*** nature of the proposed prospecting right application, the EAP and all specialists have confirmed that there is ***no impact or risk***.

However, should the scope change of the non-invasive to ***intrusive prospecting*** be considered, it is concluded that ***further assessment*** of all aspects, deemed applicable by the independent EAP, ***are required***.

From the desktop and site sensitivity verification, ***Appendix C – Site Layout Plan, Sensitivities, and Land Use*** provides defined areas that are potential "no-go" or "areas requiring further assessment". Intrusive prospecting in these areas should be avoided or limited pending the final impact assessment. No intrusive prospecting activities shall continue without following the required EA amendment process as stipulated in the NEMA 2014 EIA regulations.

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 Attach as Appendix)

Find ***Appendix C – Site Layout Plan, Sensitivities, and Land Use***.

iii) SUMMARY OF THE POSITIVE AND NEGATIVE IMPACTS AND RISKS OF THE PROPOSED ACTIVITY AND IDENTIFIED ALTERNATIVES

Due to the non-invasive prospecting nature associated with the proposed prospecting right, and based on the desktop need and desirability assessment (***Section f)***), the following positive and negative potential impacts are to be considered:

- ***Potential Positive (s)*** – although no physical job creation will result from the non-invasive prospecting, the potential job opportunities and much needed economic support to the local GDP associated with future mining, may alleviate to some extend poverty, crime, and the increasing unemployment rate observed throughout the district.
- ***Potential Negative (s)*** – although no activities or impacts have been defined by this assessment, the potential future mining within the proposed prospecting right area will have definite impact on the defined sensitivities. The significance thereof can only be determined following the required Scoping and Environmental Impact Assessment (S&EIA) as defined in the NEMA 2014 EIA Regulations. The potential impacts or risks defined in this assessment should however be used as the baseline determination to avoid, mitigate and manage the identified potential risks associated with future mining activities.

N) 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.)

No specific impact management objectives and outcomes can be defined for the proposed non-invasive prospecting right application, as it has been highlighted throughout this report that there is no impact or risk defined.

However, from the desktop and site sensitivity verification (***Appendix D – Site Sensitivity Verification***) there is a potential of a number of predetermined potential impacts and risks (***Section iv)*** identified should the applicant change the scope of this application process from non-invasive to intrusive prospecting.

Part B – Environmental Management Programme Report provides mitigation and management measures that must be implemented prior to and during the required process to amend the issued EA in terms of the NEMA 2014 EIA Regulations.

O) ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION

(Any aspects which have not formed part of the EMPr that must be made conditions of the Environmental Authorisation)

Based on the outcome of this assessment and information informing the opinion of the independent EAP, it is recommended that the following conditions be specified and considered as conditions of the EA:

- The issued EA only relates to the proposed non-invasive prospecting activities. Should the holder of the authorisation (HoA), or the persons appointed to conduct the prospecting on behalf of the HoA, identify or plan the need for intrusive prospecting, an application for amending the scope of the EA in terms of the NEMA 2014 EIA Regulations (as amended) must be submitted.
- The potential impacts and risks identified for consideration in the planning of a change of scope from non-invasive to intrusive prospecting, as defined in this assessment (***Section iv)***), requires further detailed assessment.
- The identified sensitivities as provided in ***Appendix C – Site Layout Plan, Sensitivities, and Land Use***, must be considered as potential "No-go" or "areas requiring further assessment", pending a detailed impact assessment and management or mitigation implementation plan.
- The management and mitigation actions provided in Part B – Environmental Management Programme Report must be implemented prior to and during the required process to amend the issued EA in terms of the NEMA 2014 EIA Regulations.
- An independent suitably qualified Environmental Inspector, preferably a registered EAP, must be appointed by the HoA to inspect, confirm, and report any non-conformances with the EA and requirements of the EMPr on a quarterly basis. Records of these inspections must be kept and readily available to the relevant Environmental Management Inspectorate (EMI).
- Auditing of compliance with the EA and EMPr in terms of Part 3, Regulations 34 of the NEMA 2014 EIA Regulations (as amended) must be conducted on an annual basis. This audit to be conducted preferably by a independent registered EAP.

P) DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

(Which relate to the assessment and mitigation measures proposed)

All conclusions and recommendations made in this report is based on information provided by the applicant. The independent EAP appointed various specialist to conduct a desktop assessment and site sensitivity verification. The outcome (provided as Appendix D – Site Sensitivity Verification) informed this BA process and was considered by the EAP as true and accurate.

It is clearly stated and concluded that the recommendations made, and opinion of the EAP is based on the fact that this application relates to non-invasive prospecting and should not be construed as an assessment of potential impacts and risks associated with any other form of intrusive prospecting activities. However, should the applicant require an amendment of the scope, preliminary potential impacts and risks requiring further assessment were identified based on the outcome of the sensitivity verification.

Q) REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD BE AUTHORISED OR NOT

i) REASONS WHY THE ACTIVITY SHOULD BE AUTHORISED OR NOT

Environmental Management Assistance (Pty) Ltd as the appointed EAP and associated Specialist recommends that on the conditions that all the requirements, conditions, and measures listed in this document and associated appendices be adhered to, that there is no reason why this activity should not be authorised.

Due to the ***non-invasive*** nature of the proposed prospecting right application, the EAP and all specialists have confirmed that there is ***no impact or risk***.

However, should the scope change of the non-invasive to ***intrusive prospecting*** be considered, it is concluded that ***further assessment*** of all aspects, deemed applicable by the independent EAP, ***are required***.

From the desktop and site sensitivity verification, ***Appendix C – Site Layout Plan, Sensitivities, and Land Use*** provides defined areas that are potential "no-go" or "areas requiring further assessment". Intrusive prospecting in these areas should be avoided or limited pending the final impact assessment. No intrusive prospecting activities shall continue without following the required EA amendment process as stipulated in the NEMA 2014 EIA regulations.

ii) CONDITIONS THAT MUST BE INCLUDED IN THE AUTHORISATION

It is recommended that the conditions listed for consideration in ***Section o)*** be included in the authorisation.

It must be clearly stated that no intrusive prospecting activities shall continue without following the required EA amendment process as stipulated in the NEMA 2014 EIA regulations.

R) PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

The proposed non-invasive prospecting is planned over a total of five (5) years. In terms of Section 18 (4) of the Mineral and Petroleum Resources Development Act (MPRDA, Act No. 28 of 2002), following the acceptance of the application for renewal, the prospecting right may be renewed once for a period not exceeding three years.

S) UNDERTAKING

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

See Part B of this report and ***Appendix G – EAP Undertaking***.

T) FINANCIAL PROVISION

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

Due to the proposed non-invasive prospecting activities, a cost determination to manage and rehabilitate is not relevant to this application.

However, should there be a change in scope from non-invasive prospecting to intrusive prospecting, the HoA must determine the financial provisioning in line with GNR. 1147 (GG 39425 dated 20 November 2015, as amended) and submit the required reports as part of the NEMA 2014 EIA Regulations amendment process.

i) EXPLAIN HOW THE AFORESAID AMOUNT WAS DERIVED

Not required due to the non-invasive nature of this prospecting right application process.

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)

Not required due to the non-invasive nature of this prospecting right application process.

U) SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

At the time finalising this report, no specific information was required by the competent authority.

i) COMPLIANCE WITH THE PROVISIONS OF SECTIONS 24 (4) (A) AND (B) READ WITH SECTION 24 (3) (A) AND (7) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT 107 OF 1998). THE EIA REPORT MUST INCLUDE THE:-

Section 24 (4)(a) and (b) of NEMA states the following:

"Procedures for the investigation, assessment and communication of the potential consequences or impacts of the activities on the environment – (a) must ensure, with respect to every application for an environmental authorisation –

- *(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;*
- *(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;*
- *(iii) that a description of the environment likely to be significantly affected by the proposed activity is contained in such application;*
- *(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*
- *(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

(b) must include, with respect to every application for an environmental authorisation and where applicable –

(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;

(ii) investigation of mitigation measures to keep adverse consequences or impacts to a minimum;

(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;

(iv) reporting on gaps in knowledge, the adequacy of predictive methods and underlying assumptions, and uncertainties encountered in compiling the required information;

(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;

(vi) consideration of environmental attributes identified in the compilation of information and maps contemplated in subsection (3); and

(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."

Section 24 (3)(a) and (7) of NEMA states the following:

"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."

"24 (7) Compliance with the procedures laid down by the Minister or an MEC in terms of subsection (4) does not absolve a person from complying with any other statutory requirement to obtain authorization from any organ of state charged by law with authorising, permitting or otherwise allowing the implementation of the activity in question."

The purpose of Part A and Part B of this report fulfils the requirements stipulated in section 24 of NEMA.

(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 an Appendix)

Section f) of this report provides the need and desirability assessment, and an overview of the socio-economic context of the proposed non-invasive prospecting.

(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 Appendix 2.19.2 and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein)

See ***Section (1) (a) III*** and ***Appendix F.2 – Archaeological, Cultural, and Palaeontology***.

V) OTHER MATTERS REQUIRED IN TERMS OF SECTIONS 24 (40 (A) AND (B) OF THE ACT

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

See **Sections g), h), and i).**

PART B – ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

2. DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

The purpose of this section is to provide a baseline Environmental Management Programme (EMPr). As discussed throughout ***PART A – Scope of Basic Assessment Report***, it is not anticipated that the non-invasive prospecting right will have a impact from an environmental and socio-economic perspective. No specific impact management objectives and outcomes can be defined for the proposed non-invasive prospecting right application.

However, from the desktop and site sensitivity verification (***Appendix D – Site Sensitivity Verification***) there is a potential of a number of predetermined potential impacts and risks (***PART A – Scope of Basic Assessment Report*** ,***Section iv)*** identified should the applicant change the scope of this application process from non-invasive to intrusive prospecting.

This section will provide mitigation and management measures that must be implemented prior to and during the required process to amend the issued EA in terms of the NEMA 2014 EIA Regulations.

Part B of this report should be considered as a "living" document, to be reviewed and amended as deemed necessary.

The reasons for review and/or amendments may be the following:

- Change in scope from non-invasive to intrusive prospecting;
- Detailed assessment of risks or impacts associated with intrusive prospecting; and
- The ability of the EMPr and/or specific mitigation measures to sufficiently provide for the avoidance, management, and mitigation of environmental impacts associated with the undertaking of authorised activities.

This EMPr is only applicable to the listed authorising activities as stipulated ***PART A – Scope of Basic Assessment Report, Section d) i)***, excluding intrusive prospecting activities.

W) DETAILS OF THE EAP

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

As stipulated in ***PART A – Scope of Basic Assessment Report, Section 1 a) i)***.

X) DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

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

As stipulated in ***PART A – Scope of Basic Assessment Report, Section d)***.

Y) COMPOSITE MAP

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

See ***Appendix C – Site Layout Plan, Sensitivities, and Land Use***.

Z) DESCRIPTION OF IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

Although it is anticipated that the non-invasive prospecting activities will have no impacts, a number of possible environmental and social impacts/risks have been identified that will required further assessment should there be a change in scope.

The sections to follow will provide the management and mitigation approach that will be required to be implemented by the HoA, or any persons appointed by the HoA to conduct the intrusive prospecting, before and during the application process for amending the EA.

i) DETERMINATION OF CLOSURE OBJECTIVES

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

Since no physical activities are related to the proposed non-invasive prospecting, should a change in scope from non-invasive to intrusive prospecting, closure objectives will be required to be defined in detail.

These objectives to include, but not limited to, the following:

- ***Physical stability:*** Removing and/or stabilising the impacts surface areas in order to facilitate the defined end land use.
- ***Environmental quality:*** To ensure that local environmental quality is not adversely affected by possible physical impacts and contamination which may be arising from the rehabilitated areas.
- ***Health and Safety:*** To limit the possible health and safety threats to humans and animal by securing the impacted surface area.
- ***Land capability / end land use:*** To re-instate suitable land capabilities over the rehabilitated portions of impacted surface areas.
- ***Aesthetic quality:*** To leave behind a rehabilitated site that, in general, that is acceptable to the affected communities in aesthetic appearance.
- ***Biodiversity:*** To encourage, where appropriate, the re-establishment of native vegetation on the rehabilitated surface areas.
- ***Social:*** To ensure that measures and/ or contributions made during prospecting towards the long-term socio-economic benefit of the local communities are sustainable.

Table 40 provides the general objectives that must be considered when developing the required Closure Plan in line with GN.R. 1147 (as amended).

Table 40: General objectives that must be considered

ASPECT	OBJECTIVE	PERFORMANCE INDICATOR	MONITORING MECHANISM
Physical stability	To remove and/or stabilise surface infrastructure.	• All rehabilitated disturbed areas that have the potential for wind and/or water erosion will be provided with a suitable vegetation cover to combat these aspects/forces; • Where localised material deficits occur, voids will be backfilled and shaped as pan like or naturally undulating structures so that beneficial land uses can be implemented; and • Monitoring is undertaken to demonstrate the success of the closure and rehabilitation measures implemented.	• Auditing and reporting as specified in section 6. • Implementation of the monitoring programme (**Error! Reference source not found.**).
Environmental quality	To ensure that local environmental quality is not adversely affected by possible physical impacts and contamination which may be arising from the rehabilitated areas.	• No environmental risks will remain post-closure. • Environmental impacts will be investigated and addressed at source. If not addressed at the source, the required intervention/mitigation measures will be implemented, preferably during operations, to limit the intervention required at closure; and • Ongoing monitoring will be undertaken to ensure the quality of the surface and groundwater remains within pre-mining quality ranges or at such quality that it suitably protects receptors.	
Land capability/land-use	To re-instate suitable land capabilities over the rehabilitated portions.	• Where possible, land capability will be reinstated to match the pre-development land capabilities; • A functional post-development landscape is achieved inline with current zoning; • Invasive vegetation species will be eradicated to further enable achievement of the desired land capability on rehabilitated areas, and functioning of riparian zones; and • Landforms are mostly free draining to maximise the surface water return into the catchment to reduce recharge and ensure connectivity of wetlands and functioning of riparian zones.	
Biodiversity	To encourage, where appropriate (for example in corridors), the re-establishment of native vegetation on the rehabilitated areas such that the potentially affected terrestrial and	• [2]Self-sustaining vegetation communities are established; and • Invasive species that could threaten the reinstatement of the desired vegetation communities are actively eradicated.	

[2] *Able to continue in a healthy state, i.e. pre-development land capability, without interventions such as herbicide, water, and fertilizer applications, etc.*

	or aquatic biodiversity is largely re-instated over time.		
Social	To ensure that the infrastructure transfers (if any), and measures and/or contributions made towards the long-term socio-economic benefit of the local communities are sustainable.	• The local communities are adequately informed about closure (next land use planning, scheduled closure and re-skilling initiatives linked to the next land use, where possible); • Obsolete/dormant infrastructure that could be beneficially reused is identified and re-used; and • Communities scheduled to benefit are empowered to take over and maintain relinquished infrastructure for their ongoing benefit.	

ii) VOLUMES AND RATE OF WATER USE REQUIRED FOR THE OPERATION

No water or water uses are related to the non-invasive prospecting right.

iii) HAS A WATER USE LICENCE HAS BEEN APPLIED FOR?

A Water Use Licence (WUL) is not required for the non-invasive prospecting right.

However, should the change in scope from non-invasive prospecting to intrusive prospecting be relevant, the need for a WUL must be reassessed as part of the amendment process.

iv) IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

(Measures to rehabilitate the environment affected by the undertaking of any listed activity)

Table 41 provides for the identified measures to manage potential impacts associated with the non-invasive prospecting.

Table 41: Identified measures to manage the potential impacts associated with the proposed non-invasive and planning for intrusive prospecting

ACTIVITIES *(as listed in 2.11.1)*	**POTENTIAL IMPACT**	**PHASE**	**SIZE AND SCALE of disturbance** *(volumes, tonnages and hectares or m²)*	**MITIGATION MEASURES** ***(describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)***	**COMPLIANCE WITH STANDARDS** *(A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)*	**TIME PERIOD FOR IMPLEMENTATION**
Non-invasive Prospecting	No activities are anticipated with the proposed non-invasive prospecting rights. However, should there be a change in scope, the process stipulated by the NEMA 2014 EIA Regulations for amending the EA, must ***further assess*** the ***potential impacts*** associated with the ***proposed intrusive prospecting***, and identify all management and mitigation measures. During the Planning Phase for the change in scope, the following must be implemented prior to and during the amendment process:					
Planning for intrusive prospecting	The following general management measures must be implemented by the HoA and all persons appointed by the HoA to conduct the intrusive prospecting activities: 1. Prior to the commencement of any intrusive prospecting, the HoA must appoint a Registered EAP to initiate the required amendment of the EA process in line with the NEMA 2014 EIA Regulations (as amended). 2. The final site layout should consider all sensitivities verified in the Site Sensitivity Verification Report (SSVR). 3. All planning and pre-construction activities to take place under the supervision of a suitably qualified and experienced environmental representative. 4. An Environmental Control Officer (ECO), with appropriate experience and qualifications in the implementation of environmental management specifications, must be appointed prior to the commencement of any intrusive prospecting activities. 5. A pre-construction site walkabout must be conducted by the ECO and HoA (or appointed responsible person), recording the pre-construction land-use and status 6. Utilise existing infrastructure where possible, e.g existing access roads to minimize environmental impacts. 7. The HoA has the responsibility to notify the competent authority of any alienation, transfer and, change of ownership rights in the property on which the activity is to take place.					
	AGRICULTURE AND SOIL					
	Loss of agricultural land **Erosion formation and soil pollution**	Planning Phase	To be determined	8. A suitably qualified specialist to be appointed to conduct the required assessment of the areas that will be affected by the proposed intrusive prospecting activities in line with the relevant protocols. 9. The final site layout should consider all sensitivities verified in the Site Sensitivity Verification Report (SSVR). 10. A site clearance schedule must be developed to ensure that no unvegetated areas are left exposed for an extended period. Site clearance to be kept to a minimum. 11. An area to be identified prior to the commencement of construction for the stockpiling of topsoil. A calculation of required topsoil required for rehabilitation to be determined prior to the commencement of activities. The area demarcated for the stockpiling of topsoil should be sufficiently sized. Measures to prevent erosion and manage storm water of these stockpiles must be considered prior to stripping of topsoil.	1. Ensure compliance with the applicable assessment protocol (GN. 320 GG 4310 dated 20 March 2020) 2. Ensure compliance with the Conservation of Agricultural Resources Act (CARA), Act 43 of 1983. 3. Development of a soil conservation management plan. 4. Development of a soil conservation management plan. 5. Development of a storm water management plan. 6. Development and implementation of vehicle/plant/equipment maintenance plan with specific reference to daily inspections of plant/vehicles/equipment for leaks or breakages. 7. Development of a soil conservation management plan.	Prior to and during the EA amendment process.
	ARCHAEOLOGY, CULTURAL, AND PALAEONTOLOGY					
	Loss of heritage and cultural resources	Planning Phase	To be determined	1. A suitably qualified specialist to be appointed to conduct a detailed site assessment of potential heritage features within the define site plans associated with the proposed intrusive prospecting activities. 2. All heritage features identified in the SSVR and initial BAR must be clearly demarcated prior to the commencement of intrusive prospecting. The appointed ECO must form part of the site inspection identifying these features and record its status and condition. 3. If during the initial site inspection possible heritage features not identified in the SSVR or BAR are found, the site layout plan must be updated accordingly before commencement of prospecting. 4. Prior to the commencement of intrusive prospecting activities, a suitably qualified archaeologist must be appointed to lead the further surface sampling and excavation in the event of identifying features not listed in the SSVR and BAR. 5. Appropriate permits for the surface sampling and excavation must be obtained by the appointed archaeologist as required in the National Heritage Resources Act (Act 25 of 1999). 6. All finds must be recorded on the archaeological record of the area.	1. Ensure compliance with the National Heritage Resources Act (NHRA), No. 25 of 1999.	Prior to and during the EA amendment process.
	TERRESTRIAL BIODIVERSITY					
	Degradation of terrestrial biodiversity	Planning Phase	To be determined	1. A suitably qualified specialist to be appointed to conduct the required Terrestrial Biodiversity Assessment (inclusive of plant and animal species) in line with the relevant protocols (GN. 320 GG 43110 dated 20 March 2020 and GN. 1150 GG 43855 dated 30 October 2020). 2. Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should under no circumstances be fragmented or disturbed further. 3. Before the commencement of intrusive prospecting activities, the area for development should be clearly demarcated to restrict activities within the development footprint. 4. Prior to any intrusive prospecting activities, the ECO (if suitably qualified) or appointed specialist (preferably SACNASP registered specialising in the field of ecology), must conduct a site inspection recording all potential protected or endangered fauna and flora species. A detailed register should be kept of these species indicating at least its location, condition and potential of relocation. 5. Provincially protected (including species of conservational concern) must be marked for rescue and relocation, or removal (where permit application would then apply) before any vegetation removal commences. 6. Obtain any additional environmental permits required from the relevant competent authority for the protected plant species that need to be translocated through the search and rescue exercise.	1. Conduct the required Terrestrial Biodiversity Assessment in line with the relevant protocols (GN. 320 GG 43110 dated 20 March 2020 and GN. 1150 GG 43855 dated 30 October 2020). 2. Develop and implement a pre-intrusive prospecting management plan. 3. Apply for permits to remove protected species (provincial and national). 4. Obtaining any other licences, permits or authorisations as required by provincial or national legislation for the removal of protected species. 5. Develop a plant species search and rescue management plan. 6. Maintain and implement the existing ion Smelter's alien invasive	Prior to and during the EA amendment process.

				7. Alien invasive species, that were identified within the study area, should be removed from the prospecting footprint and immediate surrounds, prior to soil disturbances. By removing these species, the spread of seeds will be prevented into disturbed soils which could thus have a positive impact on the surrounding natural vegetation. No chemical control may be used without the supervision of a certified professional (Pest Control Operator). 8. Prior to commencement of intrusive prospecting all supervisors of the vegetation clearing, including contractors must receive adequate training as to the presence, identity, and management of species of conservation importance.	eradication and control management plan.	
	AQUATIC BIODIVERSITY					
	Loss of aquatic biodiversity/ Direct Loss of Wetland Features **Erosion and sedimentation of Wetlands** **Water Quality Deterioration/Contamination of Water Resource** **Invasive alien plant encroachment**	Planning Phase	To be determined	1. A suitably qualified specialist to be appointed to conduct the required Aquatic Biodiversity Assessment (inclusive of a wetland delineation assessment) in line with the relevant protocols (GN. 320 GG 43110 dated 20 March 2020 and GN. 1150 GG 43855 dated 30 October 2020). 2. Intrusive prospecting activities must avoid the defined sensitivities identified in the SSVR and BAR. 3. Prior to intrusive prospecting activities, a site inspection must be conducted by the ECO to identifying potential drainage lines feeding into the defined riparian zones or wetlands.	1. Conduct the required Aquatic Biodiversity Assessment in line with the relevant protocols (GN. 320 GG 43110 dated 20 March 2020 and GN. 1150 GG 43855 dated 30 October 2020). 2. Ensure compliance with the National Water Act (NWA), Act 36 of 1996 and related regulations. 3. Implementation of a storm water management plan.	Prior to and during the EA amendment process.
	SURFACE WATER RESOURCE					
	Degradation of natural water resources/Water resource contamination ***All potential impacts/risks identified under the "Aquatic Biodiversity" section directly or indirectly relates to surface and groundwater resources and should also be taken into consideration.***	Planning Phase	To be determined	1. A suitably qualified hydrologist (preferably SACNASP registered) must be appointed to develop a conceptual Storm Water Management Plan (SWMP). 2. The conceptual storm water management plan must be considered in the final detailed design before commencing of any intrusive prospecting activities. 3. Intrusive prospecting planning should prioritise the implementation measures to be taken, i.e. constructing of storm water infrastructure around the perimeter of the site, to prevent sedimentation and erosion during prospecting activities.	1. Ensure compliance with the National Water Act (NWA), Act 36 of 1996 and related regulations. 2. Implementation of a storm water management plan.	Prior to and during the EA amendment process.
	NOISE					
	Noise generation	Planning Phase	To be determined	1. A suitably qualified specialist to be appointed to conduct the required Noise Impact Assessment in line with the relevant protocols (GN. 320 GG 43110 dated 20 March 2020). 2. The final site layout plan of the proposed intrusive prospecting activities must take into consideration the noise sensitive receptors identified in the SSVR and BAR.	1. Conduct the required Noise Impact Assessment in line with the relevant protocols (GN. 320 GG 43110 dated 20 March 2020). 2. Compliance with Noise Control Regulations promulgated under the Environment Conservation Act, (Act No. 73 of 1989), Government Gazette No. 15423, 14 January 1994.	Prior to and during the EA amendment process.
	AIR QUALITY					
	Degradation of air quality	Planning Phase	To be determined	1. Depending on the type of intrusive activity, i.e. bulk sampling, trenching or core drilling, a baseline assessment will be required to determine if the potential impacts/risks that may affect the surrounding air quality.	1. Development and implementation of a Dust management plan. 2. Ensuring compliance with the National Environmental Management: Air Quality Act (NEMAQA), No. 39 of 2004 as amended by Act no 20 of 2014. 3. Ensuring compliance with the National Ambient Air Quality Standards (GNR 1210 of 24 December 2009). 4. Ensuring compliance with the National Dust Control regulations (GNR 897 of November 2013).	Prior to and during the EA amendment process.
	WASTE MANAGEMENT					
	Waste Generation	Planning Phase	To be determined	1. All waste streams associated with intrusive prospecting activities must be defined. Based on the identified waste streams, a Waste Management Plan must be developed.	1. Compliance with the National Environmental Management: Waste Act, act no 59 of 2008 and associated regulations.	Prior to and during the EA amendment process.
	SOCIO-ECONOMIC					
	Socio-economic intrusions **Job opportunities and economic impacts** **Population change** **Sense of place** **Community safety Risks** **Resource efficiency and community health** **Loss of permanent jobs**	Planning Phase	To be determined	1. The socio-economic contribution related to intrusive prospecting activities must be further assessed in line with the "Needs and Desirability" questionnaire as per ***Table 5: Questions indicated how the proposed development justified economic and social development*** in ***Part A Section f).***	1. Adherence with the approved EMPr. 2. Adherence with the developed Safety, Health Environmental and Quality system. 3. Adherence with the developed procurement and employment policy.	Prior to and during the EA amendment process.

AA) IMPACT MANAGEMENT OUTCOMES

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

Table 42 provides the description of the impact management outcomes associated with the proposed non-invasive prospecting right.

Table 42: Description of impact management outcomes

ACTIVITY whether listed or not listed.	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	MITIGATION TYPE (modify, remedy, control, or stop)	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.	
					Objective	**Target**
Non-invasive Prospecting	No activities are anticipated with the proposed non-invasive prospecting rights. However, should there be a change in scope, the process stipulated by the NEMA 2014 EIA Regulations for amending the EA, must ***further assess*** the ***potential impacts*** associated with the ***proposed intrusive prospecting***, and identify all management and mitigation measures. During the Planning Phase for the change in scope, the following objectives and targets must be further assessed:					
Planning for intrusive prospecting	AGRICULTURE AND SOIL					
	Loss of agricultural land **Erosion formation and soil pollution**	Agriculture and Soil	**Planning Phase**	**Avoid/Remedy**	1. Soil conservation throughout all phases of the intrusive prospecting activities. 2. Adequate protection of soil resources and remediation if degradation cannot be avoided. 3. To prevent any erosion and to provide adequate erosion control measures where required.	1. No visible signs of erosion formations such as dongas or rills. 2. Sedimentation loads (measured in Total Dissolved Solids) of streams and rivers not to exceed the regulated Resource Water Quality Objectives of the local catchment. 3. Erosion control measures implemented in high-risk areas.
	ARCHAEOLOGY, CULTURAL, AND PALAEONTOLOGY					
	Loss of heritage and cultural resources	Heritage and Culture	**Planning Phase**	**Avoid**	1. Identification of all possible sites of archaeological value and graves prior to the commencement of authorised work.	1. Evidence of records should further discoveries be identified during construction.
	TERRESTRIAL BIODIVERSITY					
	Degradation of terrestrial biodiversity	Terrestrial Biodiversity	**Planning Phase**	**Avoid/Control**	1. Avoid the unnecessary expansion of the intrusive prospecting footprint. 2. Obtaining any other licences, permits or authorisations as required by provincial or national legislation for the removal of protected species. 3. Develop a plant species search and rescue management plan. 4. Maintain and implement a alien invasive eradication and control management plan. 5. Prevent any veldt fires or chemical fires. 6. Effective vegetation management along the perimeter of the intrusive prospecting footprint. 7. Maintaining the required firebreak associated with the intrusive prospecting footprint. 8. Continuous management of alien and invasive species within the prospecting footprint. 9. Conservation of fauna and Flora species. 10. Effectively re-vegetate all disturbed areas intrusive prospecting activities. 11. Ensure the effective management of alien invasive species post-closure.	1. No activities outside of the preferred site layout plan. 2. No non-compliances recorded in terms of the required environmental authorisations or licences. 3. No unauthorised removal of protected species. 4. Contain and control the spreading of alien and invasive species within the intrusive prospecting footprint. 5. No veldt fires or chemical fires originating from the prospecting activities. 6. No areas left unvegetated post-closure. 7. Contain and control the spreading of alien and invasive species within the intrusive prospecting footprint. 8. Habitat reinstatement of fauna and flora species disturbed by the prospecting activities.
	AQUATIC BIODIVERSITY					
	Loss of aquatic biodiversity/ Direct Loss of Wetland Features **Erosion and sedimentation of Wetlands** **Water Quality Deterioration/Contamination of Water Resource** **Invasive alien plant encroachment**	Aquatic Biodiversity and Wetland Features	**Planning Phase**	**Avoid/Mitigate**	1. Avoid development within the regulated zones from the identified riparian zones or identified wetlands. 2. Avoid or minimise the degradation of water quality of watercourses due to sedimentation and siltation. 3. Remedy the possible effects of alteration to natural drainage lines. 4. Avoid the destruction of wetlands. 5. Avoid the release of pollutants into the aquatic environment. 6. Wastewater is appropriately managed. 7. Erosion is prevented.	1. Ensure water quality results falls within the regulated Resource Water Quality Objectives for the relevant catchment. 2. Water quality of streams and rivers are maintained within the pre-determined seasonality baseline levels. 3. No incidents related to the pollution of rivers and streams. 4. No visible signs of erosion formations such as dongas or rills. 5. Erosion control measures implemented in high-risk areas. 6. No signs of degradation of diversion channels or drainage systems. 7. No evidence of pollutants released into streams and rivers. 8. No evidence of hydrocarbon and hazardous spills. 9. Immediate removal and remediation of all spills.
	SURFACE WATER RESOURCE					
	Degradation of natural water resources/Water resource contamination ***All potential impacts/risks identified under the "Aquatic Biodiversity" section directly or indirectly relates to surface and groundwater resources and should also be taken into consideration.***	Surface Water Resources	**Planning Phase**	**Avoid/Control**	1. Ensuring effective storm water management activities takes place during all phases of the development. 2. Avoid intrusive prospecting within the regulated zones or within the 1:100-year flood line. 3. Avoid or minimise the degradation of water quality of watercourses due to sedimentation and siltation. 4. Remedy the possible effects of alteration to natural drainage lines. 5. Avoid the destruction of wetlands. 6. Avoid the release of pollutants into the aquatic environment. 7. Wastewater is appropriately managed. 8. Erosion is prevented.	1. Ensure water quality results falls within the regulated Resource Water Quality Objectives for the relevant catchment. 2. Water quality of streams and rivers are maintained within the pre-determined seasonality baseline levels. 3. No incidents related to the pollution of rivers and streams. 4. No visible signs of erosion formations such as dongas or rills. 5. Erosion control measures implemented in high-risk areas. 6. No signs of degradation of diversion channels or drainage systems. 7. No evidence of pollutants released into streams and rivers. 8. No evidence of hydrocarbon and hazardous spills. 9. Immediate removal and remediation of all spills.
	NOISE					
	Noise generation	Surrounding environmental noise quality	**Planning Phase**	**Control**	1. Ensure effective noise control measures are implemented during intrusive prospecting activities.	1. Not exceeding the determined baseline dBA threshold. 2. No noise complaints received from surrounding community members.
	AIR QUALITY					
	Degradation of air quality	Air Quality	**Planning Phase**	**Control**	1. Ensuring compliance with the National Dust Control regulations.	1. No complaints from site staff, surrounding landowners and communities. 2. Adherence with legal required dust fallout levels.
	WASTE MANAGEMENT					
	Waste Generation	Waste Management	**Planning Phase**	**Control**	1. Promoting the reduction, re-use, or recycle of waste where prevention is not possible. 2. Disposal of waste to local waste disposal sites is limited.	1. No littering. 2. No unpleasant odours. 3. Marked and sealable bins observed. 4. Evidence of waste disposal certificates.
	SOCIO-ECONOMIC					
	Socio-economic intrusions **Job opportunities and economic impacts** **Population change** **Sense of place** **Community safety Risks**	Socio-economic	**Planning Phase**	**Control**	1. Limit socio-economic intrusions. 2. Enhance job opportunities and local procurement. 3. Limit negative impacts associated with population change. 4. Minimise impacts on local community safety. 5. Limit dependency on the grid while lowering operational costs. 6. Positive long-term impacts on local and regional economy as a result of continuation of intrusive prospecting and or mining with subsequent	1. Minimum community complaints related to traffic and road infrastructure. 2. Limited complaints from local community related to nuisance factors. 3. Air quality levels to meet relevant standards and implementation of Air Quality Management Plan. 4. Noise levels within limits as specified in noise standards. 5. No community protests directed at the project. 6. Meet provincial employment and procurement targets.

	Resource efficiency and community health **Loss of permanent jobs**				indirect employment opportunities and downstream economic opportunities.	7. Local labour (low skilled) forms a considerable percentage (where lower skills apply) of labour force. 8. Local procurement is implemented where feasible and available. 9. Zero accidents or safety incidents. 10. EMPr compliance. 11. Compliance to relevant Health And Safety regulations and standards. 12. Capacity building and skills training over the operational period of the facility. 13. Employees with portable skills. 14. No complaints with regards to intrusion impacts during Closure phase.

BB) IMPACTS MANAGEMENT ACTIONS

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

Table 43 provides the identified impact management actions associated with the proposed non-invasive prospecting right.

Table 43: Identified impact management actions

ACTIVITY whether listed or not listed.	**POTENTIAL IMPACT**	**MITIGATION TYPE (modify, remedy, control, or stop)**	**TIME PERIOD FOR IMPLEMENTATION**	**COMPLIANCE WITH STANDARDS** (A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
Non-invasive Prospecting	No activities are anticipated with the proposed non-invasive prospecting rights. However, should there be a change in scope, the process stipulated by the NEMA 2014 EIA Regulations for amending the EA, must ***further assess*** the ***potential impacts*** associated with the ***proposed intrusive prospecting***, and identify all management and mitigation measures. During the Planning Phase for the change in scope, the following must be considered:			
Planning for intrusive prospecting	AGRICULTURE AND SOIL			
	Loss of agricultural land **Erosion formation and soil pollution**	**Avoid/Remedy**	Prior to and during the EA amendment process.	1. Ensure compliance with the applicable assessment protocol (GN. 320 GG 4310 dated 20 March 2020) 2. Ensure compliance with the Conservation of Agricultural Resources Act (CARA), Act 43 of 1983. 3. Development of a soil conservation management plan. 4. Development of a soil conservation management plan. 5. Development of a storm water management plan. 6. Development and implementation of vehicle/plant/equipment maintenance plan with specific reference to daily inspections of plant/vehicles/equipment for leaks or breakages. 7. Development of a soil conservation management plan.
	ARCHAEOLOGY, CULTURAL, AND PALAEONTOLOGY			
	Loss of heritage and cultural resources	**Avoid**	Prior to and during the EA amendment process.	1. Ensure compliance with the National Heritage Resources Act (NHRA), No. 25 of 1999.
	TERRESTRIAL BIODIVERSITY			
	Degradation of terrestrial biodiversity	**Avoid/Control**	Prior to and during the EA amendment process.	1. Conduct the required Terrestrial Biodiversity Assessment in line with the relevant protocols (GN. 320 GG 43110 dated 20 March 2020 and GN. 1150 GG 43855 dated 30 October 2020). 2. Develop and implement a pre-intrusive prospecting management plan. 3. Apply for permits to remove protected species (provincial and national). 4. Obtaining any other licences, permits or authorisations as required by provincial or national legislation for the removal of protected species. 5. Develop a plant species search and rescue management plan. 6. Maintain and implement the existing ion Smelter's alien invasive eradication and control management plan.
	AQUATIC BIODIVERSITY			
	Loss of aquatic biodiversity/ Direct Loss of Wetland Features **Erosion and sedimentation of Wetlands** **Water Quality Deterioration/Contamination of Water Resource** **Invasive alien plant encroachment**	**Avoid/Mitigate**	Prior to and during the EA amendment process.	1. Conduct the required Aquatic Biodiversity Assessment in line with the relevant protocols (GN. 320 GG 43110 dated 20 March 2020 and GN. 1150 GG 43855 dated 30 October 2020). 2. Ensure compliance with the National Water Act (NWA), Act 36 of 1996 and related regulations. 3. Implementation of a storm water management plan.
	SURFACE WATER RESOURCE			
	Degradation of natural water resources/Water resource contamination ***All potential impacts/risks identified under the "Aquatic Biodiversity" section directly or indirectly relates to surface and groundwater resources and should also be taken into consideration.***	**Avoid/Control**	Prior to and during the EA amendment process.	1. Ensure compliance with the National Water Act (NWA), Act 36 of 1996 and related regulations. 2. Implementation of a storm water management plan.
	NOISE			
	Noise generation	**Control**	Prior to and during the EA amendment process.	1. Conduct the required Noise Impact Assessment in line with the relevant protocols (GN. 320 GG 43110 dated 20 March 2020). 2. Compliance with Noise Control Regulations promulgated under the Environment Conservation Act, (Act No. 73 of 1989), Government Gazette No. 15423, 14 January 1994.
	AIR QUALITY			
	Degradation of air quality	**Control**	Prior to and during the EA amendment process.	1. Development and implementation of a Dust management plan. 2. Ensuring compliance with the National Environmental Management: Air Quality Act (NEMAQA), No. 39 of 2004 as amended by Act no 20 of 2014. 3. Ensuring compliance with the National Ambient Air Quality Standards (GNR 1210 of 24 December 2009). 4. Ensuring compliance with the National Dust Control regulations (GNR 897 of November 2013).
	WASTE MANAGEMENT			
	Waste Generation	**Control**	Prior to and during the EA amendment process.	1. Compliance with the National Environmental Management: Waste Act, act no 59 of 2008 and associated regulations.

	SOCIO-ECONOMIC			
	Socio-economic intrusions **Job opportunities and economic impacts** **Population change** **Sense of place** **Community safety Risks** **Resource efficiency and community health** **Loss of permanent jobs**	**Control**	Prior to and during the EA amendment process.	1. Adherence with the approved EMPr. 2. Adherence with the developed Safety, Health Environmental and Quality system. 3. Adherence with the developed procurement and employment policy.

v) FINANCIAL PROVISION

Due to the proposed non-invasive prospecting activities, a cost determination to manage and rehabilitate is not relevant to this application.

However, should there be a change in scope from non-invasive prospecting to intrusive prospecting, the HoA must determine the financial provisioning in line with GNR. 1147 (GG 39425 dated 20 November 2015, as amended) and submit the required reports as part of the NEMA 2014 EIA Regulations amendment process.

(1) DETERMINATION OF THE AMOUNT OF FINANCIAL PROVISION

Not determined due to non-invasive prospecting right.

(e) DESCRIBE THE CLOSURE OBJECTIVES AND THE EXTENT TO WHICH THEY HAVE BEEN ALIGNED TO THE BASELINE ENVIRONMENT DESCRIBED UNDER THE REGULATION

See ***Section z) i)***.

(f) CONFIRM SPECIFICALLY THAT THE ENVIRONMENTAL OBJECTIVES IN RELATION TO CLOSURE HAVE BEEN CONSULTED WITH LANDOWNER AND INTERESTED AND AFFECTED PARTIES

This document and all information informing it will be subjected to the required Public Participation Process.

See ***Sections ii) and iii) of PART A – Scope of Basic Assessment Report***.

(g) PROVIDE A REHABILITATION PLAN THAT DESCRIBES AND SHOWS THE SCALE AND AERIAL EXTEND

No disturbance associated with the proposed non-invasive prospecting right.

(h) EXPLAIN WHY IT CAN BE CONFIRMED THAT THE REHABILITATION PLAN IS COMPATIBLE WITH THE CLOSURE OBJECTIVES

Not required due to the non-invasive nature of this prospecting right application process.

(i) CALCULATE AND STATE THE QUANTUM OF THE FINANCIAL PROVISION REQUIRED TO MANAGE AND REHABILITATE THE ENVIRONMENT IN ACCORDANCE WITH THE APPLICABLE GUIDELINE

Not determined due to non-invasive prospecting right.

(j) CONFIRM THAT THE FINANCIAL PROVISION WILL BE PROVIDED AS DETERMINED

Not required due to the non-invasive nature of this prospecting right application process.

MECHANISMS FOR MONITORING COMPLIANCE WITH AND PERFORMANCE ASSESSMENT AGAINST THE ENVIRONMENTAL MANAGEMENT PROGRAMME AND REPORTING THEREON, INCLUDING

CC) MONITORING OF IMPACT MANAGEMENT ACTIONS

DD) MONITORING AND REPORTING FREQUENCY

EE) RESPONSIBLE PERSON]

FF) TIME PERIOD FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS

GG) MECHANISM FOR MONITORING COMPLIANCE

Table 44 provides the mechanism for monitoring compliance with and performance assessment against the EMPr and reporting thereon.

Table 44: Mechanism for monitoring compliance

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY AND TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Non-invasive Prospecting	**No impacts identified**	The following monitoring requirements must be implemented: • Although no physical activities is associated with the proposed non-invasive prospecting, the HoA must appoint an independent suitably qualified Environmental Inspector (EI), preferably a registered EAP, must be appointed by the HoA to inspect, confirm, and report any non-conformances with the EA and requirements of the EMPr on a quarterly basis. Records of these inspections must be kept and readily available to the relevant Environmental Management Inspectorate (EMI). • Auditing of compliance with the EA and EMPr in terms of Part 3, Regulations 34 of the NEMA 2014 EIA Regulations (as amended) must be conducted on an annual basis. This audit to be conducted preferably by a independent registered EAP.	Appointed EI; Appointed EAP; and HoA.	1. Quarterly visual inspection; and 2. Annual independent auditing.
Intrusive Prospecting	Impacts defined in ***Table 41, Table 42***, and ***Table 43***.	Should the scope change from non-invasive to intrusive prospecting, the appointed EAP conducting the required EA amendment process in terms NEMA 2014 EIA Regulations, must develop a detailed monitoring programme and subsequently update this section.	Appointed EAP; and HoA.	To be determined.

HH) INDICATE THE FREQUENCY OF THE SUBMISSION OF THE PERFORMANCE ASSESSMENT/ENVIRONMENTAL AUDIT REPORT

Section 34 of the NEMA 2014 EIA Regulations stipulates the requirements for auditing compliance with the Environmental Authorisation (EA), the EMPr, and the closure plan (in compliance with GN R. 1147).

It requires the holder of the authorisation, for the period during which the EA, EMPr, and closure plan are valid, to ensure compliance with all the conditions stipulated in these documents and that be audited. This audit report must then be submitted to the competent authority.

This audit report must adhere to the following conditions:

- Be prepared by an independent person with the relevant environmental auditing expertise;
- Provide verifiable findings, in a structured and systematic manner, on- (i) the level of performance against and compliance of an organization or project with the provisions of the requisite environmental authorisation or EMPr and, where applicable, the closure plan; and (ii) the ability of the measures contained in the EMPr, and where applicable the closure plan, to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity;
- Contain the information set out in Appendix 7 of GN R. 982; and
- Be conducted and submitted to the competent authority at intervals as indicated in the environmental authorisation.

The purpose of this audit report is also defined in the regulations and is as follows:

- Determine the ability of the EMPr, and where applicable the closure plan, 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; and
- To determine the level of compliance with the provisions of environmental authorisation, EMPr and where applicable the closure plan.

In the event that findings of the environmental audit report indicate insufficient mitigation of environmental impacts of the activity or insufficient levels of compliance with the requirements, the holder of the EA must submit recommendations to amend the EMPr or closure plan in order to rectify the shortcomings identified in the audit report.

The recommendations must be subjected to a public participation process which process has been agreed to by the competent authority and was appropriate to bring the proposed amendment of the EMPr and, where applicable the closure plan, to the attention of potential and registered interested and affected parties, including organs of state which have jurisdiction in respect of any aspect of the relevant activity and the competent authority, for approval by the competent authority.

Within 7 days of the date of submission of an environmental audit report to the competent authority, the holder of an environmental authorisation must notify all potential and registered interested and affected parties of the submission of that report, and make such report immediately available:

- to anyone on request; and
- on a publicly accessible website, where the holder has such a website.

The environmental audit report must contain all information set out in Appendix 7 of the NEMA 2014 EIA Regulations.

It is recommended that this ***independent audit*** takes place on an ***annual basis*** or as specified by the competent authority in the EA.

In terms of the definition of the NEMA 2014 EIA Regulations, ***independent*** in relation to the person responsible for the preparation of an environmental audit report, means:

- That such person has no business, financial, personal, or other interest in the activity and is appointed in terms of the regulations; or
- That there are no circumstances that may compromise the objectivity of the person performing such work excluding fair remuneration for work performed in connection with the environmental audit report.

II) ENVIRONMENTAL AWARENESS PLAN

General environmental awareness must be promoted amongst all BCR Projects (Pty) Ltd employees.

Should the scope of the proposed non-invasive prospecting change to intrusive prospecting, a detailed Environmental Awareness Plan must be developed and implemented.

The purpose of an Environmental Awareness Plan is to outline the methodology that will be used to inform all employees of any environmental risks which may result from their work and the manner in which the risks must be dealt with in order to avoid contamination or the degradation of the environment. The awareness plan is primarily a tool to introduce and describe the requirements of the range of environmental and social plans associated with the proposed prospecting activities. The environmental awareness plan ensures that training needs are identified, and appropriate training is provided.

The environmental awareness plan should at least communicate the following:

- Importance of conformance with the environmental policy, procedures and other requirements of good environmental management;
- The significant environmental impacts and risks of an individual's work activities and the environmental benefits of improved performance;
- Individual's roles and responsibilities in achieving the aims and objectives of the environmental policy; and

- The potential consequences of not complying with environmental procedures.

(2) MANNER IN WHICH THE APPLICANT INTENDS TO INFORM HIS OR HER EMPLOYEES OF ANY ENVIRONMENTAL RISK WHICH MAY RESULT FROM THEIR WORK

In order for the environmental awareness policy to be effective, the issues raised through it need to be communicated through training sessions, meetings, consultations and progress reviews. The following are recommended minimum steps that can be taken to ensure communication is effective:

- The agendas of all company board meetings will have an item where issues environmental projects are discussed and feedback is given;
- Provide progress reports on the achievement of policy objectives and level of compliance with the approved EMPr and , if applicable, the closure plan complying with GN R. 1147, to the DMRE on request;
- Ensure environmental issues are realised at monthly mine management executive committee meetings and at all relevant, mine wide meetings, at all levels; and
- Ensure environmental issues are discussed at all general liaison meetings with local communities and other I&APs.

All employees are required to undergo environmental awareness induction training upon appointment and records of such training must be obtained and recorded. Refresher induction training must periodically take place.

Regular meetings (recommended to be done daily, at least once a week) communicating the following is recommended:

- Findings of environmental performance reports;
- Awareness raising campaigns discussing environmental topics; and
- Information of any environmental risk which may result from employee's work.

(3) MANNER IN WHICH RISKS WILL BE DEALT WITH IN ORDER TO AVOID POLLUTION OR THE DEGRADATION OF THE ENVIRONMENT

It is recommended that an awareness training schedule be developed. This schedule should at least indicate the following:

- Topic;
- Method of communicating i.e. through a workshop, training session, or meeting;
- Target group i.e. management, skilled or semi skilled labour, admin staff etc;
- Scheduled time; and
- Progress.

The following topics are recommended:

- Potential environmental risks;
- Legal requirements;
- Environmental Management System requirements;

- Environmental performance; and
- Environmental incidents addressing corrective and preventative measures to be implemented.

JJ) SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

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

See ***Section v) of PART A – Scope of Basic Assessment Report***.

3. UNDERTAKING

The EAP herewith confirms

a. the correctness of the report accompanied by this declaration;

b. the inclusion of comments and inputs from stakeholders and I&AP's;

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

d. the acceptability of the project in relation to the finding of the assessment and level of mitigation proposed.

Signature of the Environmental Assessment Practitioner

Environmental Management Assistance (Pty) Ltd

Name of Company:

24 August 2022

Date

- END-

APPENDIX A – EAP QUALIFICATIONS AND TEAM MEMBERS

APPENDIX B – LOCALITY MAP

APPENDIX C – SITE LAYOUT PLAN, SENSITIVITIES, AND LAND USE

APPENDIX D – SITE SENSITIVITY VERIFICATION

APPENDIX E – PUBLIC PARTICIPATION

APPENDIX F – SPECIALIST STUDIES

APPENDIX F.1 – AGRICULTURE AND SOIL ASSESSMENT

APPENDIX F.2 – ARCHAEOLOGICAL, CULTURAL, AND PALAEONTOLOGY

APPENDIX F.3 - TERRESTRIAL ASSESSMENT

APPENDIX F.3.1 – VEGETATION AND PLANT SPECIE ASSESSMENT

APPENDIX F.3.2 – ANIMAL SPECIE ASSESSMENT

APPENDIX F.4 – AQUATIC BIODIVERSITY ASSESSMENT

APPENDIX F.5 – HYDROLOGICAL FLOOD LINE DETERMINATION

APPENDIX F.6 – NOISE SCOPING ASSESSMENT

APPENDIX G – EAP UNDERTAKING