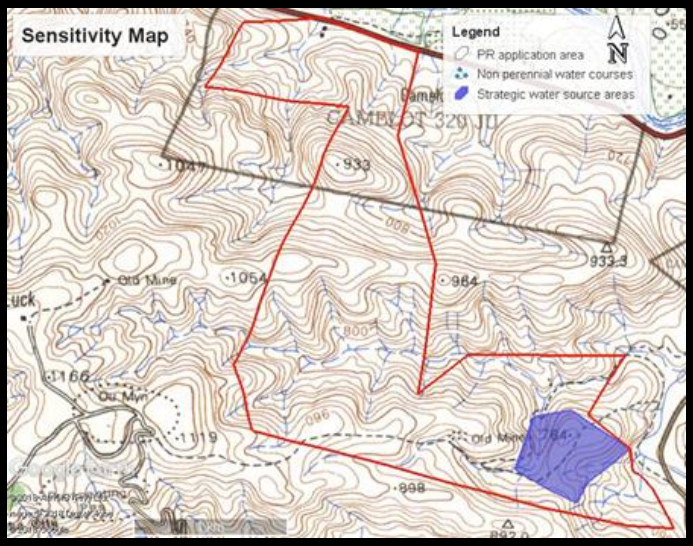
IT'S A GOOD TIME (PTY) LTD

BASIC ASSESSMENT REPORT

IT'S A GOOD TIME (PTY) LTD

REF NUMBER: MP30/5/1/1/2/15259PR



EcoPartners

BASIC ASSESSMENT REPORT

COMPILED IN TERMS OF SECTION 24 OF THE NATIONAL ENVIRONMNETAL MANAGEMENT ACT AND SECTION 16 OF THE MINERAL AND PETROLEUM RESOURCED DEVEOPMENT ACT

Prepared for

IT'S A GOOD TIME (PTY) LTD

17 August 2018

Prepared by

REPORT NR: TGT1804ECE02

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DOCUMENT DETAILS

Document Number	TGT1804ECE02	
Document Title	It's a Good Time Basic Assessment Report	
Revision Number	01	
Document Author	San Oosthuizen *Pr.Sci.Nat*	Signature:
Document Reviewer	Charlaine Baartjes	Signature:
Project Team	San Oosthuizen; Charlaine Baartjes; Kahmani Gouden *Pr.Sci.Nat*	
Disclaimer	This disclaimer stipulates the use of this report. This report was compiled as part of the submission for an application related to the listed activities mentioned in the report. This report was made available to registered Interested and Affected Parties (I&APs), stakeholders and the Competent Authority for comment. The scope and content of this report is compiled based on the requirements specified in the Environmental Impact Assessment regulations, 2014 as amended in 2017. The contents of this report present the location of activities on site, the policy and legislative context within which the activity is located, as well as the need and desirability of the activity. It describes the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment; and identifies, assesses, and rank the impacts that the proposed activity might have on the site. Suitable measures to avoid, manage or mitigate identified impacts and the residual risks that need to be managed and monitored, are presented in the report. Information contained in this report is based on data supplied by the applicant and available online data sources. Data supplied by the applicant or other external sources is assumed to be correct unless otherwise stated. No responsibility is accepted by EcoPartners for incomplete or inaccurate data supplied by others. EcoPartners will not be liable to the reader in respect of any losses arising out of any event or events beyond it's reasonable control. EcoPartners will not be liable to the applicant or reader in respect of any business losses, including without limitation loss of or damage to profits, income, revenue, use, production, anticipated savings, business, contracts, commercial opportunities or goodwill. This report can only be used for its intended purpose, and only applies to the area specified, as well as the activities specified. EcoPartners will not be held liable for the use of this report in any other purpose, but its intended purpose.	

Revision History

Revision Number	Date	Comment
0	4 July 2018	Document for Comment
1	17 August 2018	DMR Submission

ACRONYMS AND ABBREVIATIONS

Acronym / Abbreviation	Description / Full text
°C	Degrees Celcius
BAR	Basic Assessment Report
BCPE	Barberton Centre of Plant Endemism
BMM	Barberton/Makhonjwa Mountain
BRP	Bioregional Plan
BSP	Biodiversity Sector Plan
CBA	Critical Biodiversity Area
CITEs	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CR	Critically Endangered
DEA	Department of Environmental Affairs
DD	Data Deficient
DMR	Department of Mineral Resources
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
EN	Endangered
ESA	Ecological Support Area
EWR	Ecological Water Requirement
FEPA	Freshwater Ecosystem Priority Area
GIS	Geographical Information System
HESASA	Household Energy Safety Association of Southern Africa
ha	Hectares
I&APs	Interested and affected parties
IBAs	Important Bird Areas
IDP	Integrated Development Plan
IUCN	International Union for Conservation of Nature
kg	Kilograms
km	Kilometres
l/s	Litres per second
LC	Least Concern
LM	Local Municipality
m	metres
m^3	Cubic metres
MBSP	Mpumalanga Biodiversity Sector Plan
Mg/L	Milligrams per litre
MPRDA	Mineral and Petroleum Resources Development Act, 2002
m/s	Metres per second
mS/m	Milli Siemens/meter
NEMA	National Environmental Management Act
NBA	National Biodiversity Assessment
NT	Not Threatened
PID	Project Information Document
PPE	Personal Protective Equipment
PPP	Public participation Process
PR	Prospecting Right
SABAP	Southern African Bird Atlas Project

Acronym / Abbreviation	Description / Full text
SAHRA	South African Heritage Resources Agency
SANBI	South Africa National Biodiversity Institute

DOCUMENT ROADMAP

Scope of assessment and content of basic assessment reports		Report reference
(a)	EAP details	Section 1 Appendix 1
	(i) the EAP who prepared the report; and	
	(ii) the expertise of the EAP, including a curriculum vitae;	
(b)	the location of the development footprint of the activity on the approved site as contemplated in the accepted scoping report, including	Section 2
	(i) the 21 digit Surveyor General code of each cadastral land parcel;	Table 2-1
	(ii) where available, the physical address and farm name;	
	(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	
(c)	a plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale,	Figure 2-2
	or, if it is- (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or	
	or, if it is- (ii) on land where the property has not been defined, the coordinates within which the activity or activities is to be undertaken;	
(d)	a description of the scope of the proposed activity, including-	Section 3
(e)	a description of the policy and legislative context within which the development is proposed including—	Section 4
	(i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and	
	(ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments;	Table 4-1
(f)	a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	Section 5
(g)	a motivation for the preferred site, activity and technology alternative;	Section 5
(h)	a full description of the process followed to reach the proposed preferred alternative within the site, including—	Section 6
	(i) details of all the alternatives considered;	
	(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Section 7
	(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	Table 7-1
	(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section 8
	(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts—	Section 9 Table 9-2
	(aa) can be reversed;	
	(bb) may cause irreplaceable loss of resources; and	
	(cc) can be avoided, managed or mitigated;	
	(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	Section 9.2

Scope of assessment and content of basic assessment reports		Report reference
	(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section 9
	(viii) the possible mitigation measures that could be applied and level of residual risk;	Section 9.3 Table 9-3
	(ix) the outcome of the site selection matrix;	N/A
	(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and	Section 9 (ix)
	(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;	Section 9 (x)
(i)	a full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including—	Section 9 Table 9-1 and Table 9-3
	(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;	
(j)	an assessment of each identified potentially significant impact and risk, including—	Section 9 Table 9-2
	(i) cumulative impacts;	
	(ii) the nature, significance and consequences of the impact and risk;	Table 9-1
	(iii) the extent and duration of the impact and risk;	
	(iv) the probability of the impact and risk occurring;	
	(v) the degree to which the impact and risk can be reversed;	
	(vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and	
	(vii) the degree to which the impact and risk can be avoided, managed or mitigated;	Table 9-5
(k)	where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report;	Section 9-4
(l)	(l) an environmental impact statement which contains—	Section 9-5
	(i) a summary of the key findings of the environmental impact assessment;	
	(ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and	
	(iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	
(m)	based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management outcomes for the development for inclusion in the EMPr;	Section 9-5 (m)
(n)	any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;	Section 9-5 (n)
(o)	a description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Section 9-5 (o)

Scope of assessment and content of basic assessment reports		Report reference
(p)	a reasoned opinion as to whether the proposed 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;	Section 9-5 (p)
(q)	where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised;	Section 9-5 (q)
(r)	an undertaking under oath or affirmation by the EAP in relation to—	Section 9-5 (r) Page 162
	(i) the correctness of the information provided in the reports;	
	(ii) the inclusion of comments and inputs from stakeholders and I&APs;	
	(iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and	
	(iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties; and	
(s)	where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	Section 9-6
(t)	any specific information that may be required by the competent authority; and	Section 9-7
(u)	any other matters required in terms of section 24(4)(a) and (b) of the Act.	

EXECUTIVE SUMMARY

It’s a Good Time (Pty) Ltd applied for a prospecting right for gold, silver and aggregate on certain areas in Mpumalanga. The prospecting right (PR) application area is situated on portions of the farms Camelot 320 JU and Sheba Siding 939 JU in the Mbombela Local Municipality.

The prospecting of the area will occur over a five-year period divided into four phases. The first and second phase will consist primarily of non-invasive methods, whilst the third phase will use some invasive techniques. The fourth phase will conclude with resource modelling and a pre-feasibility study. For the full prospecting period a maximum of 4 holes will be drilled to a depth varying between 290-335 m. Duration of the drilling phase is expected to be 12 months. For the drilling of the envisaged 4 holes the areas to be affected will be approximately 0.04 ha. Provision is made for four roads (total 484 m x 3 m) to access the drill sites. The roads will branch off from the existing road network on the properties. The total area to be disturbed by the prospecting activities is 0.19 ha. Rehabilitation will occur concurrently with drilling.

This prospecting right area falls with the geological boundaries if the Barberton Greenstone Belt, in the Mpumalanga Province, South Africa. The rocks of the Barberton Greenstone belt are some of the oldest known rocks in the world dating back to 3.2 billion years. The topography in the proposed application area can be described as a mountainous area. The area is underlain by a granitic aquifer which is intergranular and fractured (Du Toit, 1999). The land use in the area is characterised by natural or undeveloped areas which have been partially transformed and degraded as a result of rural settlement and agricultural activities in the form of livestock grazing, subsistence and commercial farming and mining activities. The perennial Kaap River is located approximately 150 m away from the northern boundary of the prospecting application area. According to the Resources Quality Objectives set in terms of water quality for the river, the target Ecological Class for the Kaap River is Class B. There are also a number of non-perennial drainage lines bisecting the area, which contains water for short periods after rains. According to the National FEPA Wetlands Geographical Information System (GIS) layer (2011) on the South African National Biodiversity Institute GIS website no wetlands can be found on the application area. A portion of the prospecting right application area is considered to be a strategic water resource area (MPTA, 2014). The PR application area is found within the Kaalrug Mountain Bushveld with small portions

that falls within the Baberton Montane Grassland vegetation units (Mucina and Rutherford, 2006). The the Kaalrug Mountain Bushveld vegetation type is considered "Least Threatened". The PR application area is not located within a threatened ecosystem. The PR application area is located within the Barberton Centre of Plant Endemism. In terms of the Mpumalanga Biodiversity Sector Plan the PR application area falls within Ecological Support Area due to the areas that function as a local corridor; as a protected areas buffer and as a strategic water resource.

The PR application area is located next to the Mountainlands Nature Reserve. A large portion of the Mountainlands Nature Reserve is included in the Barberton/Makhonjwa Mountain World Heritage Site, which was declared on 2 July 2018. The PR application does not fall within the World Heritage Site. On 15 June 2018, the South African Heritage Resources Agency declared a few sites in the Barberton Makhonjwa Mountains as National Heritage sites (GN 585 of 15 June 2018). The closest of these sites is 11 km southwest of the southern boundary of the prospecting right area. According to the Mining and Biodiversity Guideline. the largest portion of the PR application area falls within an area classified as being of highest biodiversity importance.

The potential environmental impacts associated with the proposed prospecting activities have been evaluated according to their significance, which is determined as a result of the consequence and likelihood. The consequence is determined as a function of the receiving environment, duration of activity and spatial scale, whereas the likelihood of the impact is determined as a function of the occurrence of the activity and the certainty of the impact. The consequence multiplied by the likelihood presents the significance of the potential impact. Mitigation measures have been developed in order to minimise the significance of negative impacts identified and promote positive impacts.

From the assessment of impacts throughout all the phases it is clear that though the impacts may occur directly as a result of the proposed prospecting activities, the negative impacts are mostly of medium significance before mitigation and the positive impacts are of high significance. Even though no negative impact was rated with high significance, mitigation measures for all impacts were proposed to further reduce the impact on the environment. Should the prospecting activities avoid the sensitive areas as identified (Figure 9 2) the possible environmental impacts associated with the proposed prospecting are considered low, provided the mitigation measures are implemented.

Based on the presented impact assessment the EAPs are of the opinion that the It’s a Good Time (Pty) Ltd prospecting project should be authorised.

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mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

And

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

AUGUST 2018

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

NAME OF APPLICANT: It's a Good Time (Pty) Ltd

TEL NO: 084 586 1826 / 061 684 0053

FAX NO: 086 539 6127

POSTAL ADDRESS: P.O. Box 38398; Booysens; 2016

PHYSICAL ADDRESS: 25 Plantation Road, The Gardens, Sandton, 2192

FILE REFERENCE NUMBER SAMRAD: MP30/5/1/1/2/15259PR

1. Important Notice

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

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

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

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

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

2. Objective of the basic assessment process

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

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

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

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

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

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

(ii) the degree to which these impacts—

(aa) can be reversed;

(bb) may cause irreplaceable loss of resources; and

(cc) can be managed, avoided or mitigated;

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—

(i) identify and motivate a preferred site, activity and technology alternative;

(ii) identify suitable measures to manage, avoid or mitigate identified impacts; and

(iii) identify residual risks that need to be managed and monitored.

PART A: SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1 DETAILS OF EAP

3. Contact Person and correspondence address
a) Details of
i) Details of the EAP

Name of the Practitioner: San Oosthuizen

Tel No.: 011 431 2251

Fax No.: 086 539 6127

E-mail address: san@ecopartners.co.za

Name of the Reviewer: Charlaine Baartjes

Tel No.: 011 431 2251

Fax No.: 086 539 6127

E-mail address: charlaine@ecopartners.co.za

ii) Expertise of the EAP
(1) The qualifications of the EAP.
(with evidence).

MSc Zoology

Member: International Association for Impact Assessment

Environmental Assessment Practitioners Association of South Africa

SACNASP Registered Professional Natural Scientist

(2) Summary of the EAP's past experience.
(In carrying out the Environmental Impact Assessment Procedure)

Extensive working knowledge and understanding of environmental policies, principles and legal and other requirements as applicable to South Africa.

More than 15 years' experience in the compilation of Environmental Impact Assessment Reports and Mine Environmental Management Plans (EMPs)

Please refer to Appendix 1 for the CVs.

2 LOCATION OF ACTIVITY

b) Location of the overall Activity.

Table 2-1: Location of the activity

Farm Name:	Camelot 320 JU Sheba Siding 939 JU
Application area (Ha)	400 ha
Magisterial district:	Barberton
Distance and direction from nearest town	The farms are situated at about 13 km northeast of town of Barberton and on the northern edge of the Mountainlands Nature Reserve, in the Mpumalanga Province. The settlement of Sheba is approximately 1 km south east of the prospecting area.
21 Digit Surveyor General Code for each farm portion	

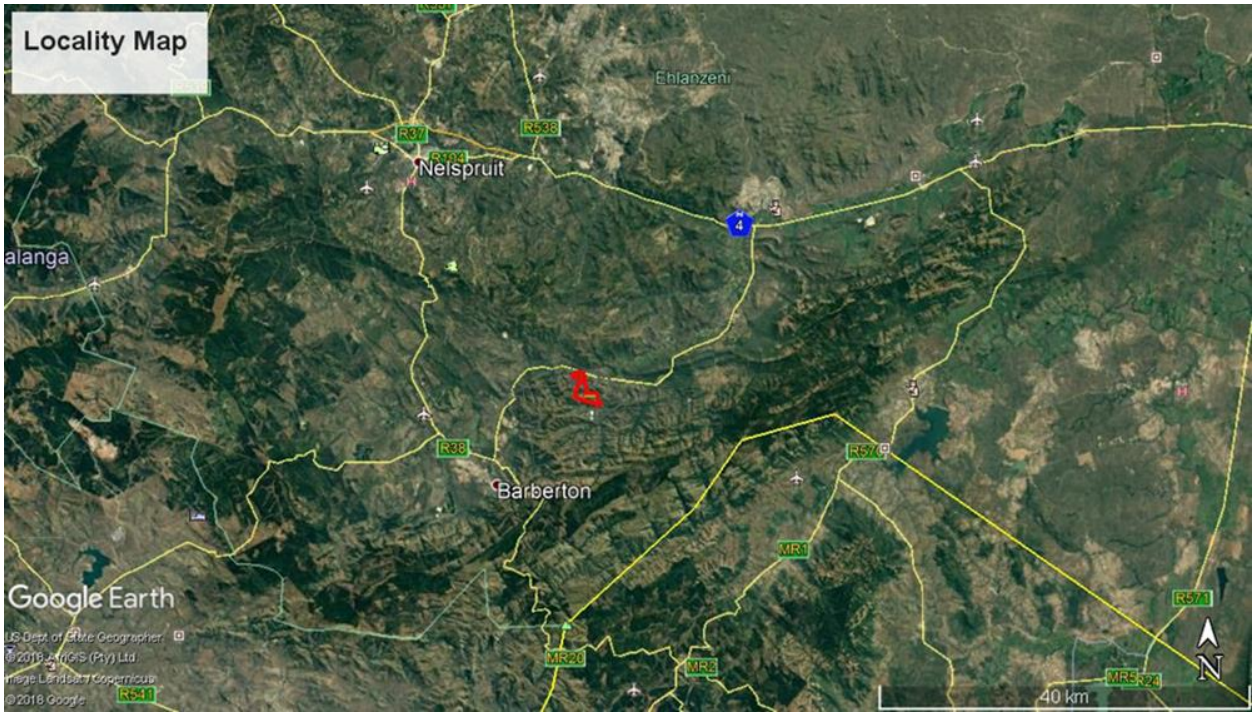
Coordinates					
a	-25.682382°	31.133850°	k	-25.704449°	31.162415°
b	-25.683581°	31.143190°	l	-25.702040°	31.159326°
c	-25.698784°	31.136357°	m	-25.698628°	31.162025°
d	-25.702501°	31.137652°	n	-25.698468°	31.151339°
e	-25.706857°	31.154232°	o	-25.700614°	31.148056°
f	-25.708885°	31.162148°	p	-25.692987°	31.149236°
g	-25.709209°	31.165289°	q	-25.685339°	31.146586°
h	-25.706821°	31.163890°	r	-25.679928°	31.147867°
i	-25.705943°	31.163003°	s	-25.677691°	31.141225°
j	-25.705791°	31.162589°	t	-25.678207°	31.136099°

c) Locality map

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

The prospecting right (PR) application area is situated on portions of the farms Camelot 320 JU and Sheba Siding 939 JU in the Mbombela Local Municipality, Mpumalanga Province (Figure 2-1). The farms are situated about 13 km northeast of the town of Barberton and on the northern edge of the Mountainlands Nature Reserve, in the Mpumalanga Province. The settlement of Sheba is approximately 1 km south east of the PR application area. The PR application area is situated south of the R38 a provincial route that connects Standerton with Kaapmuiden via Bethal and Barberton.

Figure 2-1: Location Map



Source: It's a Good Time (Pty) Ltd & Google Earth Imagery

Please also refer to the **Locality Map** in Appendix 2.

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

The prospecting of the area will occur over a five-year period divided into four phases.

The first and second phase will consist primarily of non-invasive methods, whilst the third phase will use some invasive techniques. The fourth phase will conclude with resource modelling and a pre-feasibility study.

During non-invasive prospecting phases there will be no disturbance of the ground.

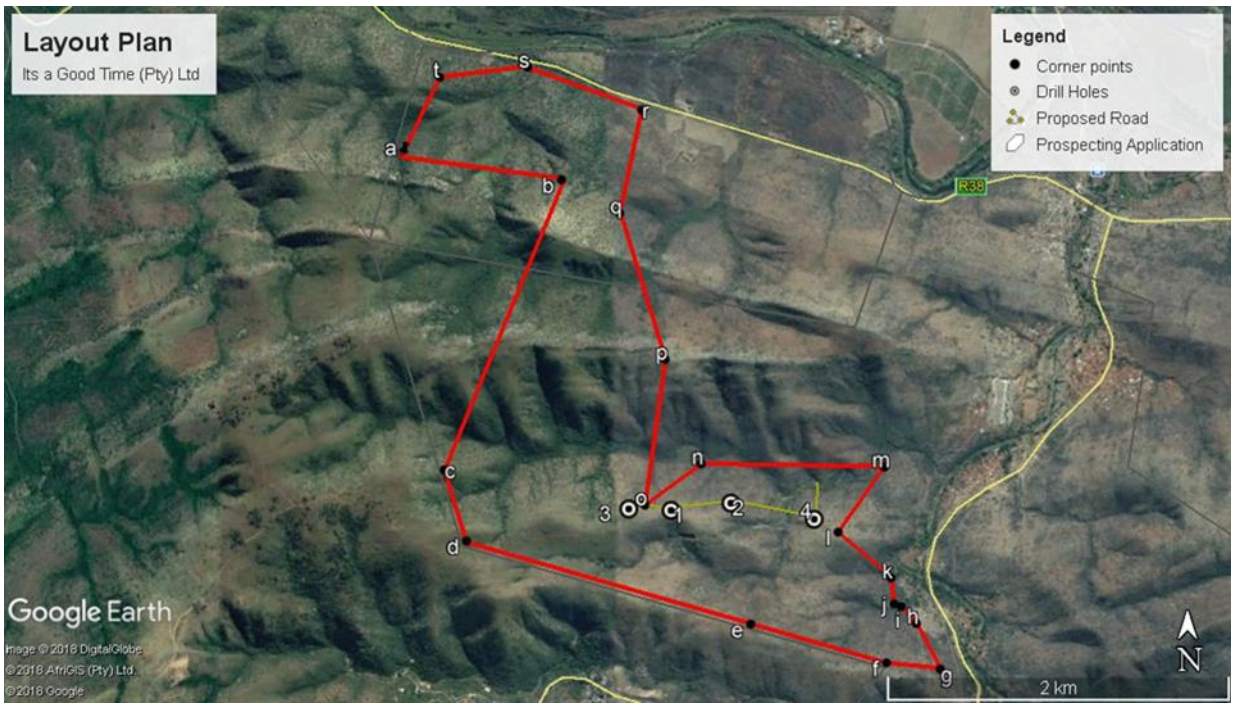
The invasive phase of the prospecting plan consists of the drilling of prospecting boreholes. The existing road network on the property will be used where possible but it is anticipated that a new access road will be made for access to the drill locations.

For the full prospecting period a maximum of 4 holes will be drilled to a depth varying between 290-335m.

Rehabilitation will occur concurrently with drilling.

Please refer to the figure below for a preliminary drill grid.

Figure 2-2: Preliminary Drill Grid



Source: EcoPartners

3 DESCRIPTION OF ACTIVITY

(i) Listed and specified activities

Table 3-1: Listed and Specified activities

NAME OF ACTIVITY (**E.g. For prospecting** - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route **etc…etc…etc** **E.g. for mining**,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc. etc. etc.)	**Aerial extent of the Activity Ha or m²**	**LISTED ACTIVITY Mark with an X where applicable or affected.**	**APPLICABLE LISTING NOTICE (GNR 983, GNR 984 or GNR 985)**
Prospecting for the minerals of gold, silver and aggregate by means of in-fill diamond core drilling of 4 boreholes. The holes will be drilled to a depth of 290 – 335 m. Four roads to access the drill holes (total 484 m x 3 m)	400 ha (Disturbed area – 0.19 ha)	X	GNR 983 Listing Notice 1 Activity 20

(ii) Description of the activities to be undertaken

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

It's a Good Time (Pty) Ltd described their prospecting activities in their prospecting work programme.

The prospecting for the minerals of gold, silver and aggregate in the area will occur over a five-year period divided into four phases. The first and second phases will consist of non-invasive techniques, the third phase will consist of invasive techniques while the fourth phase will be non-invasive. The fourth phase will conclude with resource modelling, a pre-feasibility study and initial mine design (if feasible).

During all phases the landowners will be engaged as to where the invasive prospecting could take place with minimal impact on their activities or livelihood.

For the full prospecting period, a maximum of four (4) holes will be drilled, to an average depth of 290 x 335 m and additional pitting will be done.

Drilling will take place at a maximum of one drill hole at a time. The drill site will be cleared of obstructions and debris and then drilled. Rehabilitation will occur concurrently with drilling.

Drilling will be conducted using a diamond drill rig which will be either, truck, track or trailer mounted (refer Figure 3-1). Experience on other sites have indicated that including the turning circle of vehicles, the area disturbed rarely exceeds 100m^2 or 0.01 ha per hole. For the drilling of the envisaged 4 holes the areas to be affected will be approximately 0.04 ha. Fencing will be temporary.

Figure 3-1: Example of a typical diamond drill rig

Source: http://www.hyderabadrigs.com

Phases 1 – 4 add up to five (5) years, but each phase might be longer or shorter depending on the data requirements or site conditions.

3.1 PHASE 1: LITERATURE REVIEW AND GEOGRAPHIC INFORMATION SYSTEM MAPPING (8-12 MONTHS)

The prospecting operations will begin with non-invasive prospecting. Initial GIS mapping will be embarked on to plan the prospecting activities, as well as to indicate objects located on the property. This will be followed by a literature survey of historical reports, plans and records on the locality and the mineral commodity with a view to target ranking and geochemical area selection, borehole siting.

3.2 PHASE 2: FIELD MAPPING & SAMPLING (8 – 12 MONTHS)

Field mapping include the field traverse (walk-down) of the farm collecting geological information; the information will be correlated with the literature study information in

order to correlate with the correct stratigraphy and lithological units. The information will be used to create a geological map of the surface of the prospecting area showing geology as well as indicating any anomalous areas of elevated gold, silver and or path finder elements.

Landsat Imagery and other remote sensing images will be combined with GIS plans to show historical mining activities, the existing geology, structures and geochemistry to support the ranking of the target minerals.

3.3 PHASE 3: RESOURCE DRILLING (6 – 12 MONTHS)

In-fill diamond core drilling to determine the extent of gold, silver or aggregate reserves. It is anticipated that 4 holes with depths between 290 – 335 m will need to be drilled to determine the lateral and vertical extent of the potential gold and silver mineralization from borehole core data. Aggregate mineralization will be recorded if close to surface. Rehabilitation will concur concurrently with drilling.

3.4 PHASE 4: CORE ANALYSIS & PRE-FEASIBILITY STUDY (16 – 24 MONTHS)

This phase involves core logging and sampling to ascertain extent of mineralization with a view of establishing a minable mineral resource. Logging will also capture RQD data to tell how weathered the rock is and identify possible joints and faults.

This will be followed by a pre-feasibility study during which a detailed report describing the geology, structures, geochemical expression will be compiled. The report will also describe the mineral estimates by citing extent, grade and tonnage. The information of the pre-feasibility study can be used in a mining right application, should it be viable.

3.5 EQUIPMENT & STAFF

The equipment to be used is as follows:

(a) Mapping tools

(b) Drill Equipment

(c) Temporary Fencing

(d) Wooden pegs

(e) Safety Cones

(f) Field vehicles

(g) Water tanker

(h) Spades

(i) First aid kit

(j) Sample bags

(k) PPE (dust mask; gloves; goggles reflector vest)

Additional equipment needed, will be insourced from competent and reliable contractors in the local area.

A suitable nearby area will be identified and fenced off where equipment will be stored.

The site will have a maximum of 6 people on site made up of drilling crew, drilling supervisor, geologist and security. The drilling crew will stay in the local community of Sheba Siding, the security will be sourced from a local contractor. There will be portable toilets located on site to provide sanitary facilities to the employees.

4 LEGAL FRAMEWORK

e) Policy and Legislative Context

Table 4-1: Legal framework

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
(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		*(E.g. In terms of the National Water Act a Water Use License has/ has not been applied for)*
The Constitution of the Republic of South Africa (Act No. 108 of 1996)	Section 24 environmental right considered in impact assessment	Application for authorisation for EIA Regulations, 2014 Listed Activities (This application)
Mineral and Petroleum Resources Development Act (Act 28 of 2002) as amended	Application	Application for a prospecting right (This application).
• Regulations GN R 527 of 23 April 2004 in terms of the of the MPRDA	Impact Management & mitigation	Application for a prospecting right (This application) and compilation of EMPr.
The National Environmental Management Act (NEMA) (Act No. 107 of 1998) as amended	Impact Management & mitigation	Application for authorisation of listed activities.
• Regulation 982 of 4 Dec 2014– EIA Regulations. Amended by GNR 326 of 7 Apr 17	Application, EIA Process, Identification of listed activities	Application for authorisation for EIA Regulations, 2014 Listed Activities (This application).
• Regulation 985 of 4 Dec 2014 – Regulation Listing Notice 3 – Activities in specific identified geographical areas that requires authorisation. Amended by GNR 324 of 7 Apr 17	Identification of listed activities	Application for authorisation for EIA Regulations, 2014 Listing Notice 3 Activities (This application).
National Environmental Management: Air Quality Act (AQA) (Act No. 39 of 2004) as amended	Air Quality management	Dust control mitigation measures proposed in EMPr.
• National dust control regulations for South Africa of 1 November 2013	Air quality impact identification and management	Included in EMPr for Air Quality Management
National Environmental Management Waste Act (Act No. 59 of 2008) as amended	Waste management	Responsible waste management practices included in EMPr
National Environmental Management Biodiversity Act (NEMBA: Act 10 0f 2004)	Description of the baseline environment	Considered in Fauna & Flora Assessment. Application for authorisation for EIA Regulations, 2014 Listing Notice 3 Activities (This

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
		application). Buffers and No-Go areas identified.
• National Biodiversity Assessment (NBA; 2011)	Description of the baseline environment	Considered in Fauna & Flora Assessment.
• National List of Threatened Terrestrial Ecosystems (2011)	Description of the baseline environment	Considered in Fauna & Flora Assessment
• Threatened or Protected Species List (ToPS List) – Government Gazette Notice No. 389 of 2013	Description of the baseline environment	Requirements included in EMPr
National Veld and Forest Fire Act (Act 101 of 1998)	Ecological management	Considered in Vegetation Assessment.
The National Forest Act (Act 84 of 1998)	Description and management of trees	Considered in Vegetation Assessment. Requirements included in EMPr
The Environment Conservation Act ("ECA") (Act No. 73 of 1989)		
• Noise Control Regulations (GN R154 in Government Gazette No. 13717 dated 10 January 1992)	Considered in Impact Assessment	Noise management included in EMPr
National Water Act (Act No. 36 of 1998) as amended	Description of surface & ground water, management baseline environment	Utilised in surface & ground water, management assessment. Responsible water management practices included in EMPr
• National Freshwater Ecosystems Priority Atlas	Description of the baseline environment	Utilised in Freshwater Assessment. Buffer areas included in EMPr
Conservation of Agricultural Resources Act (Act No. 43 of 1983)	Description and management of soils	Utilised in Soil & Agricultural Potential Assessment
National Environmental Management Protected Areas Act (Act 57 of 2003)	Description of the baseline environment	Considered in Impact Assessment
Hazardous Substances Act (Act No.15 of 1979)	Mitigation and management options in terms of hazardous substances storage, use, transport and handling	Responsible handling of hazardous substances included in EMPr
National Heritage Resources Act (Act No 25 of 1999)	Description and management of heritage resources	Utilised in Heritage Assessment. SAHRA has been notified. Mitigation measures and No-go areas included in EMPr
Mpumalanga Biodiversity Sector Plan (MPSP) 2014	Description and management options for environment	Utilised in Impact Assessment. No go areas and mitigation measures included in EMPr

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
Mpumalanga Nature Conservation Act, (Act No. 10 of 1998)	Law relating to nature conservation within province and matter relating to it	Mpumalanga Tourism and Parks Agency identified as stakeholder and notified
CITES	Description of the baseline environment	Considered in Fauna and Flora Assessment
IUCN Red Data List	Description of the baseline environment	Utilised in Fauna and Flora Assessment
SANBI Red List of South African Plants	Description of the baseline environment	Utilised in Flora Assessment
City of Mbombela Final IDP, 2017 - 2022	Description of the baseline environment	Considered in Socio- economic Assessment
Public Participation guideline in terms of NEMA EIA Regulations, Department of Environmental Affairs, 2017	Public participation process	Public participation process to be followed
Guideline on Need and Desirability, Department of Environmental Affairs (DEA), 2017	Baseline description and Need and Desirability	Impact assessment considered need & desirability
Important Bird Areas (2015)	Description of the baseline environment	Utilised in Fauna and Flora Assessment
Vegetation Map of Southern Africa (2012)	Description of the baseline environment	Utilised in Flora Assessment
Mining Guidelines (2013)	Description of the baseline environment	Impact assessment considered guideline
National Biodiversity Assessment (2011)	Description of the baseline environment	Considered in Biodiversity Assessment
National Freshwater Ecosystem Priority Areas (2011)	Description of the baseline environment	Considered in Freshwater Assessment. Mitigation measures and No-go areas included in EMPr
Protected Areas (2010)	Description of the baseline environment	Considered in Impact Assessment
National Land Cover (2014)	Description of the baseline environment	Considered in Impact Assessment
National Wetlands Inventory (2006)	Description of the baseline environment	Considered in Impact Assessment
National Spatial Biodiversity Assessment (2004)	Description of the baseline environment	Considered in Biodiversity Assessment
Soils (1940)	Description of the baseline environment	Considered in Soils Assessment

The described prospecting activities will trigger one listed activity under the National Environmental Management Act, Act 107 of 1998.

Draft regulations have not been included as it has not yet been promulgated.

5 NEED AND DESIRABILITY

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).

5.1 NEED AND DESIRABILITY OF THE PROPOSED PROSPECTING

The applicant states that "Mining dates back to the late 1880's in the Umjindi (Barberton) area and the discovery of gold was the sole reason for the establishment of the town of Barberton on the 24th July 1884.

Since that time, gold mining has been a major contributor to the economic growth and sustainability of the town of Barberton and its surrounds. The local geology of the various gold deposits is highly complex and the days of the "easy surface outcropping' deposits is generally a thing of the past. To enable the discovery of new gold reserves in the area, drilling must be undertaken in areas where previous mining activities have taken place and/or new targets need to be generated by modern geophysical, geochemical and/or remote sensing prospecting methods.

On a Provincial and National basis, mining in the Mpumalanga Province is the most important economic activity and makes up 22% (2016) of the Provincial economy and 29% of mining's contribution to the National economy. Mining on a National basis makes up 8% (2017) of the National economy. Gold is the third most important mineral to the National economy and makes up 15% of the value contribution of the mining sector. The mining sector is an important contributor to Provincial and National direct employment and secondary employment in the mining support sectors.

Gold mining in South Africa is an industry that is in urgent need of investment in new projects to halt the decline of the industry. The gold mining industry has shrunk 47% between 2007 and 2017. Employment has also fallen from 380 000 in 1994 to 119 000 in 2014. This decline is one of the contributors to the National and Provincial high unemployment figures, which are approaching 30%.

The decline in the gold mining industry has also had a large influence on the current ZamaZama illegal mining situation in South Africa, where workers who were retrenched out of the gold mining industry, have turned to illegal mining due to pure desperation to survive and sustain their families.

In order to sustain the contribution of mining and in particular gold mining, to the Local, Provincial and National Economy, the search for new viable mineral deposits must be undertaken. The Barberton Greenstone Belt is under explored in comparison to the greenstone belts of the Canadian Shield and the Yilgarn Craton Greenstones of Western Australia. This situation makes exploration programs, as planned under this Prospecting Right Application, a very feasible vital program which has a very good probability of discovering economic reserves This undertaking would thus highly contribute to the economic sustainability of the industry.”

Prospecting provides information on the value of the national asset in terms of the mineral resources in the area. Better informed decisions can be made when one understands the value of the resources.

5.2 NEED AND DESIRABILITY OF PROSPECTING IN THE CONTEXT OF THE PREFERRED LOCATION

The proposed prospecting application area hosts a historic gold mine, which was mined between the 1880’s and the 1980’s. The Barberton area hosts 4 gold deposits ranked as Tier 1 deposits which have produced more than 7000 kg of gold. The old gold mine on the proposed prospecting area is 1 of only 10 Tier 2 gold deposits out of a total 85 odd gold occurrences in the area which have produced between 1000 kg and 7000 kg of gold. The ranking of this historic mine makes it a very good target to discover both depth and strike extensions to the historically mined ore bodies.

Silver and aggregate are included in this application because they are possible by-products. Silver is a by-product of gold and where there is gold one can expect silver as well. Aggregate is a by-product of the potential mining operations.

6 ALTERNATIVES

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

Location Alternatives: The area selected by the applicant provides the ideal geological features for the presence of gold, silver and aggregate. The proposed prospecting application area hosts an old gold mine, which was mined between the 1880's and the 1980's. The Barberton area hosts 4 gold deposits ranked as Tier 1 deposits which have produced more than 7000 kg of gold. The historic gold mine on the proposed prospecting area is 1 of only 10 Tier 2 gold deposits out of a total 85 odd gold occurrences in the area which have produced between 1000 kg and 7000 kg of gold.

Technological Alternatives: The initial option was to drill substantially more holes than what is indicated here. However, by using geophysics information available the number of holes can be moderated and reduced. There are no other technological means to increase the confidence of gold resources other than drilling the limited holes.

Activity Alternatives: There are no other means to identify whether the gold, silver and aggregate resources are of a sufficient quantity and quality to make development there-of feasible.

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

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

i) Details of the development footprint alternatives considered.

With reference to the site plan provided as Appendix 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:
(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

6.1 PROPERTY

There are no sites which have a similar location advantage. The historic gold mine on the proposed prospecting area is one of only ten Tier 2 gold deposits out of a total 85 odd gold occurrences in the area which have produced between 1000 kg and 7000 kg of gold.

6.2 TYPE OF ACTIVITY

A total of 4 holes are proposed for the site. This can be drilled by using only one drill rig (including mobilisation, setting up, drilling, demobilising the site before moving away). The drilling team will not stay on the property.

All holes will be drilled by means of diamond drilling with core recovery. The holes will be drilled to a depth of 290 – 335 m.

No prospecting activities will occur closer than a 100m to a water course without authorisation from the Department of Water and Sanitation (DWS). Holes will not be drilled within 50 m from identified heritage resources. A buffer of a 100 m will be maintained between provincial roads and the drill holes or any dwellings that may occur on the proposed prospecting area.

The drill sites will be cleared of obstructions and debris and then drilled. Rehabilitation will occur concurrently with drilling.

6.3 DESIGN & LAYOUT

This is an application for prospecting of gold, silver and aggregate minerals. No infrastructure will be developed on site. Activities will be limited to the drilling of 4 boreholes to be determined by the geological formations found during prospecting. The major design alternative is the number of drill rigs to be used during the invasive phase. Originally it was anticipated that two drill rigs will be used but a decision was made to reduce it to only one. It does make the process slightly longer but the speed of rehabilitation can be closely controlled and supervision can be better focussed. With the geophysical survey information, the holes can be orientated to match the shape of the orebody.

6.4 TECHNOLOGY

The biggest technology intervention is the use of geophysical surveys, which reduce the number of holes that is ultimately needed, reducing the surface disturbance that might result from the drilling programme. It focuses the attention to the most likely area to find the targeted mineral (gold, silver and aggregate) and focus away from areas where it is unlikely to occur. Geophysical surveys also provide an added advantage in that the data is available quickly, allowing early commencement of execution. The safety benefits of utilising geophysical surveys are also apparent, as there is less time to keep people

exposed to moving machinery, harsh environmental conditions and dangerous animals like snakes.

6.5 NO -GO OPTION

The existing agricultural activities (which are limited to grazing, hunting, and fire wood gathering) will continue.

If prospecting is not approved the presence of gold, silver and aggregate resources will not be assessed by It’s a Good Time 174 (Pty) Ltd. The feasibility for mining at the proposed site will not be established. The investment which is important to Gold mining in South Africa and to the local economy, will be lost.

It will also limit the potential development in the area as the value of all the resources are not known and therefore the opportunities for development cannot be appropriately considered.

7 PUBLIC PARTICIPATION PROCESS

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

The Public Participation Process (PPP) mainly comprises the engagement with Interested and Affected Parties (I&APs) and is of utmost importance in any assessment process. The PPP involves the following:

(a) Inform, raise awareness and increase understanding of environmental issues or any other issues that might be affected by the prospecting process.

(b) Establish lines of communication between stakeholders, I&APs and the project team.

(c) Provide opportunity to the various parties for the exchange of information and expression of views and concerns.

(d) Obtain contributions from stakeholders and I&APs and ensure that views, issues, concerns and queries are documented.

(e) Identify the significant issues associated with the proposed project.

EcoPartners (Pty) Ltd was appointed by It’s a Good Time (Pty) Ltd as the consultant to handle the prospecting right application, including the PPP. As stipulated in Section 16 (4) (b) of the MPRDA (Act 28 of 2002), I&APs need to be notified and consulted with, as part of a prospecting right application (PRA). Regulation 41 of the 2014 EIA Regulations (GN 982 of 4 December 2014), as amended stipulates the process to be followed for public participation.

7.1 THE ROLE OF I&APS

The Public Participation Process (PPP) requests from I&APs to also:

(a) think through the policy and legislative context (Section 4) within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;

(b) contemplate the alternatives considered, (Section 6) including the activity, location, and technology alternatives;

(c) reflect on the need and desirability of the proposed alternatives (Section 5),

(d) consider the impact and risk assessment, (Section 9) (inclusive of cumulative impacts), which focused on the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects, in terms of

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

(ii) the degree to which these impacts—

(aa) can be reversed;

(bb) may cause irreplaceable loss of resources; and

(cc) can be managed, avoided or mitigated;

(e) reflect on the ranking of the site sensitivities and possible impacts (Table 9-1) of the activity and technology alternatives on the sites and location identified through the life of the activity to—

(i) consider the preferred site, activity and technology alternative;

(ii) weigh up the proposed suitable measures to manage, avoid or mitigate identified impacts; and

(iii) contemplate potential residual risks that need to be managed and monitored.

7.2 IDENTIFICATION OF I&APS

The first phase of the PPP is to identify relevant I&APs.

The landowners and the neighbours were identified using SAMRAD, Windeed™, Searchworks™ and previous I&AP databases. Windeed and Searchworks allows EcoPartners to identify the last registered postal address of the farm owners and where available, their contact numbers.

Other I&APs that were notified are the local municipality, in this case City of Mbombela Local Municipality, as well as the State Departments and/or Organs of State which have jurisdiction in the area as listed below, the full details are in the Public Participation Appendix:

(a) Ehlanzeni District Municipality

(b) Mpumalanga Tourism and Parks Agency

7.2.1 Section 105 letter

In terms of section 105 (1)a of the MPRDA as amended a letter was submitted to the Regional Manager to serve as notification that there are two (2) landowners identified for the properties under application which could not be located. A copy of the letter is available in the PPP Appendix.

The landowners that could not be located are:

a) Camelot 320 JU, portion 1 - Leopard Creek Property cc

b) Camelot 320 JU, portions 2 and 3 - Above Average Inv Corp 20 cc

7.3 NOTIFICATION OF LANDOWNERS, I&APS & STAKEHOLDERS

Landowners, I&APs and stakeholders were notified during the different stages of the process using various methods, each of these are described below:

(a) Initial Project Notification

(b) Notification of Basic Assessment and Environmental Management Programme for comment

(c) Notification of Final Basic Assessment and Environmental Management Programme

(d) Notification of the Environmental Authorisation decision

7.3.1 Initial Project Notification

7.3.1.1 Notification Letters via mail

Identified Landowners, I&APs and Government Stakeholders were supplied with a notification letter, where contact details were found. This notification letter informed them about the application that has been submitted by It's a Good Time (Pty) Ltd, which is accompanied by a Project Information Document (PID). The notification letter also

had a registration form and a questionnaire attached to it, allowing the I&APs to raise their concerns, interest(s) in the project as well as gather other crucial information. These letters were either sent via registered mail with the South African Post Office or sent by email.

7.3.1.2 Newspaper Notice

A newspaper notice was placed in a newspaper that circulates in the area; for this project the notice was placed in the Barberton Times. This notice serves to notify those people who might have an interest in the project and also for those individuals whose contact details could not be obtained or has changed. The newspaper notice contained the details of the project as well as details of where additional information can be found.

Table 7-1: Newspapers where the notices were placed

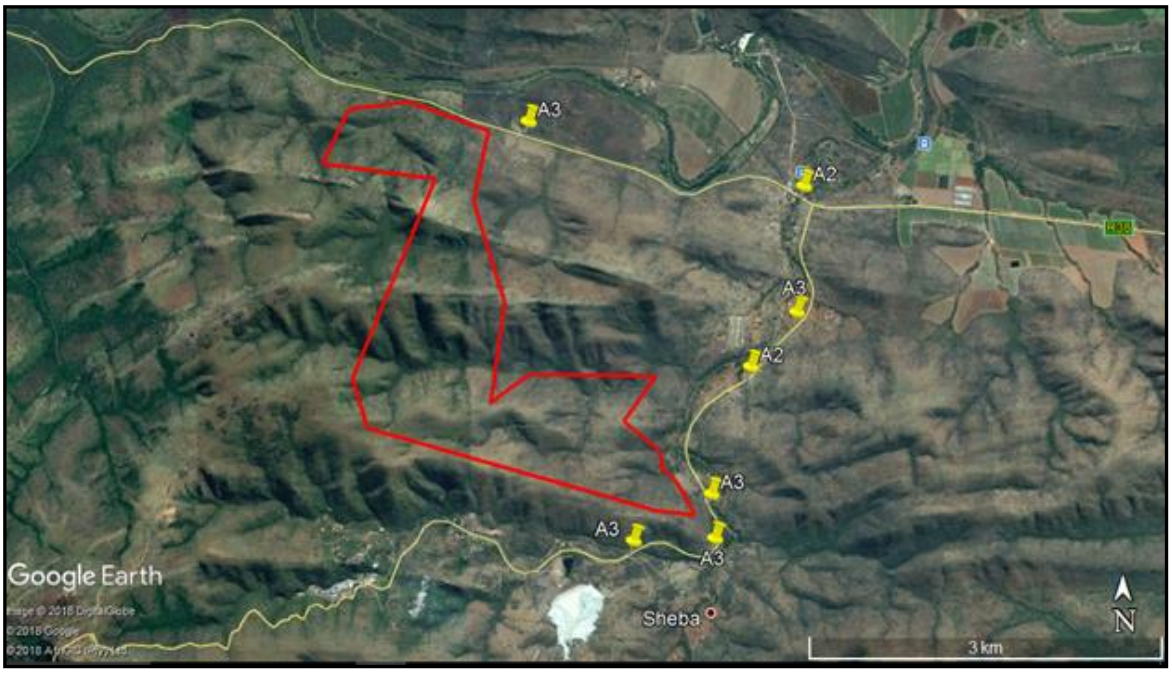
NEWSPAPER	DISTRIBUTION AREAS	COPIES	LANGUAGE OF NOTICE	DATE PUBLISHED
Barberton Times	Barberton plus surrounding areas	5,500	English	12 May 2018

Source: Barberton Times Correspondence (2018)

7.3.1.3 Site Notices

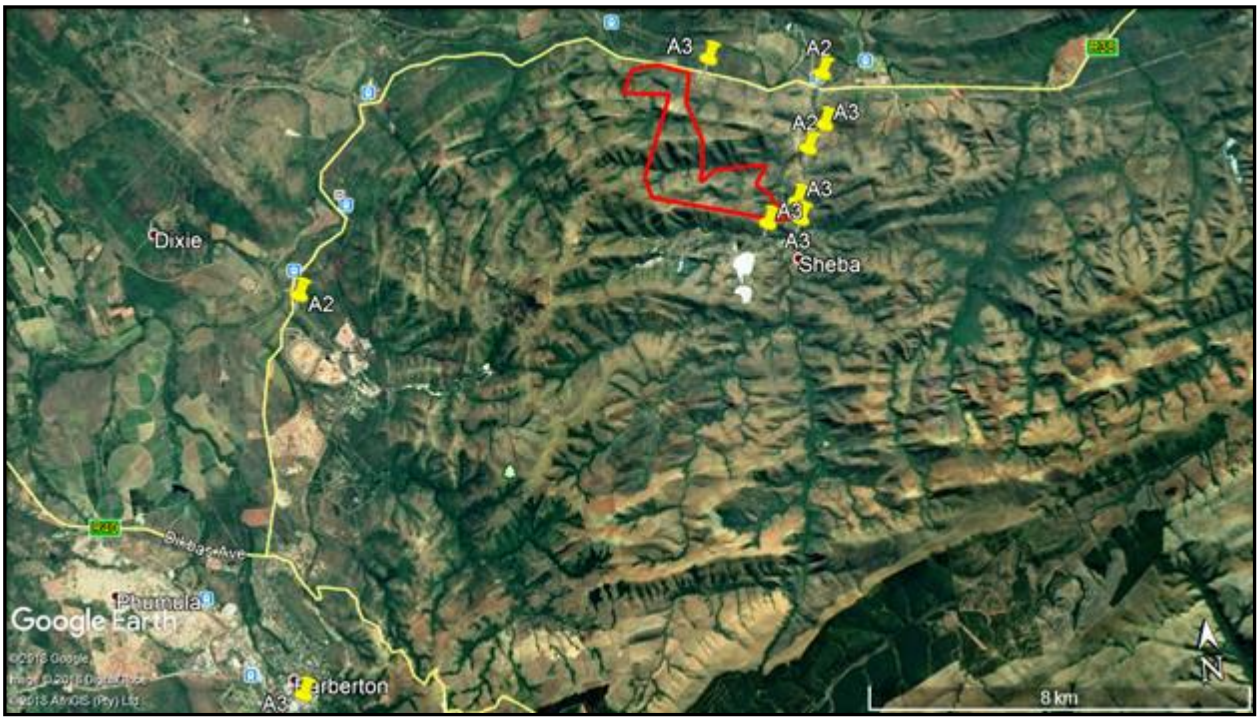
Site notices were put up in the area of the prospecting site and the surrounding areas. Three A2 notices and six A3 notices were put up, on and around the property The Public Participation Appendix contains the location of the site notices and pictures from the places the notices were affixed.

Figure 7-1: Site Notices around the Prospecting Area



Source: EcoPartners & Google Earth Imagery

Figure 7-2: Site Notices in the Surrounding Area



Source: EcoPartners & Google Earth Imagery

7.3.1.4 SMS

SMSs were sent to registered interested and affected parties that do not have an email address.

7.4 NOTIFICATION OF REPORTS

7.4.1 Basic Assessment Report (BAR) for Comment

The BAR for comment was sent to the Competent Authority, in this case the DMR, for comments. Thereafter, it was loaded onto the EcoPartners Website (www.ecopartners.co.za) for registered I&APs to access. Registered I&APs were sent a notification to their preferred contact medium to inform them that the BAR is available for comment.

7.4.2 Final BAR

The final BAR with all the comments incorporated from the I&APs are loaded on the EcoPartner's website and registered I&APs were sent a notification to their preferred contact medium to inform them that the Final BAR was submitted to the DMR.

7.4.3 I&AP Meeting

An I&AP interaction meeting was scheduled for the 20th July 2018 at the Diggers Retreat Hotel in Baberton for 10h00. All registered I&APs were invited to attend the meeting. Nobody showed up for the meeting. EcoPartners waited until 11h00 before packing up and vacating the premises. A declaration in this regard has been made at the local police station. Pictures of the meeting venue set-up and the declaration is available in the PPP Appendix.

7.5 SUMMARY OF ISSUES RAISED BY THE I&APS

EcoPartners kept a register of Registered I&APs. The I&AP Register is available in the Public Participation Appendix.

Communication received during the public participation process is included in the Public Participation Appendix of the BAR. All comments were addressed in the comments and response sheet in the same appendix.

Please see the table below for a summary of all the issues raised during the Basic Assessment Application Process.

iii) Summary of issues raised by I&APs
(Complete the table summarising comments and issues raised, and reaction to those responses)

Table 7-2: Summary of issues raised by I&APs

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issue raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
AFFECTED PARTIES					
Landowners/s	X				
Government of South Africa	X		None		
Leopard Creek Property cc			None		
Above Average Inv Corp 20 cc			None		
Lawful occupier/s of the land	X				
N/A					
Landowners and lawful occupiers on adjacent properties	X				
Lina Mabasu		17 Jun 2018	OBJECTION OF THE APPLICATION FOR PROSPECTIVE RIGHTS OF MP 30/5/1/1/2/15259 ON FARM CAMELOT 320 TU	Please can you provide me more information on the nature of this email. I have attached a notification letter and a project information document to this email. Can you please fill out the registration form in the letter and send it back to me.	Appendix 7
Lina Mabasu	X	20 Jun 2018	Referred to your email. I'm not interested to fill any form that related with Is Good time for any consultation. The e-mail I send you before is notifying you that there's an objection against your prospecting right	In the email you sent previously, there was no proof of the objection that was submitted to the DMR. Could you kindly send me the objection so that we can capture it on our side and	Appendix 7

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issue raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
			application. Which you have to comply to the objection. I already send to objection to executive in DMR. It just a prove of that we send you the objection for you not to continue with your consultation and follow the process of DMR objection. I hope you understand clearly. You inform the company appointed you that there's an objection based on their prospecting application. We already send the environmentalist of DMR as well.	respond accordingly to your objection. Can you also please forward me the names of the persons at the DMR that the objection was sent to?	
Lina Mabasu	X	20 Jun 2018	Kindly be advised that we already forwarded you the letter of objection and there's no need for us to give you the DMR officials names. DMR is the one that will communicate with you during your application process to notify you about the objection. Good way is not on junior level because there's investigation inside. I will just keep the email	There is no objection letter attached to your mails that you have sent through. You have not stated your interest in the project nor the grounds for objection.	Appendix 7

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issue raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
			as proof that you got the objection letter.		
Lina Mabasu	X	20 Jun 2018	*Objection letter that was addressed to the DMR was forwarded*	If you look at the map in the documents that I sent to you, you can see that this application does not cover the entire portion 0 and 2 of the farm Camelot. Also what commodities is you mining permit for? Can you please forward me your number so that we can discuss this?	Appendix 7
Pedra De Castella cc	X		None		
Citromac (Pty) Ltd	X		None		
Chamotte Holdings (Pty) Ltd	X		None		
Transnet Ltd	X		None		
Italian Farm Trust (4298/1994)	X		None		
Pedra De Castella cc	X		None		
Buscari Trust (4833/2006)	X		None		
Mountainlands Nature Reserve (Mr. Nico Oosthuizen)	X	23 May 2018	We confirm that we are an IAP in this process. Kindly provide a copy of the following documents so that we may make informed decisions about registration process as IAP: 1. Prospecting application	The prospecting right application is done online. The application was submitted on 21 May 2018, the DMR has not yet issued an acceptance letter. But because the NEMA regulations has tight deadlines on the process a notification	Appendix 7 & Appendix 8

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issue raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
			including every annexure thereto 2. DMR acceptance letter	letter is sent. The Basic Assessment Report will contain the information on the application and will be made available to registered I&APs shortly. This document will allow you to make an informed decision.	
Mr. Nico Oosthuizen		24 May 2018	1. Without the Letter of acceptance you cannot know if your application will be accepted or not and IAP's spending time on an unconfirmed application is not warranted. There are many reasons why PR's are refused so its not worth the time and effort if you don't have an Acceptance letter which will inform you of your specific obligations in this case as well as your timelines. Besides the fact that launching the process prematurely is irregular and not provided for in the regs.	This notification was sent to potential I&APs so that they can register their interest, in order to receive information regarding this application process. The 2014 EIA regulations do not restrict the time period to notify potential I&APs.	Appendix 7
Mr. Nico Oosthuizen		24 May 2018	2. Even if you submitted it online you must have a copy of your full application and IAP's are entitled to see the full	The relevant documents will be made available to the registered I&AP during the	Appendix 8

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issue raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
			application and every annexure forming part of it so that, with respect, they may comment on the actual submissions and not only on what somebody says or thinks they submitted.	comment period. This is still the registration period.	
Mr. Nico Oosthuizen		24 May 2018	3. You seem to imply that you will compile a BAR without consulting IAP's – that is highly irregular.	A BAR for comment will be compiled by the environmental assessment practitioner and made available to all registered I&APs for comments. Registered I&APs will be given at least a 30 day comment period to comment on the BAR, only after the comments, received from this comment period, is incorporated into the BAR, will it be submitted to the competent authority for their consideration.	This BAR for Comment
Mr. Nico Oosthuizen	X	24 May 2018	4. For the record: I am an IAP in this application so let me know if you do receive an Acceptance letter.	Thank you for registering your interest in this project. You will be notified of all the relevant milestones in the project as a registered I&AP.	Appendix 7
Mr. Nico Oosthuizen	X	2018/07/05	Your below notification has reference. 1. We are an I&AP in this	1. You have been registered you as an I&AP in this application process. 2. Please see attached the	Appendix 7

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issue raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
			matter as already indicated. 2. We have no interest in registering on your website. Please forward all documents and annexures together with the documents requested on 23 May to this email address. 3. We place on record that to date no documents, nor those requested in our email dated 23 May 2018, have not been provided to us.	documents for comment, it will be sent over a few emails. 3. The relevant documents are now available for comment. Please find attached. Comments can be submitted until 6 August 2018.	
Mr. Nico Oosthuizen	X	2018/07/05	Thanks I have received four emails. Since I do not see these, please point me to where in the documents that you sent I can find the following specific documents: 1. Prospecting application including every annexure thereto 2. DMR acceptance letter	1. The application form that is submitted is the Environmental Authorisation (EA) form, the rest of the application is done online. The EA form and appendices is in Appendix 8. 2. The acceptance letter from the DMR has not yet been received. But as I explained earlier, one cannot wait for the acceptance letter before proceeding. The timeframe of an application starts from the date that the application is submitted, and we need to follow the timeframes of the DMR. The applicant continues	Appendix 7

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issue raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
				with the rest of the process on their own risk.	
Mr. Nico Oosthuizen	X	2018/07/05	My point one does not refer to the EA application but rather the Prospecting Right application as previously requested. As already explained I&AP's have a right to see the process its entirety from Application on wards. We must be able to comment on original documents and not on assumptions and inferences. You completed a PR application which must be available even if completed online, why don't you want to provide the application.	In terms of your request, please see attached the prospecting work programme for the application. The prospecting right application is submitted online, the system does not allow for an application form to be saved off-line or to be downloaded or viewed after submission by anyone but the DMR. I have downloaded the requirements for your benefit, please have a look and see that the information is already contained in the documentation provided. See below a screenshot of the prospecting right application requirements as per the online application system (SAMRAD). The below mentioned points are deemed to be complied with as it is contained in the submitted prospecting work programme. The information of a private company, including the financials is considered private	Appendix 7

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issue raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
				information and will not be made available due to the sensitivity thereof. As part of the one system application process the information contained in the online application is captured in the EA application form. You are welcome to make an appointment with the DMR to sit with them and go through the online system, we have no mechanism to access it. The EA application form is part of the original documents submitted in the application process. I&APs have a right to information that will assist them in making an informed decision and all the information provided to you since the notification of the application is keeping you informed about the process. You will see that the information the prospecting work programme is also contained in the Project	

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issue raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
				Information Document emailed to you on 23 May 2018 and now included in the BAR and EMPr made available for comment on 4 July 2018.	
Pan African Resources	X		None		
Government of South Africa	X		None		
Lomshiyo Trust	X		None		
Lomshiyo Traditional Council	X		None		
Municipal councillor	X				
HL Shongwe	X		None		
Municipality	X				
Mbombela Local Municipality (Planning and Development)	X		None		
Mbombela Local Municipality (SDF)	X		None		
Mbombela Local Municipality (Municipal Manager)	X		None		
Ehlanzeni District Municipality (Municipal Health & Environmental Management)	X		None		
Ehlanzeni District Municipality (Municipal Manager)	X		None		
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA	X				
Transnet	X		None		

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issue raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
Department of Water and Sanitation	X		None		
Department of Agriculture, Forestry and Fisheries	X		None		
National Department of Human Settlements	X		None		
Department of Trade and Industry	X		None		
Department of Transport	X		None		
Department of Tourism	X		None		
Department of Public Works	X		None		
Department of Energy	X		None		
Eskom Holdings	X		None		
SANRAL	X		None		
Chief Director: Land Restitution Support Mpumalanga Province)	X		None		
Mpumalanga Tourism and Parks Agency (Mr. Frans Krige)	X	2018/07/19	Please register the MTPA as a IAP. We would appreciate it if you could deliver a hardcopy of your application at our Scientific Services offices in Mbombela to Komilla Narasoo for registration purposes. It will then be assessed and commented on by our Scientists. If you need any biodiversity information on the area , feel free to contact Dr Mervyn	A hard copy and two CDs were couriered to your office today. (23 July 2018)	Appendix 7

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issue raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
			Lotter. Please excuse me from your public meeting on the 20th of July. Officials normally attend separate meetings with the proponents. Hope you find it in order.		
Mpumalanga Tourism and Parks Agency (Mr. Johan Eksteen)	X	2018/07/20	We will not be able to attend the meeting at Diggers Retreat. Could you please forward hard copies and/or CD's of the BAR and EMPR mentioned in your emails? Forward to: MTPA N4 Halls Gateway Mataffin Nelspruit 1200 For attention: Komilla Narasoo. Block G Room 25	A hard copy and two CDs were couriered to your office today. (23 July 2018)	Appendix 7
Traditional Leaders	X				
	X				
Dept. Environmental Affairs	X				
Department of Environmental Affairs	X		None		

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issue raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
Department of Agriculture, Rural Development, land and Environmental Affairs ("DARDLEA")	X		None		
Competent Authority	X				
DMR	X		None		
OTHER AFFECTED PARTIES					
None to date					
INTERESTED PARTIES					
Eunice Khumalo		2018/07/03	As per our telephonic conversation earlier today I would like to register as an IAP. Kindly note that Nomaotha (PTY) LTD has a Mining Permit in process application for Camelot JU Portion 4. Our Reference :MP30/5/1/3/2/11523MP	Thank you for registering as an I&AP. According to the information that I have, there is no portion 4 on Camelot 320 JU, just portion 0, 1, 2 and 3. Please see attached the Project information document for this application. Please can you see if this overlaps with your mining permit. I would also like to request from you the coordinates of your mining permit or a regulation plan for this permit so we can establish if there is any overlap.	Appendix 7
Eunice Khumalo		2018/07/20	We have already submitted the EMP and just waiting to	We lodged on 21 May 2018. Have you had contact with the	Appendix 7

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issue raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
			execute. When did you lodge your application?	landowner of the property? If so would you please forward me their contact details.	

8 DESCRIPTION OF THE ENVIRONMENT

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

(1) Baseline Environment
(a) Type of environment affected by the proposed activity.
(its current geographical, physical, biological, socio- economic, and cultural character).

8.1 GEOGRAPHICAL CHARACTER

8.1.1 Regional Geology of Prospecting Area

Outside the Witwatersrand Basin, gold deposits in South Africa occurs in the Transvaal Supergroup and in the Greenstone Belts around the northern section of the country. This prospecting right area falls with the geological boundaries if the Barberton Greenstone Belt, in the Mpumalanga Province, South Africa.

8.1.1.1 Barberton Greenstone Belt

The Barberton Greenstone Belt extends in an east-north-easterly direction for about 100 km over a width of 40 km and extends into the northern parts of Swaziland. These rocks are some of the oldest known rocks in the world dating back to 3.2 billion years. The rocks of the Barberton Greenstone belt, also known as the Barberton Supergroup can be divided into three groups. The Onverwacht Group, the Fig Tree Group and the Moodies Group. The Onverwacht Group is primarily made up of mafic volcanic rocks. The group is overlain by the sedimentary sequences of the Fig Tree Group, which comprises of greywacke sandstones, mudstones and banded iron formations. The younger Moodies Group then comprises of shallow water clastic sediments. The rocks range in age from 3 500Ma for the Onverwacht Group to 3, 215 Ma for the younger sequences and the tectonic folding. The gold mineralization in the Barberton Supergroup are younger than rock layers and result from hydrothermal mineralisaton that occurred approximately 3, 100 Ma (Johnson, et.al., 2006).

The farms that fall in this prospecting right application have outcrops of the Joes Luck Formation and the Clutha Formation of the Moodies Group. The Joes Luck Formation consist of shale, greywacke, sandstone, quatzite, phyllite, jasperlite, banded iron formations and basaltic lavas the Clutha Formation consist of only a sedimentary sequence of shale, quartzites, conglomerates and jasperlite (Johnson, *et.al*., 2006).

8.2 TOPOGRAPHY

The Barberton Nature Reserve, Phase 3 Implementation Management Plan describes the topography of the area as a variation between low lying bushveld, high mountains scenic valleys and rolling grassland (Mpumalanga Tourism and Parks Agency, 2012).

The topography in the proposed application area can be described as a mountainous area (Figure 8-1). From north to south of the application area the topography undulates and ranges from 578 m at the lowest point to 942 m at the highest point.

Figure 8-1: N-S Elevation Profile

Source: Google Earth (2018)

In a west to east profile taken along the prospecting area of where the drilling is likely to occur, the slope of the topography decreases from west to east from a high of 885 m to a low of 674 m in the valley.

Figure 8-2: E-W Elevation Profile

Source: Google Earth (2018)

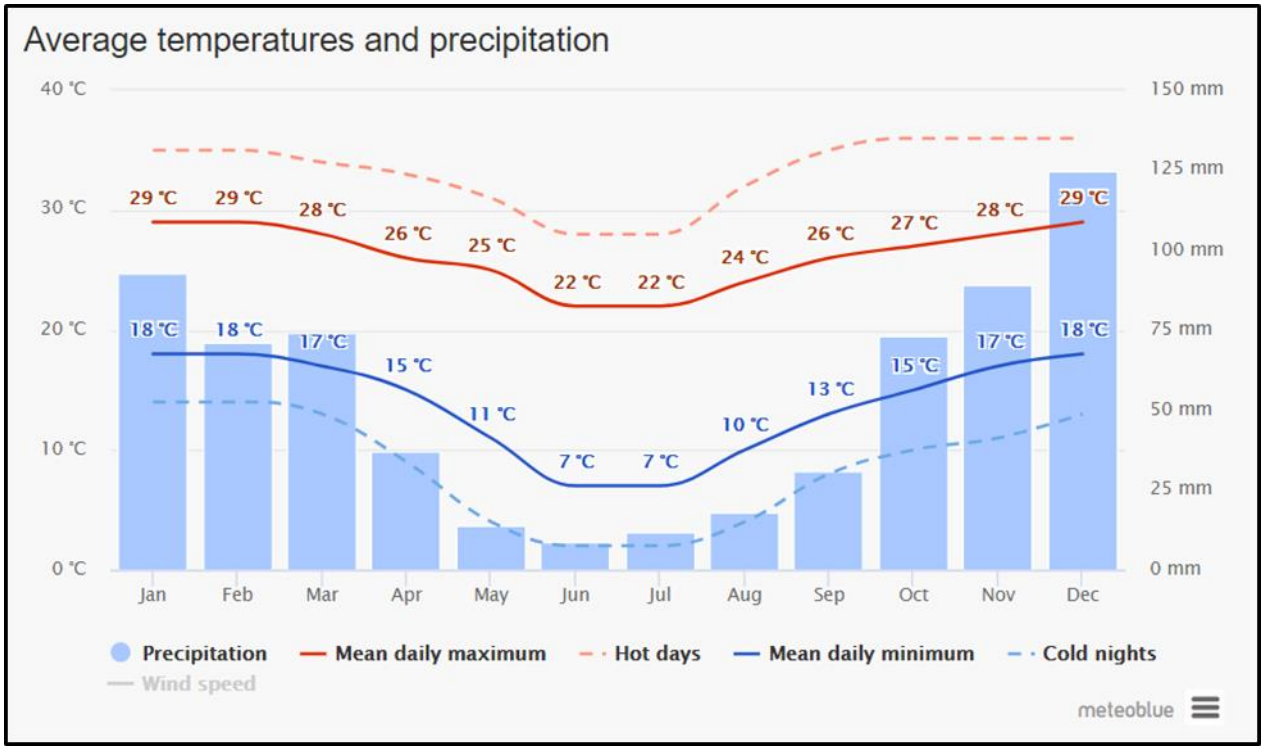
8.3 CLIMATE

8.3.1 Temperature

The proposed prospecting area is located close to Barberton in the Mpumalanga Province. The Mpumalanga Province generally experiences warm to hot summers and mild winters.

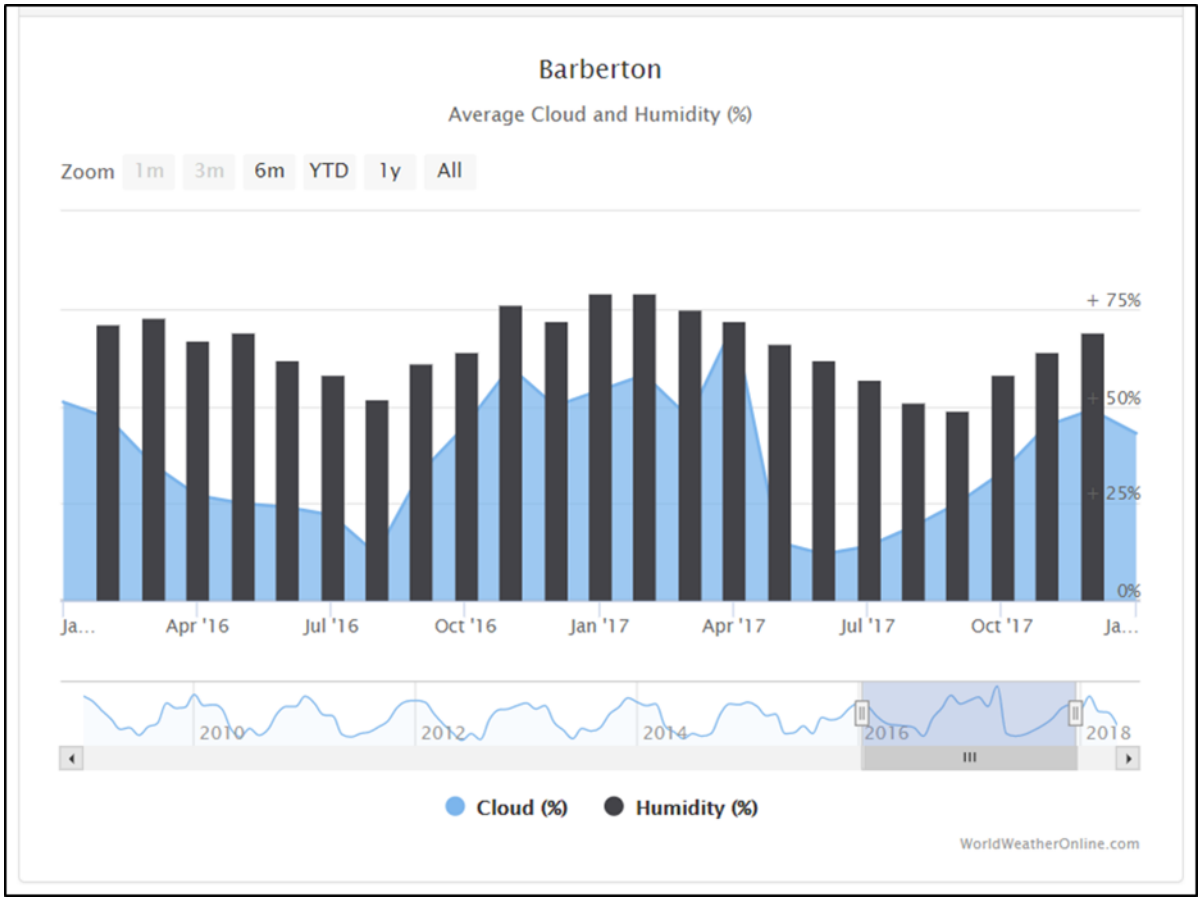
Yearly average temperatures for Barberton for the period 2009 – 2017 (from world weather online) are given in Figure 8-3. Average temperatures for the Barberton range from approximately 24 to 28°C in summer to 9 to 15°C in winter. Relative humidity is lowest during autumn and winter and highest during spring and summer (Figure 8-4) (World Weather Online, 2018).

Figure 8-3: Average Temperatures (°C) for Barberton



Source: Meteoblue, Climate Barberton (2018)

Figure 8-4: Monthly Average Humidity (%) for Barberton

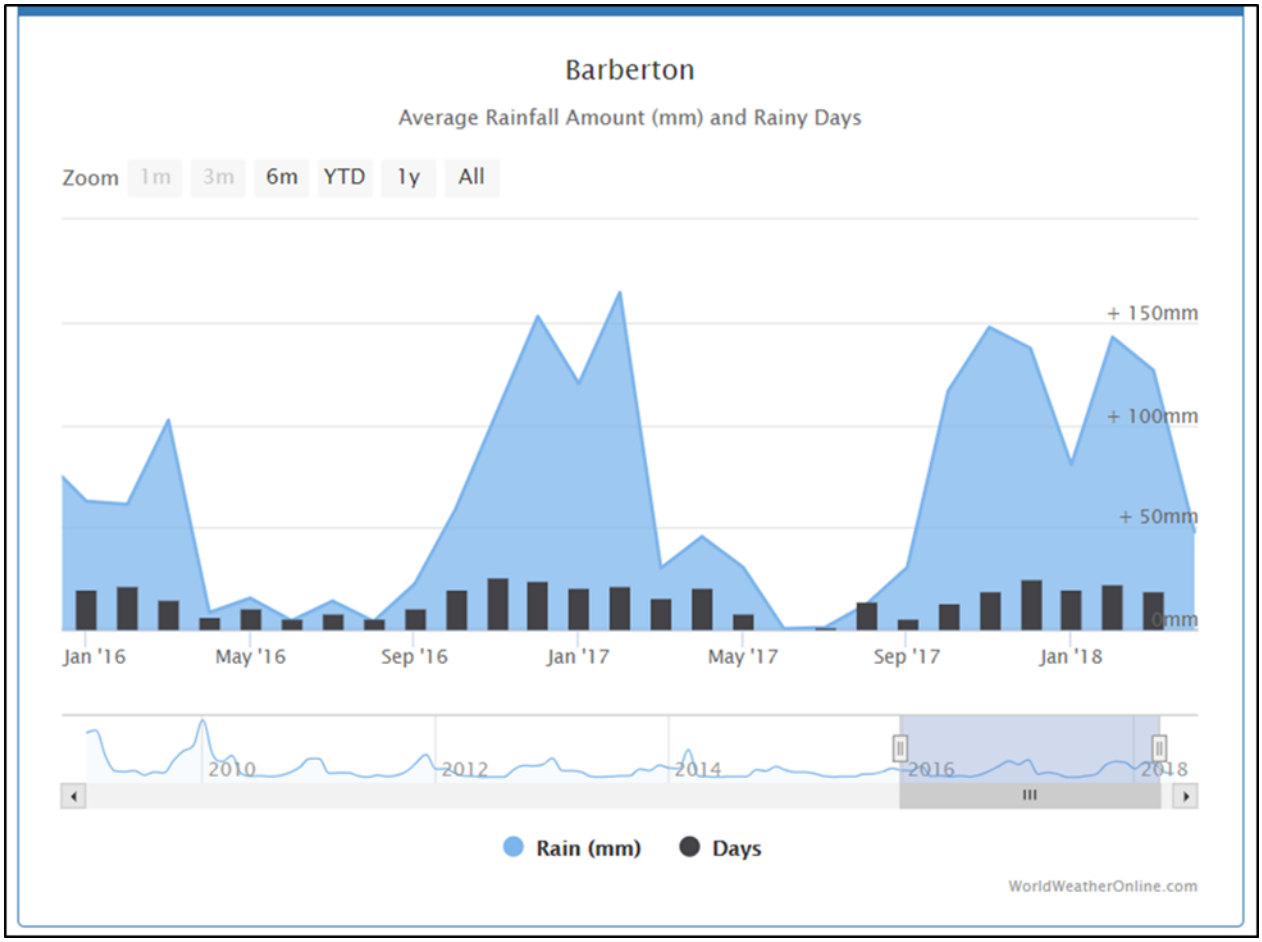


Source: World Weather Online (2018)

8.3.2 Precipitation

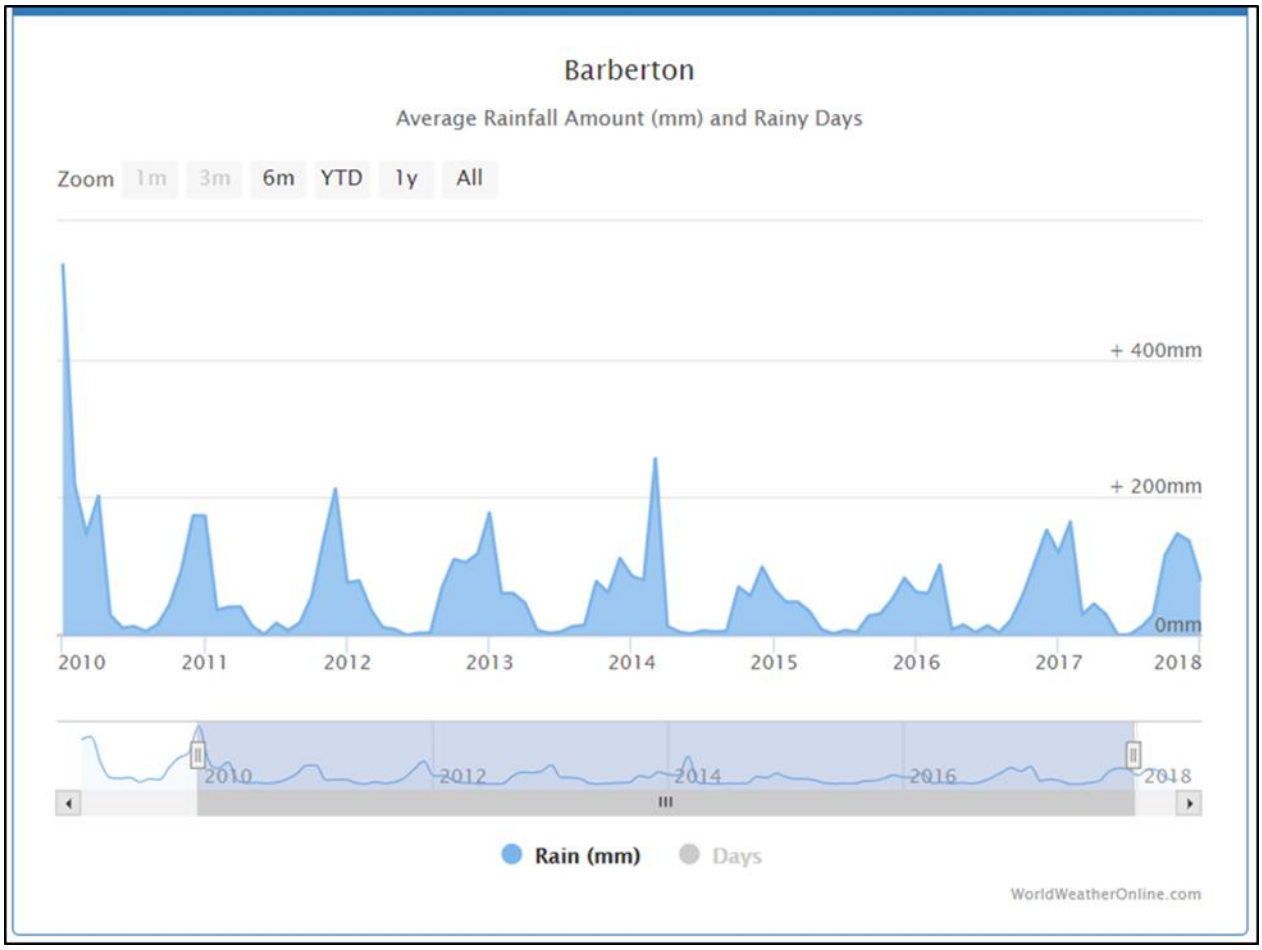
Monthly total precipitation for the proposed project area is given in Figure 8-5 and Figure 8-6 for the period January 2016 – January 2018. The area experiences spring and summer rainfall, receiving most of its rainfall for the months September to March (World Weather Online, 2018).

Figure 8-5: Monthly Total Rainfall (mm) for the Barberton for the Period January 2016 – January 2018



Source: World Weather Online (2018)

Figure 8-6: Average Rainfall (mm) for Barberton for the Period January 2010 – January 2018

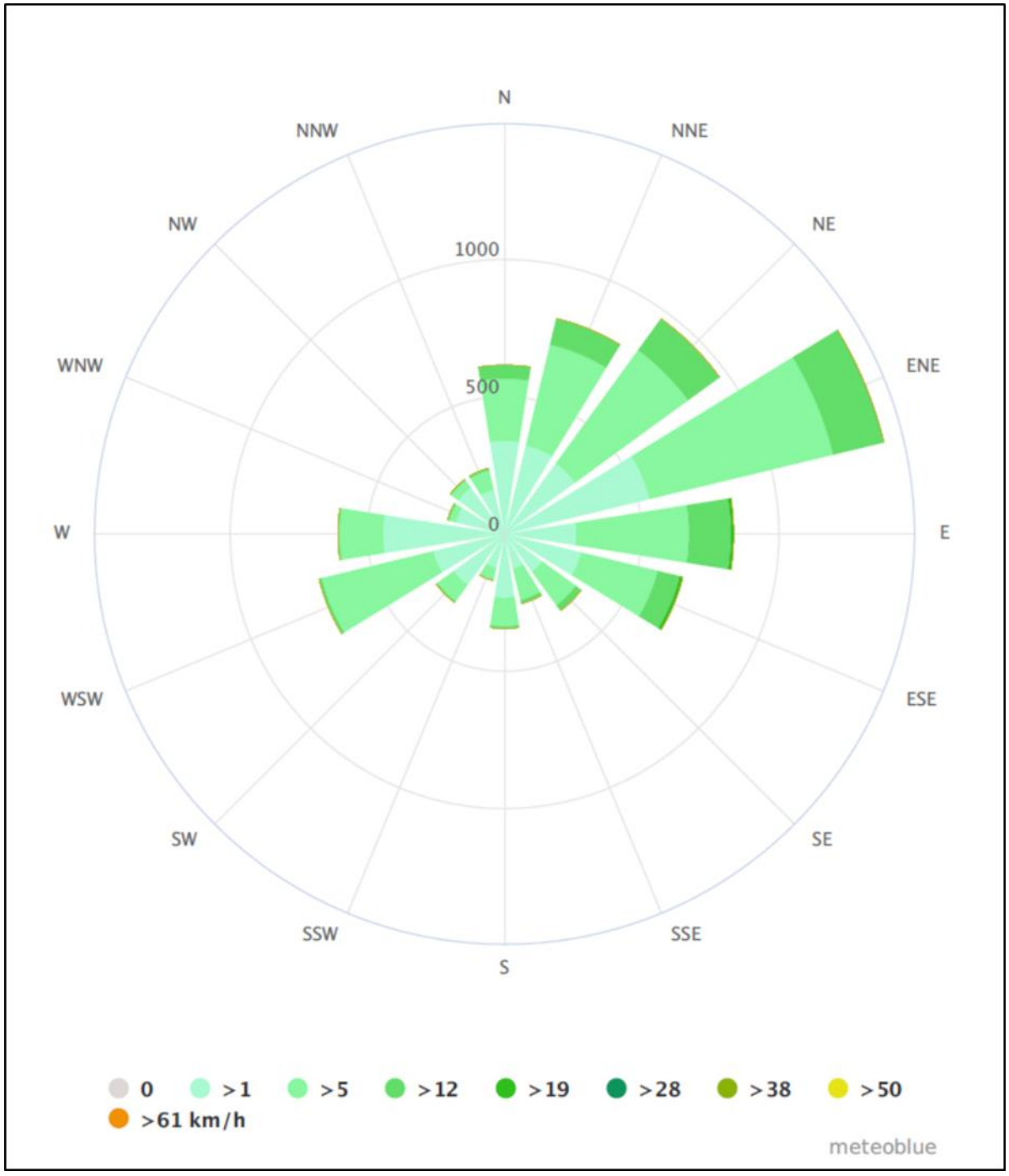


Source: World Weather Online (2018)

8.3.3 Local Wind Field

The prevailing wind field recorded for Barberton are represented as wind rose plots indicating the predominant wind direction and the frequency distribution of wind velocities for the proposed project area. Wind fields observed are characterised with winds occurring predominantly from the east-north-easterly and north-easterly sectors (Figure 8-7). Wind speeds are generally slow to moderate and frequently remain within the range 1 - 5 m/s (World Weather Online, 2018).

Figure 8-7: Wind Rose for Barberton

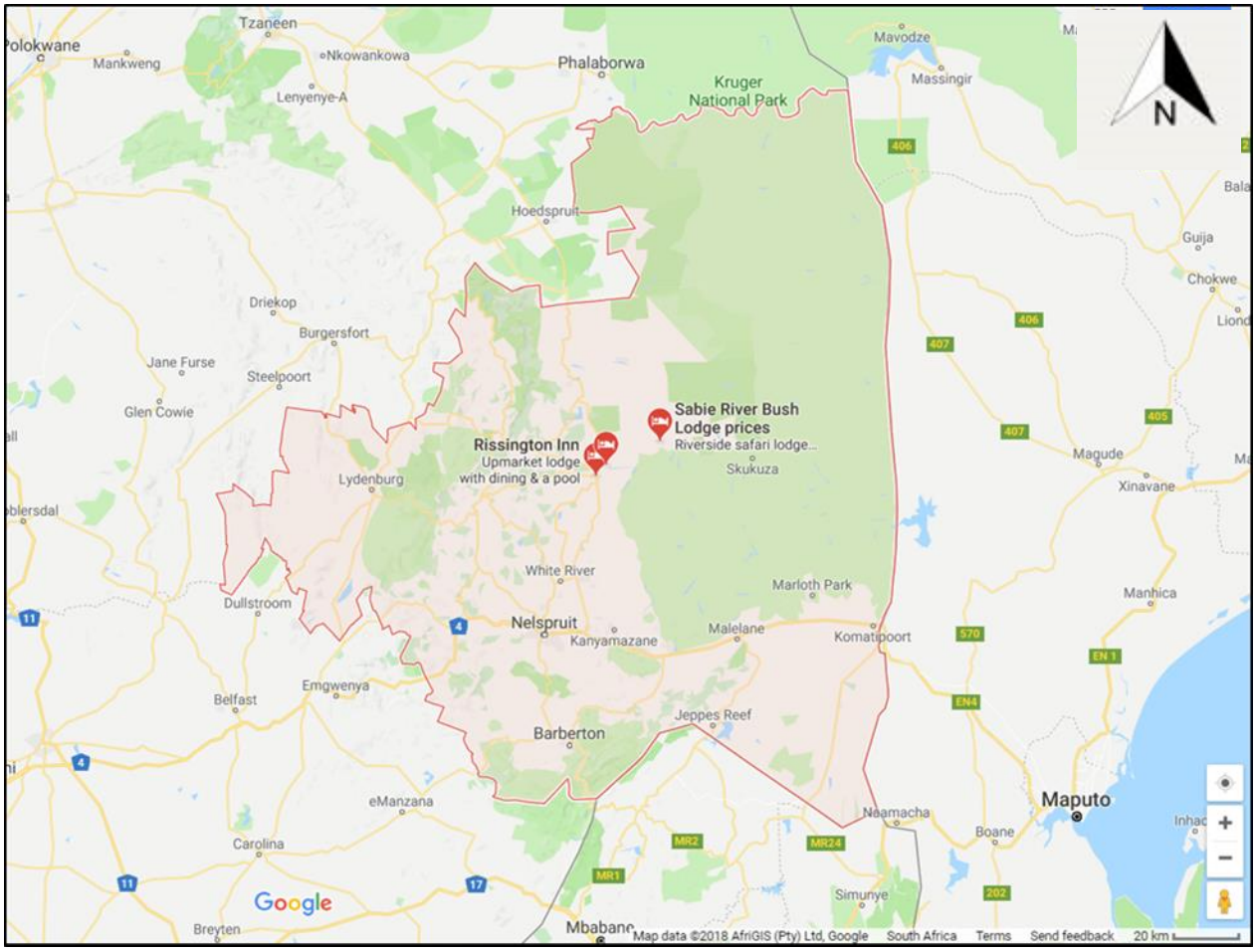


Source: Meteoblue, Climate, Barberton (2018)

8.4 AIR QUALITY

The location of the PR application area is within the Ehlanzeni District Municipality in the Mpumalanga Province (District location below). Land-use surrounding the proposed prospecting area is predominantly used for agricultural, mining, tourism and conservation activities.

Figure 8-8: Ehlanzeni District Municipality



Source: Map Data 2018 AfriGIS (Pty) Ltd, Google Maps

The district municipality don't have an air quality management plan in place. The district has however embarked on conducting section 78 assessment reports which should reveal the following areas:

a) Current status of the air quality management in the district,

b) Focus areas,

c) Resources requirements and,

d) Gap analysis,

e) What has to be done to efficiently deliver the service.

Results of the assessments are still pending.

Air quality are impacted by the agricultural, tourism and mining and activities in the area.

The most prominent contributor of mining activities to generation of dust is residue stockpile storage and crushing (Pan Africa Resources PLC Sustainable Development Report, June 2017).

Figure 8-9: Residue Stockpiles of mining operations in the area

Source: EcoPartners, 2018

The Barberton Mine operations is located about 1 km south of the PR application area boundary. The Barberton Mine operations monitor ambient air (fallout dust emission) to measure the impact on human health and surrounding communities. All operations have implemented dust monitoring and control programmes. The dust fallout is within legal requirements at all operations. The Nitrogen Oxide (NOx) and Sulphur Oxide (Sox) air emissions have been assessed at all operations and found to be below the trigger point. Emissions at all operations are closely monitored and tracked. The group applied the GHG Protocol and emissions factors published by Eskom to establish direct and indirect emissions (Pan Africa Resources PLC Sustainable Development Report, June 2017).

Table 8-1: Barberton Mines GHG

GHG emissions	Unit	Barberton Mines 2017	Barberton Mines 2016
Direct GHG emissions	(tCO_2e)	**2,104**	2,123
Indirect GHG emissions	(tCO_2e)	**123,269**	125,313
Emissions per unit of production	(tCO_2e) milled)	**0.12**	0.1
Emissions per unit of production	(tCO_2e)/ oz Au sold)	**1.27**	0.6

[1] *GHG emissions not calculated for 2016.*

Source: Pan Africa Resources, Sustainable Development Report, June 2017

8.5 GROUNDWATER

The area is underlain by a granitic aquifer which is estimated to store approximately 5000 m^3 of water per km^2 and receives ±25 000 m^3 per annum of recharge from rainfall (IDP, 2017-2022). The aquifer type in the application area is intergranular and fractured. The typical borehole yield class of this aquifer type is between 0.5-2 l/s, with a groundwater quality of 70-330 mS/m (Du Toit, 1999).

Large scale exploitation of groundwater is limited due to the physical hydraulic nature of granite aquifers.

Groundwater quality is good although contamination does occur. Groundwater drainage is in an easterly direction (IDP 2017-2022).

8.6 SURFACE WATER

The proposed prospecting area falls within the Inkomati Catchment and the Inkomati-Usuthu Water Management Area (WMA). The Inkomati-Usuthu WMA is situated in the north-eastern part of South Africa and borders on Mozambique and Swaziland. All rivers from this area flow through Mozambique to the Indian Ocean. The WMA includes the Sabie-Sand River system, the Crocodile River (East) system, the Komati and Lomati system and the Usuthu River system. The Kruger National Park occupies almost 35% of the WMA (Department Water Affairs and Forestry, 2007).

The proposed prospecting area falls within quaternary catchment X23G (DWAF, 2007).

The classes and resource quality objectives for all or part of every significant water resource within the catchments of the Inkomati was published on 30 December 2016 in GN 1616. The classes and resource quality objectives include the following:

a) Water Management Area: Inkomati-Usuthu

b) Drainage Region: X Primary Drainage Region

c) River(s): Komati (X1), Crocodile (X2), Sabie-Sand (X3), and X4 river systems

During the investigations conducted to determine the classes and resource quality objectives of Water Catchment areas, the catchments are divided into Integrated Units of Analysis (IUAs). IUAs are a combination of the socio-economic zones defined in watershed boundaries, within which ecological information is provided at a finer scale. IUAs therefore represent a catchment or a linear stretch of river. Nested in an IUA are Resource Units (RUs) (lengths of river referred to as Sub-quaternary [SQ] reaches). Each Resource Unit is represented by a biophysical node. Biophysical nodes are therefore nested within the IUAs (DWAF, 2007b) and represents flow requirements and ecological state relevant for the RU (SQ).

Table 8-2: Water Resource Classes and Ecological Categories for X2-10 IUA

IUAs	Class for IUA	Biophysical Node	River Name	Target EC
X2-10: Kaap Catchment	II	X23B-01052	Noordkaap	C
		X23C-01098	Suidkaap	B/C
		EWRK7	Kaap	C
		X23E-01154	Queens	B/C
		X23F-01120	Suidkaap	C

Source: GN 1616, 30 Dec 2016

A Class II water resource is described as a water resource that is moderately used. The configuration of ecological categories of the water resources within a catchment results in an overall water resource condition that is moderately altered from its predevelopment condition (Department Water Affairs and Forestry, 2007). The description of the ecological categories for the biophysical nodes in the IUA is presented below.

Table 8-3: Ecological Categories (ECs) and descriptions

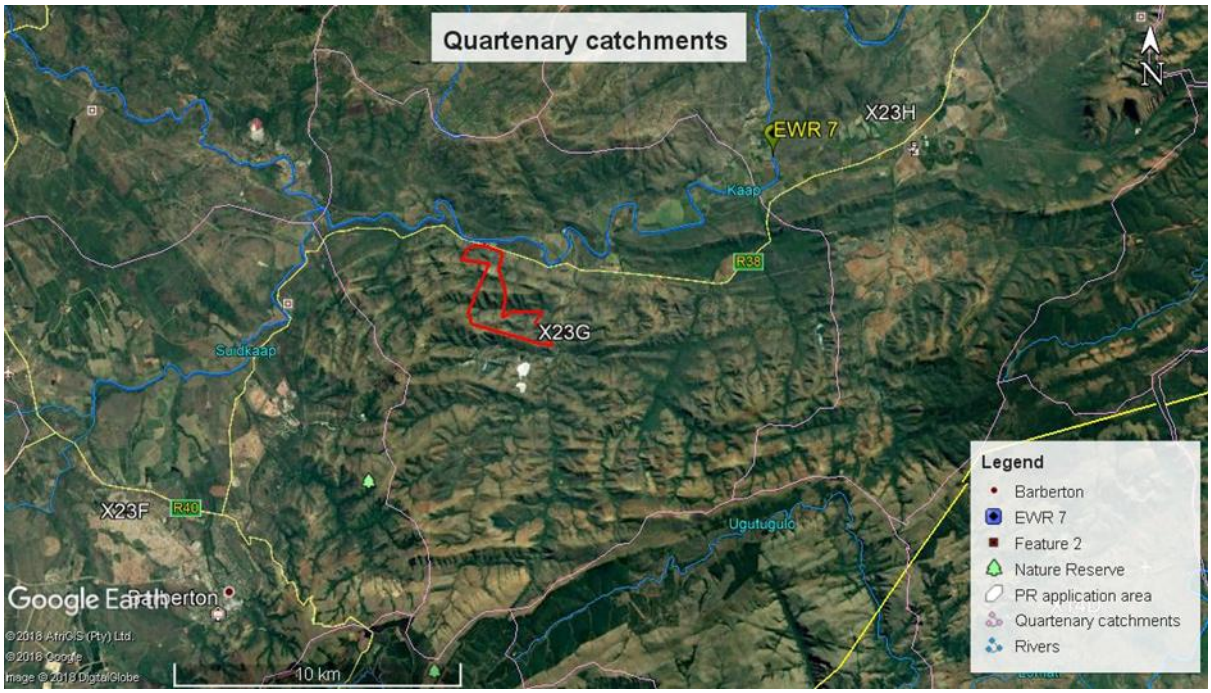
EC	Description of EC
A	Unmodified, natural.
A/B	Boundary category between A and B.

EC	Description of EC
B	Largely natural with few modifications. A small change in natural habitats and biota may have taken place but the ecosystem functions are essentially unchanged.
B/C	Boundary category between B and C.
C	Moderately modified. Loss and change of natural habitat and biota have occurred, but the basic ecosystem functions are still predominantly unchanged.
C/D	Boundary category between C and D.
D	Largely modified. A large loss of natural habitat, biota and basic ecosystem functions has occurred.
D/E	Boundary category between D and E.
E	Seriously modified. The loss of natural habitat, biota and basic ecosystem functions is extensive.
E/F	Boundary category between E and F.
F	Critically / Extremely modified. Modifications have reached a critical level and the system has been modified completely with an almost complete loss of natural habitat and biota. In the worst instances the basic ecosystem functions have been destroyed and the changes are irreversible.

Source: Kleynhans and Louw, 2007

The biophysical node applicable to this application area is Ecological Water Requirement (EWR) K7 (see Figure 8-10 below).

Figure 8-10: Quaternary catchment



Source: SANBI:BGIS Layer & Google Imagery

Resource Quality Objectives for the X2-10 Resource Unit (RU) are presented in the table below. Table 8-4 provides an indication of the key hydrological RQOs for Rivers expressed in terms of flow at the Ecological Water Requirement (EWR) site. These summarised statistics are representative of the required flow regime in the river where the variability is dependent on the seasonal and temporal pattern of natural flow

conditions. The mean monthly flows represent low flow requirements for all the months.

Table 8-4: Key Hydrological Resource Quality Objectives for X2-10 IUA

RU	Biophysical node	River	Target EC	nMAR* (MCM)	Low flows (%nMAR)**	Total flows (%nMAR)
Kaap A	EWRK7	Kaap	C	179.5	16.38	21.84
RQO* (m^3/s)**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
90%	0.19	0.32	0.47	0.61	0.86	0.84
60%	0.45	0.67	0.89	1.12	1.53	1.49
	Apr	**May**	**Jun**	**Jul**	**Aug**	**Sep**
90%	0.82	0.68	0.61	0.47	0.29	0.17
60%	1.42	1.24	1.13	0.89	0.62	0.44

* nMAR is the natural Mean Annual Runoff in million cubic meters per annum.

** %nMAR is flow required at the nodes expressed as a percentage of the natural Mean Annual Runoff, Low flows and Total flows.

*** Percentage points on the monthly low flow frequency distribution continuum at the nodes, expressed as the percentage of the months (90% and 60%) that the flow should equal or exceed the indicated minimum values. Note that the detailed flow RQOs are provided in the technical document.

Source: GN 1616, 30 Dec 2016

According to the Resources Quality Objectives set in terms of water quality for the river, the target Ecological Class for the Kaap River is Class B. Numerical resource quality objectives for EWRK7 are set as follows:

Table 8-5: Numerical RQO set for EWRK7

Element	Numerical RQO
Nutrients (phosphate and Total Inorganic Nitrogen)	50th percentile of the data must be less than 0.125 mg/L PO4-P (aquatic ecosystems: driver). 50th percentile of the data must be < 4.0 mg/L TIN-N
Electrical Conductivity (salts)	95th percentile of the data must be less than or equal to 200 mS/m
Toxics	95th percentile of the data must be within the TWQR for toxics (1996a) or the upper limit of the A category in DWAF (2008).
	Arsenic levels: 95th percentile of the data must be less than 0.020 mg/L As
	Copernicium (free) levels: 95th percentile of the data must be less than 0.004 mg/L Cn

Source: GN 1616, 30 Dec 2016

The perennial Kaap River is located approximately 150 m away from the northern boundary of the prospecting application area.

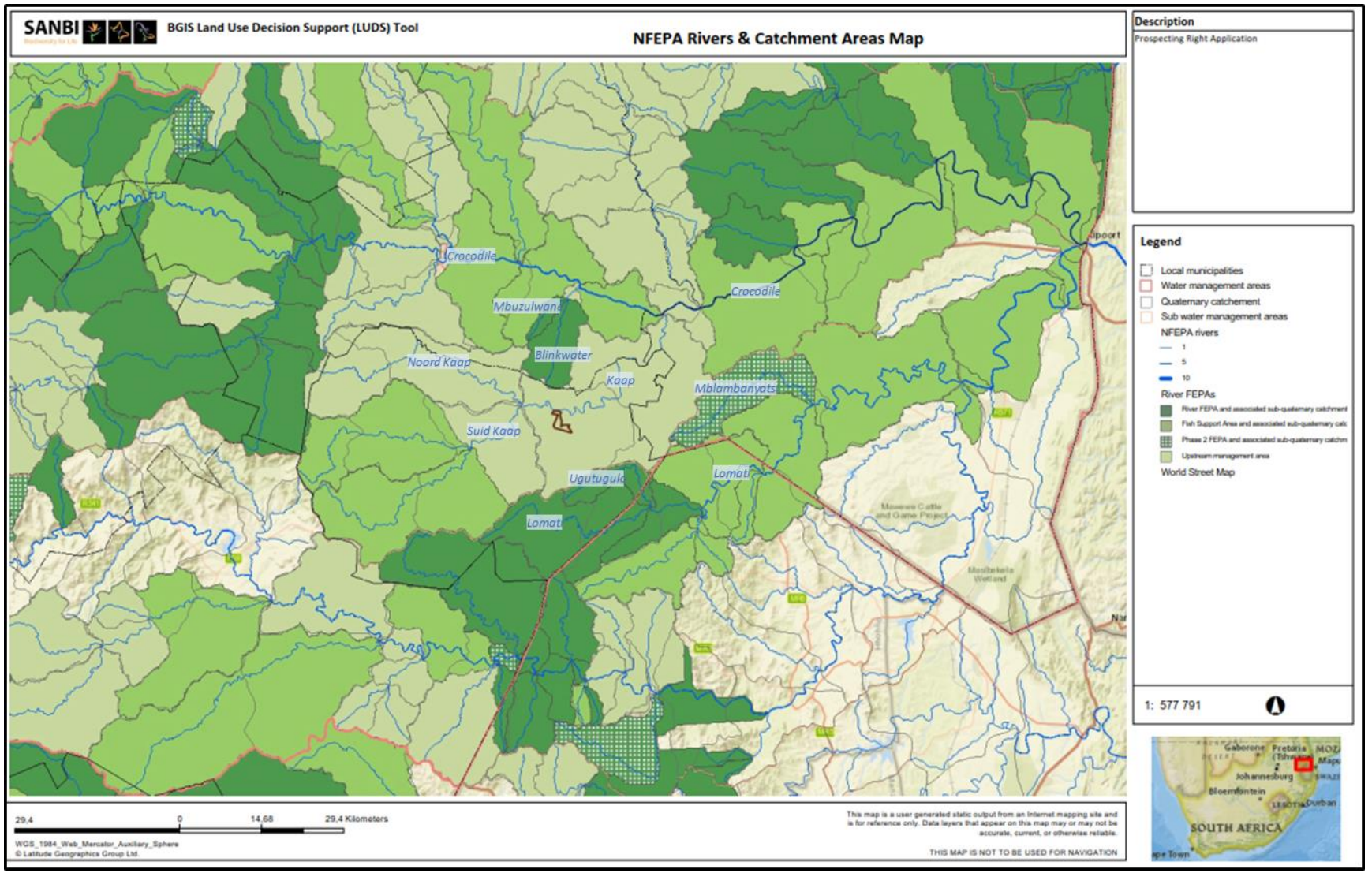
Figure 8-11: The Kaap River 150m from the northern border of the application area

Source: EcoPartners, 2018

The Kaap River falls in an upstream Freshwater Ecosystem Priority Area (FEPA) management area (Figure 8-12). These are sub-quaternary catchments in which human activities need to be managed to prevent degradation of downstream river FEPAs (Driver, *et. al.*, 2011).

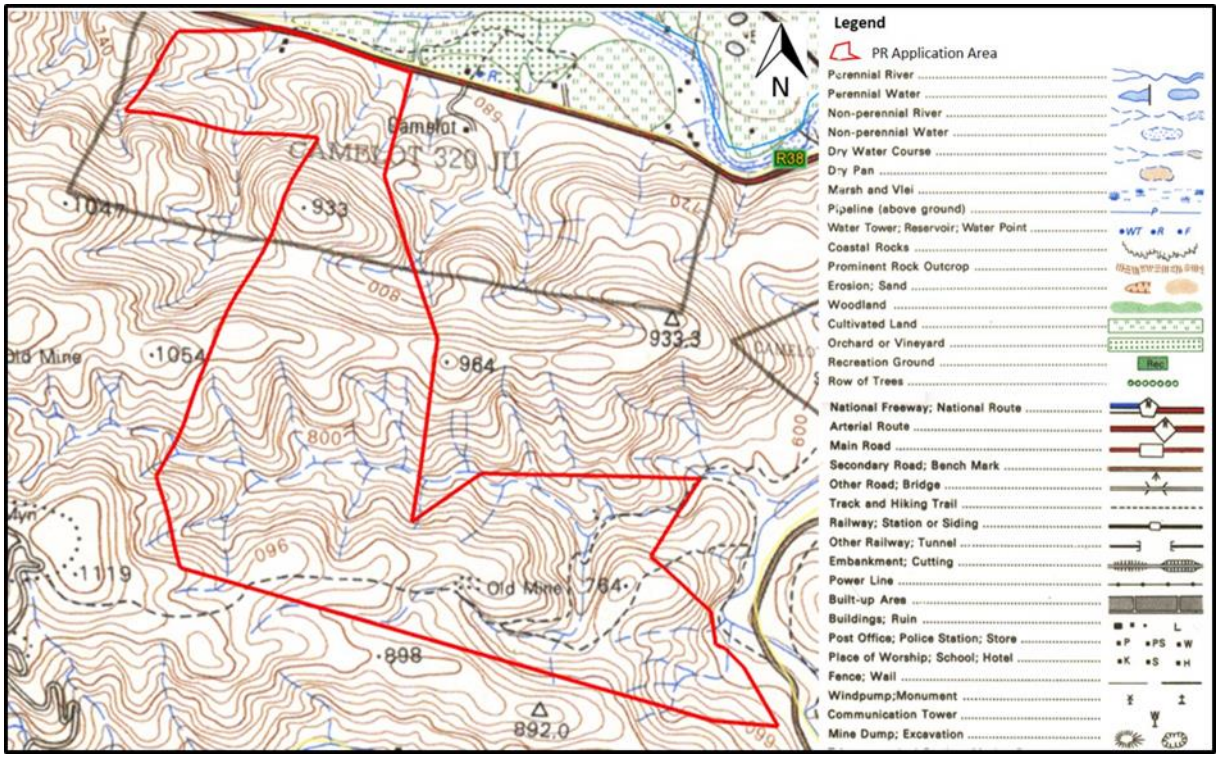
There are also a number of non-perennial drainage lines bisecting the area, which contains water for short periods after rains (Figure 8-13).

Figure 8-12: NFEPA Rivers & Catchment Areas



Source: NFEPA (2011), SANBI:BGIS Layer

Figure 8-13: Location of watercourses

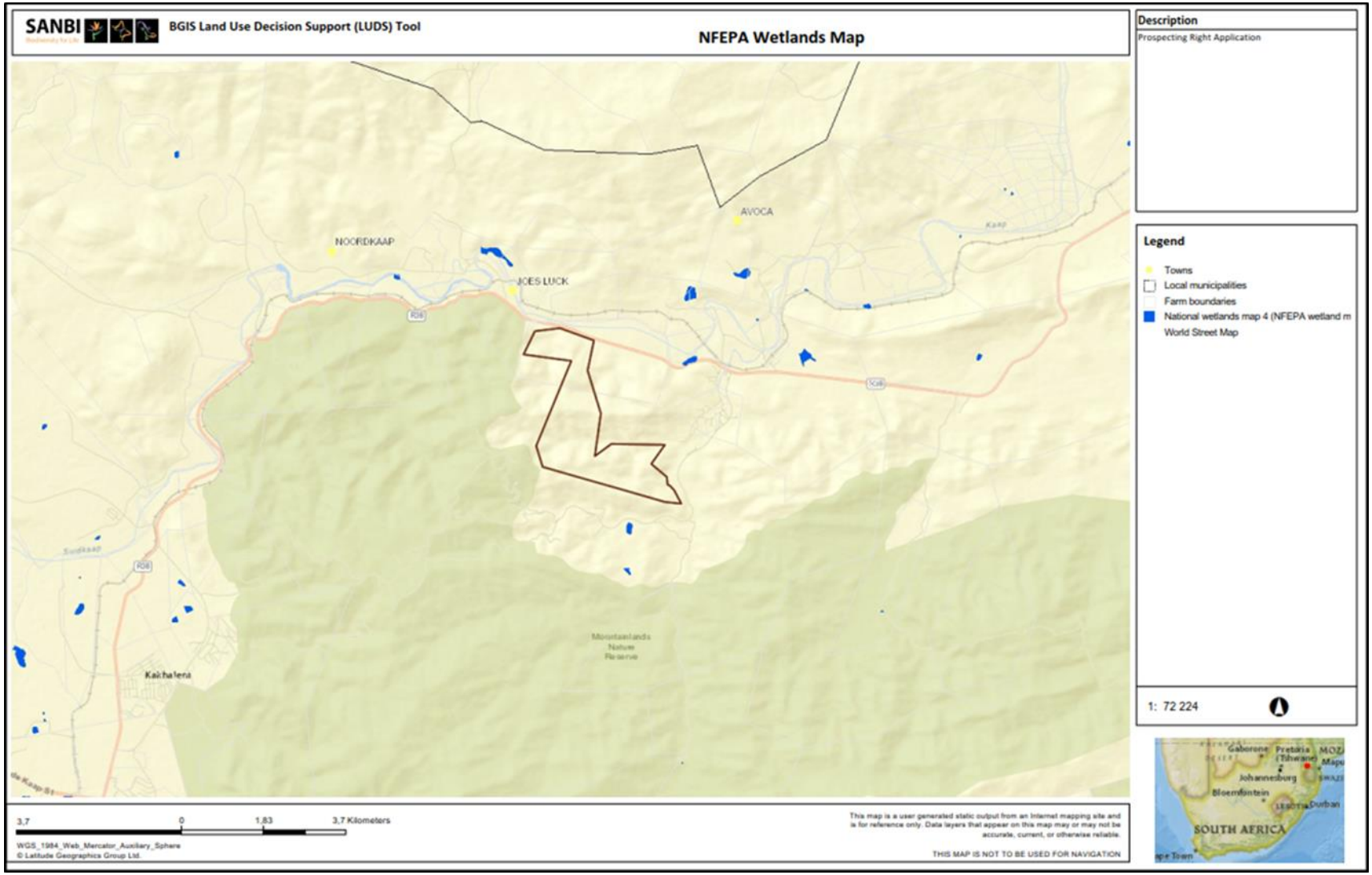


Source: 1:50 000 2531 AC Topographical Map

8.7 WETLANDS

According to the National FEPA Wetlands Geographical Information System (GIS) layer (2011) on the South African National Biodiversity Institute GIS website no wetlands can be found on the application area.

Figure 8-14: NFEPA Wetlands



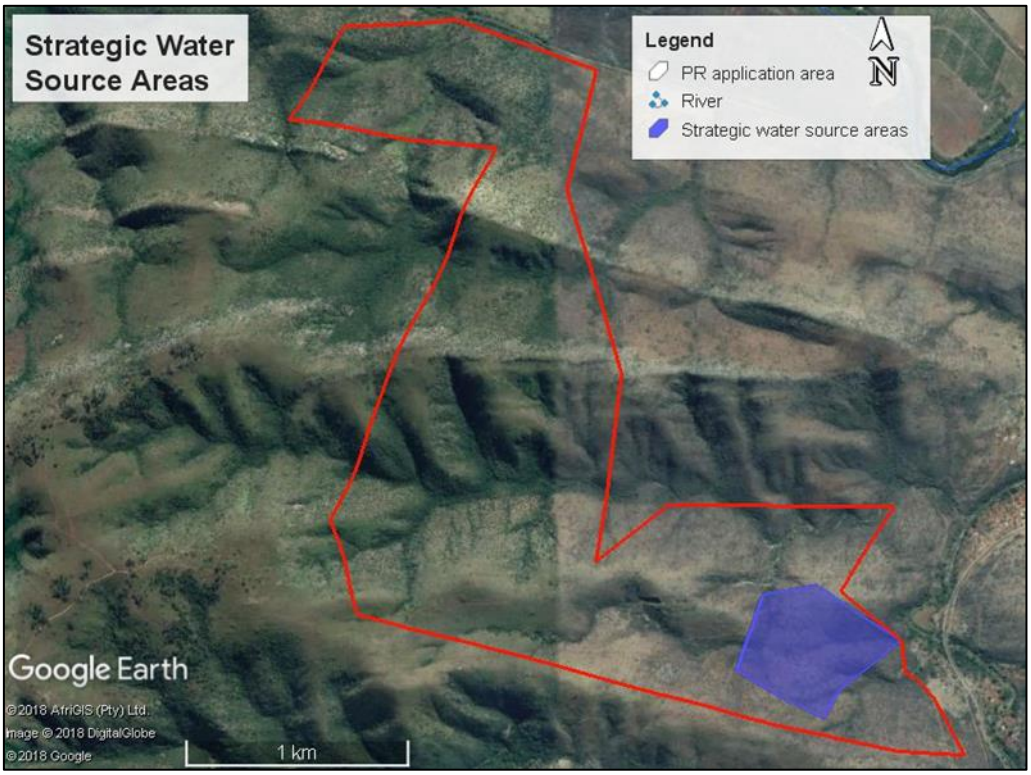
Source: NFEPA Wetlands (2011) SANBI, BGIS Layer

8.8 STRATEGIC WATER SOURCE AREAS

Strategic Water Source Areas are those areas that supply a disproportionately high amount of the country's mean annual runoff, in relation to their surface area, here defined as those areas that contribute >50% of the country's mean annual runoff. These areas have been mapped for South Africa, originally derived from a 1 x 1 minute grid. They make up 8% of the land area across South Africa, Lesotho and Swaziland but provide 50% of the water in these countries.

A portion of the prospecting right application area is considered to be a strategic water resource area (MPTA, 2014).

Figure 8-15: Strategic Water Resource Area



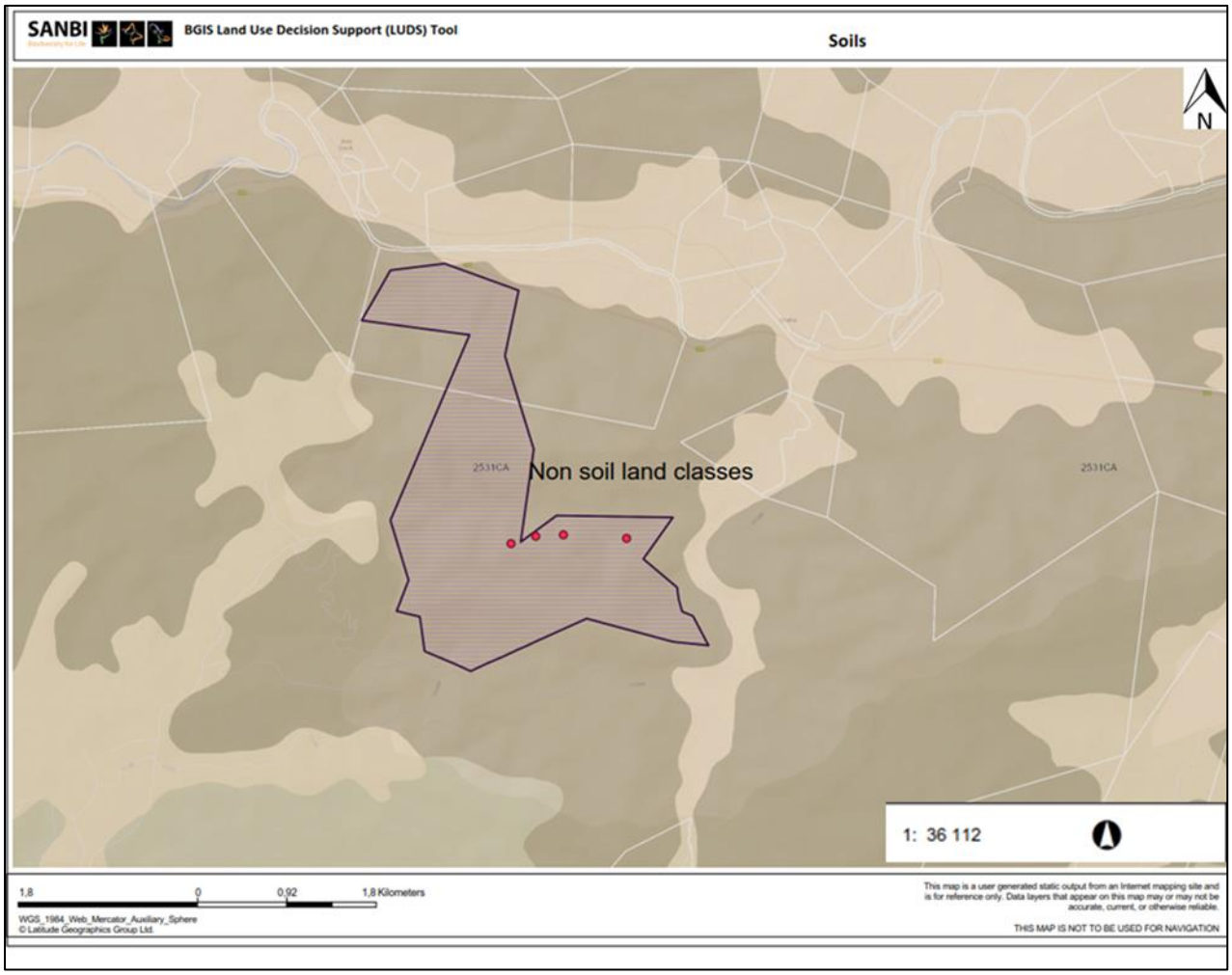
Source: CSIR, Strategic Water Resource Areas Report, 2013

8.9 SOILS

The general soil description for the soils in the area is soils with minimal development, usually shallow, on hard or weathering rock, with or without intermittent diverse soils. Lime generally present in part or most of the landscape (BGIS, 2018).

The PR application area consists of Non-soils Land Class which is associated with the mountainous landscape located on the property.

Figure 8-16: Soil Class Map

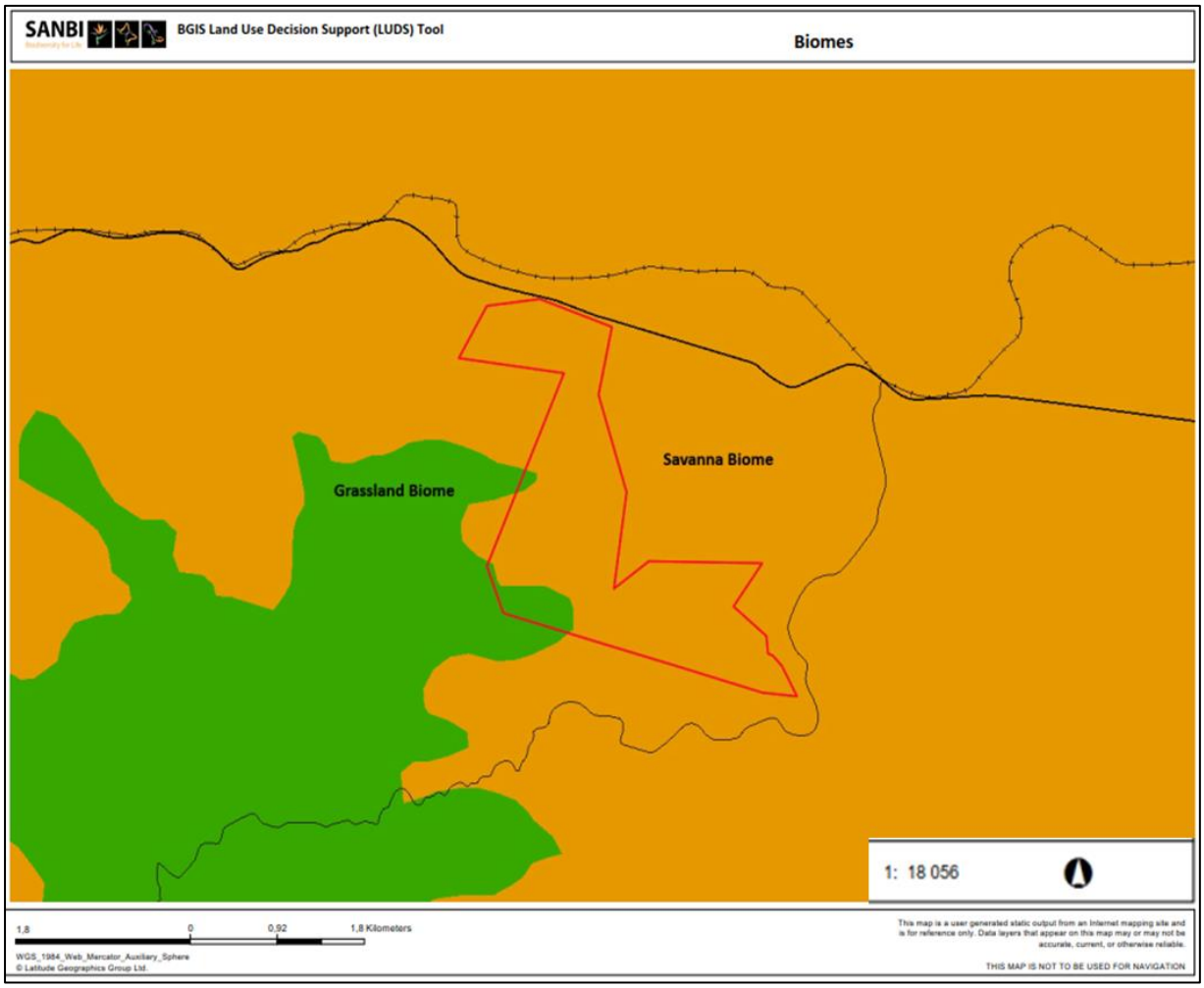


Source: Soil Class GIS Layer, SANBI BGIS

8.10 VEGETATION (FLORA)

The prospecting right application area is located in a transitional zone between the grassland and savannah biomes (Mucina and Rutherford, 2006). Within a biome, smaller groupings referred to as bioregions can be found which provide more specific but general details as to the biophysical characteristics of smaller areas. The majority of the PR application area can be found within the Lowveld bioregion with a small area that touch the Mesic Highveld Grassland Bioregion.

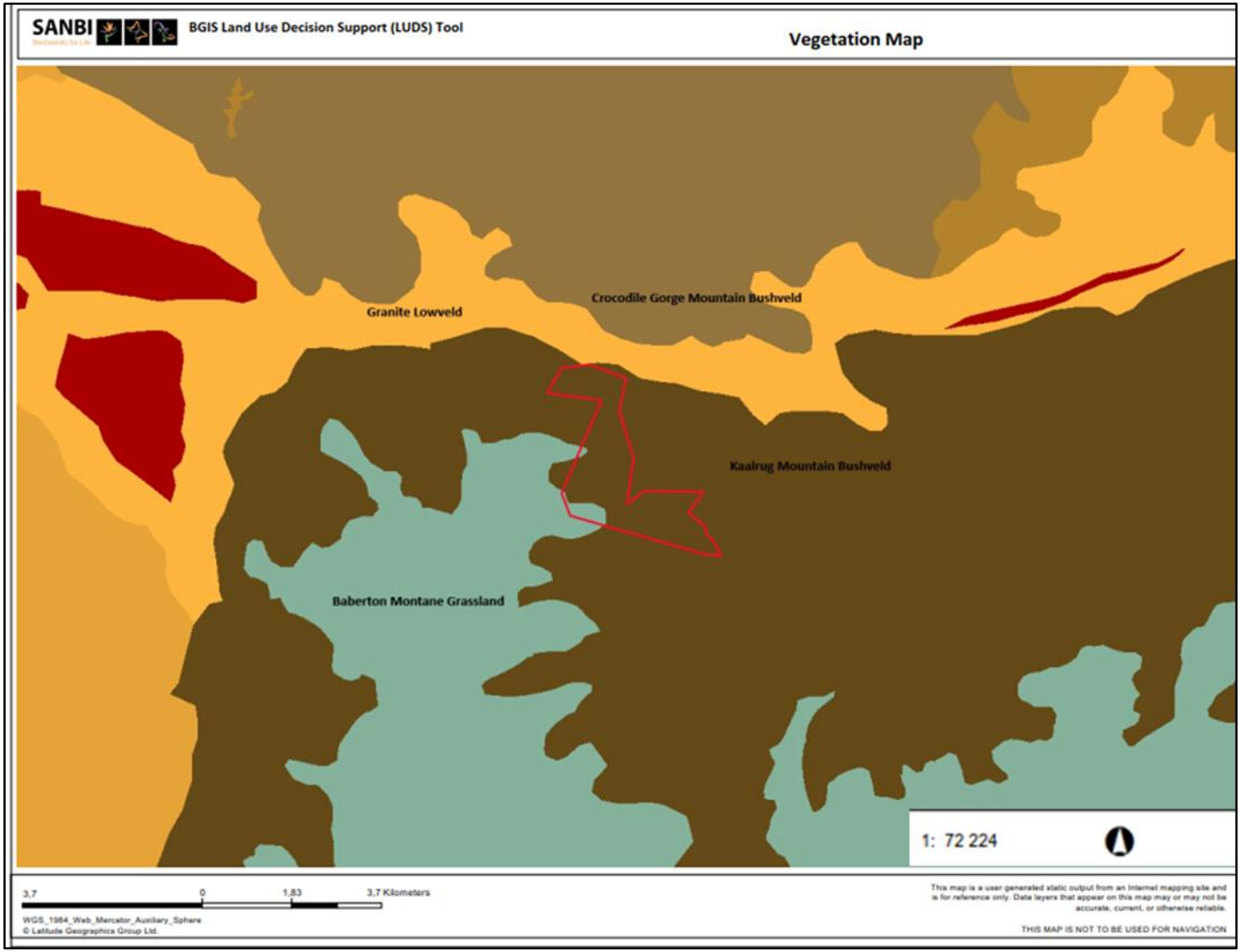
Figure 8-17: Biome Map



Source: Mucina and Rutherford, 2006

Going into even finer detail, vegetation units are classified which contain a set of general but more local biophysical characteristics as opposed to the entire bioregion. The PR application area is found within the Kaalrug Mountain Bushveld with small portions that falls within the Baberton Montane Grassland vegetation units (Mucina and Rutherford, 2006).

Figure 8-18: Vegetation Map



Source: South African National Biodiversity Institute, Vegetation GIS Layer, 2012

8.10.1 Kaalrug Mountain Bushveld vegetation unit

The largest portion of the of the PR application area falls within the Kaalrug Mountain Bushveld vegetation unit. The landscape of the Kaalrug Mountain Bushveld vegetation unit is characterised by open to dense, short mountain savanna or thickets, with a denser grassy layer at higher altitudes and often by steep or very broken mountain slopes at altitudes lower than the Gm 17 Barberton Montane Grassland (Mucina and Rutherford, 2006).

Figure 8-19: Examples of vegetation found on PR application area

Source: EcoPartners, 2018

Important taxa for this vegetation unit include (d = dominant species):

a) Small Trees: *Pavetta edentula* (d), *Sclerocroton integerrimum* (d), *Margaritaria discoidea, Tabernaemontana elegans.*

b) Succulent Tree: *Euphorbia triangularis*.

c) Tall Shrubs: *Combretum padoides* (d), *Diplorhynchus condylocarpon, Galpinia transvaalica, Maerua rosmarinoides, Monanthotaxis caffra, Olea europaea* subsp*. africana.*

d) Low Shrubs: *Orthosiphon serratus, Pavetta gracilifolia, Ruttya ovata*.

e) Succulent Shrub: *Euphorbia transvaalensis*.

f) Soft Shrub: *Metarungia longistrobus*.

g) Woody Climbers: *Combretum woodii (d), Caesalpinia rostrata.*

h) Graminoids*: Bothriochloa radicans* (d), *Digitaria eriantha* subsp*. eriantha* (d), *Eragrostis rigidior* (d), *Eustachys paspaloides* (d), *Enneapogon scoparius, Heteropogon contortus, Panicum maximum, Schmidtia pappophoroides, Themeda triandra*.

i) Herbs: *Senecio venosus, Vernonia natalensis, Waltheria indica*.

j) Geophytic Herb: *Cyrtanthus galpinii*.

k) Succulent Herb: *Plectranthus neochilus*.

Endemic taxa in this vegetation unit is the succulent shrub *Euphorbia complexa* and the geophytic herb *Ledebouria cremnophila*.

The vegetation type is considered "Least Threatened". The target for conservation is set at 24%. Some 16% of this vegetation type enjoy statutorily protection, almost all in Mountainlands Nature Reserve which is located to the east and south of the application area. A further 9% is conserved in the private reserves of Cwantalala and Boondocks. About 12% of this vegetation type is transformed, mainly by cultivation and plantations. Erosion is generally very low (Mucina and Rutherford, 2006).

Figure 8-20: Kaalrug Mountain Bushveld Vegetation

Source: Johlene Muir

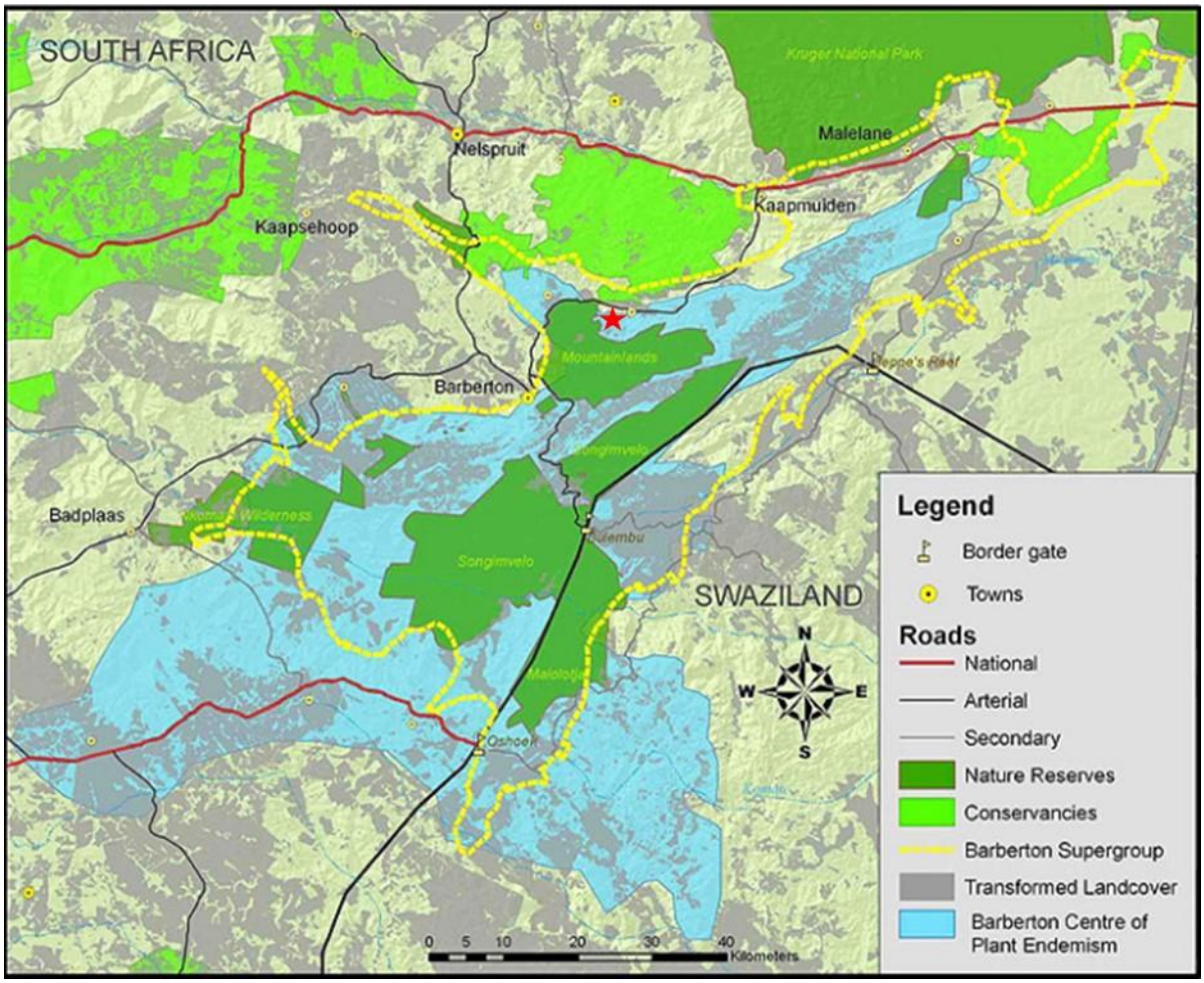
8.10.2 Barberton Centre of Plant Endemism

Regional centres of endemism have at least 50% of their species confined to them, as well as having more than 1000 endemic species. Two regions of Plant Endemism are recognized within Mpumalanga. These are the high lying Drakensberg Afromontane Region (DAR) and the more tropical Maputaland-Pondoland Region (MPR). The number of plant species restricted to the DAR is not known, but species endemism is high. This region incorporates a number of distinct centers such as the Barberton, Wolkberg and Lydenburg centers within Mpumalanga (Van Wyk and Smith, 2001).

The Barberton Centre of Plant Endemism (BCPE) is shared with Swaziland and is largely a result of the surface-outcrops of volcanic sedimentary rocks belonging to the Barberton Supergroup. Outcrops of serpentinite occur throughout the BCPE, and these rocks give rise to soils with unusually high magnesium:calcium ratios. These soils, together with those derived from ultramafic rocks, are also associated with high concentrations of heavy metals, which are potentially toxic to plants. At least 30 plant species of the BCPE are edaphic (influenced by soil) specialists, adapted to the serpentine soils (Van Wyk and Smith, 2001).

The location of the PR application area in relation to the BCPE is presented in the figure below (location of PR application area indicated by the red star).

Figure 8-21: Barberton Centre of Plant Endemism



Source: World Heritage Site Tentative Listing Submission - adapted from Lotter and Ferrar, 2006

Two subcentres can be identified within the BCPE, based on the distribution of endemic or near endemic plant species recorded for each of these areas. The fundamental bases on which the endemics have evolved is markedly different between the two subunits and warrant separation. Firstly, the Makonjwa subcentre occurs throughout the BCPE wherever ultramafic (incorporating serpentine) derived soils are absent. Secondly, the Komati/De Kaap subcentre occurs on the serpentine and ultramafic derived soils, extending over a range of altitudes. Approximately 30 species are strictly endemic to this subcentre (Van Wyk and Smith, 2001).

Most of the BCPE's endemics are confined to the grassland areas, with a few woody serpentine endemic plants in the lower lying areas. The endemics are largely herbaceous with endemism notably high in the Iridaceae, Lamiaceae, Liliaceae and Asteraceae (Van Wyk and Smith, 2001).

The Barberton Sugarbush (*Protea curvata*) is only found on a few rocky slopes in the Kaap Valley (Van Wyk and Smith, 2001).

8.11 ANIMAL LIFE (FAUNA)

The conservation status of species for all taxa groups is based on categories determined by the International Union for Conservation of Nature (IUCN) (IUCN 2016), namely:

(a) Critically Endangered (CR) – the species is considered to be facing an extremely high risk of extinction in the wild, based on IUCN criteria.

(b) Endangered (EN) – the species is considered to be facing a very high risk of extinction in the wild, based on IUCN criteria.

(c) Vulnerable (VU) – the species is considered to be facing a high risk of extinction in the wild, based on IUCN criteria.

(d) Near Threatened (NT) – when evaluated against IUCN criteria, does not qualify for a Threatened category but is close to qualifying for or is likely to qualify in one of those categories in the near future.

(e) Data Deficient (DD) – there is inadequate information regarding the species’ population size, distribution or threats for an assessment to be made.

(f) Least Concern (LC) - a species is Least Concern when it has been evaluated against the IUCN criteria and does not qualify for any of the above categories. Species classified as Least Concern are considered at low risk of extinction. Widespread and abundant species are typically classified in this category.

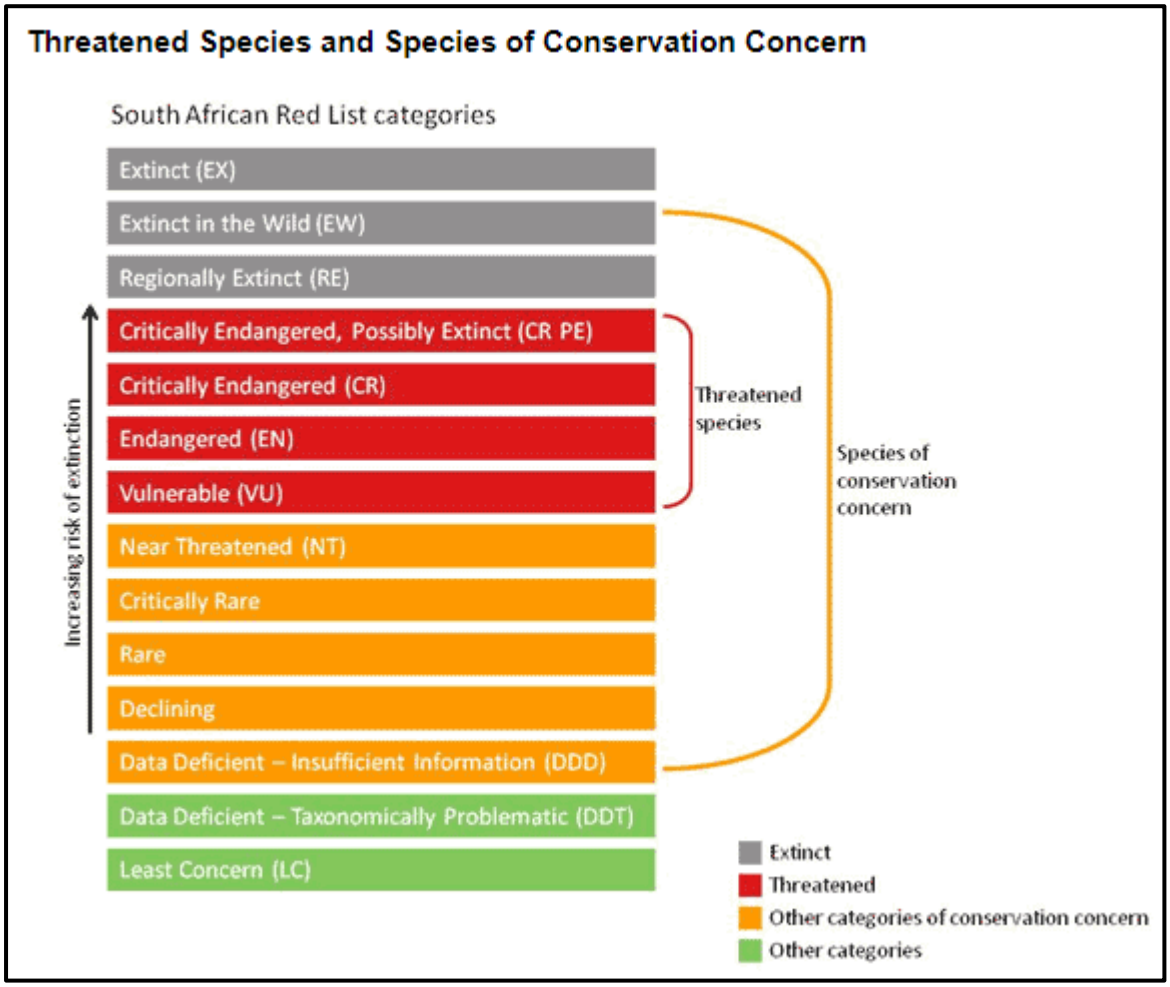
This system is designed to determine the relative risk of extinction, with the main purpose being to catalogue and highlight those taxa that are facing a high risk of global extinction.

Threatened species are species that are facing a high risk of extinction. Any species classified in the IUCN categories Critically Endangered, Endangered or Vulnerable is a threatened species (Figure 8-22).

Species of conservation concern are species that have a high conservation importance in terms of preserving South Africa's high floristic diversity and include not

only threatened species, but also those classified in the categories Extinct in the Wild (EW), Regionally Extinct (RE), Near Threatened (NT), Critically Rare, Rare, Declining and Data Deficient - Insufficient Information (DDD).

Figure 8-22: South African Red List Categories



Source: www.sanbi.org

These threatened species are published in 'Red Data Lists' reports, with the aim of identifying and highlighting those species most in need of conservation attention as well as to provide an index of the state of degeneration of biodiversity.

8.11.1 Mammal species predicted to occur

Data on mammal species listed in Table 8-6 was obtained from the Red Data Book of Mammals of South Africa, 2016. The 2016 revision assessment region included South Africa, Lesotho and Swaziland, as well as the footprint of all trans-frontier parks in these three countries. The protection status of the animals in terms of the Mpumalanga Nature Conservation Act (Act 10 of 1998) is also indicated in the table.

Table 8-6: Red Data mammals predicted to occur in the prospecting area

Common name	Scientific name	Regional Red List Status 2016	Mpumalanga Nature Conservation Act No. 10 of 1998
Order Afrosoricida			
Natal Red Duiker	*Cephalophus natalensis*	Near Threatened	Protected Game
Tsessebe	*Damaliscus lunatus lunatus*	Vulnerable	Protected Game
South African Giraffe	*Giraffa camelopardalis giraffa*	Least Concern	Protected Game
Roan Antelope	*Hippotragus equinus*	Endangered	Protected Game
Common Waterbuck	*Kobus ellipsiprymnus ellipsiprymnus*	Least Concern	Protected Game
Klipspringer	*Oreotragus oreotragus*	Least Concern	Protected Game
Common Warthog	*Phacochoerus africanus*	Least Concern	Protected in terms of Section 33
Southern Reedbuck	*Redunca arundinum*	Least Concern	Protected Game
Mountain Reedbuck	*Redunca fulvorufula fulvorufula*	Endangered	Protected Game
Nyala	*Tragelaphus angasii*	Least Concern	Protected Game
Eland	*Tragelaphus oryx*	Least Concern	Protected Game
Order Carnivora			
Water Mongoose	*Atilax paludinosus*	Least Concern	Protected in terms of Section 33
Side-striped Jackal	*Canis adustus*	Least Concern	Protected in terms of Section 33
African Civet	*Civettictis civetta*	Least Concern	Protected in terms of Section 33
Slender Mongoose	*Herpestes sanguineus*	Least Concern	Protected in terms of Section 33
White-tailed Mongoose	*Ichneumia albicauda*	Least Concern	Protected in terms of Section 33
Serval	*Leptailurus serval*	Near Threatened	Protected in terms of Section 33
African Wild Dog	*Lycaon pictus*	Endangered	Protected Game
Honey Badger	*Mellivora capensis*	Least Concern	Protected Game
Banded Mongoose	*Mungos mungo*	Least Concern	Protected in terms of Section 33
Leopard	*Panthera pardus*	Vulnerable	Protected Wild Animals
Meller's Mongoose	*Rhynchogale melleri*	Least Concern	Protected in terms of Section 33
Order Chiroptera			
Short-eared Trident Bat	*Cloeotis percivali*	Endangered	
Peak-saddle Horseshoe Bat	*Rhinolophus blasii*	Near Threatened	
Cohen's Horseshoe Bat	*Rhinolophus cohenae*	Vulnerable	
Order Eulipotyphla			
South African Hedgehog	*Atelerix frontalis*	Near Threatened	Protected Game

Common name	Scientific name	Regional Red List Status 2016	Mpumalanga Nature Conservation Act No. 10 of 1998
Maquassie Musk Shrew	*Crocidura maquassiensis*	Vulnerable	
Swamp Musk Shrew	*Crocidura mariquensis*	Near Threatened	
Order Hyracoidea			
Rock Hyrax	*Procavia capensis*	Least Concern	Protected in terms of Section 33
Order Pholidota			
Temminck's Ground Pangolin	*Smutsia temminckii*	Vulnerable	Protected Game
Order Primates			
Schwarz's White-collared Monkey	*Cercopithecus albogularis schwarzi*	Endangered	
Vervet Monkey	*Chlorocebus pygerythrus*	Least Concern	Protected in terms of Section 33
Chacma Baboon	*Papio ursinus*	Least Concern	Protected in terms of Section 33
Thick-tailed Bushbaby	Otolemur crassicaudatus	Least Concern	Protected Game
Order Proboscidea			
African Elephant	*Loxodonta africana*	Least Concern	Specially Protected Game
Order Rodentia			
Robert's Marsh Rat	*Dasymys robertsii*	Vulnerable	
Vlei Rat (Grassland type)	*Otomys auratus*	Near Threatened	
Tree Squirrel	*Paraxerus cepapi*	Least Concern	Protected in terms of Section 33
Order Tubulidentata			
Aardvark	*Orycteropus afer*	Least Concern	Protected Game

Source: EWT & SANBI, 2016

8.11.2 Reptiles predicted to occur

The online databases of the Animal Demographic Unit, Department of Biological Sciences, University of Cape Town, The Virtual Museum @ ADU, were searched for sightings of animal species within the 2531CA quarter degree square.

A search of the online Reptile Atlas of Southern Africa returned the following records.

Table 8-7: Records for reptiles observed in 2531CA

Scientific name	Common name	Family
Nucras ornate	Ornate Sandveld Lizard	(Lacertidae)
Smaug barbertonensis	Baberton Girdled Lizard	(Cordylidae)
Chamaesaura macrolepis	Large-scaled Grass Lizard	(Cordylidae)
Platysaurus intermedius wilhelmi	Wilhelm's Flat Lizard	(Cordylidae)
Zygaspis vandami vandami	Van Dam's Dwarf Worm Lizard	(Amphisbaenidae)
Pachydactylus vansoni	Van Son's Gecko	(Gekkonidae)

Scientific name	Common name	Family
Homopholis wahlbergii	Wahlberg's Velvet Gecko	(Gekkonidae)
Lygodactylus capensis capensis	Common Dwarf Gecko	(Gekkonidae)
Chondrodactylus turneri	Turner's Gecko	(Gekkonidae)
Hemidactylus mabouia	Common Tropical House Gecko	(Gekkonidae)
Afroedura haackei	Haacke's Flat Gecko	(Gekkonidae)
Hemidactylus mabouia	Common Tropical House Gecko	(Gekkonidae)
Trachylepis striata	Striped Skink	(Scincidae)
Trachylepis varia sensu lato	Common Variable Skink	(Scincidae)
Crotaphopeltis hotamboeia	Red-lipped Snake	(Colubridae)
Amblyodipsas polylepis polylepis	Common Purple-glossed Snake	(Lamprophiidae)
Gracililima nyassae	Black File Snake	(Lamprophiidae)
Leptotyphlops sp	Blind / Thread snakes	(Leptotyphlopidae)
Acanthocercus atricollis atricollis	Southern Tree Agama	(Agamidae)

Source: www.adu.org/vm

8.11.3 Amphibians predicted to occur

A search of the online Frog Atlas of Southern Africa returned the following records for the 2531CA quarter degree square.

Table 8-8: Records for frogs observed in 2531CA

Scientific name	Common name	Family
Schismaderma carens	Red Toad	(Bufonidae)
Sclerophrys gutturalis	Guttural Toad	(Bufonidae)
Chiromantis xerampelina	Southern Foam Nest Frog	(Rhacophoridae)
Amietia delalandii	Delalande's River Frog	(Pyxicephalidae)
Tomopterna natalensis	Natal Sand Frog	(Pyxicephalidae)
Xenopus laevis	Common Platanna	(Pipidae)

Source: www.adu.org/vm

8.11.4 Spiders predicted occur

A search of the online Atlas of African Spiders returned the following records for the 2531CA quarter degree square.

Table 8-9: Records for spiders observed in 2531CA

Scientific name	Common name	Family
Nilus margaritatus	White banded fishing spiders	(Pisauridae)
Harpactirella overdijki	Lesser Baboon Spider	(Theraphosidae)
Brachionopus sp.	Baboon spiders	(Theraphosidae)
Harpactira gigas	Baboon spiders	(Theraphosidae)
-	Wolf spiders	(Lycosidae)
Latrodectus sp.	Comb-footed or cobweb spiders	(Theridiidae)
Cyclosa sp.	Garbage-line web spiders	(Araneidae)
Nephila fenestrata	Black legged golden orb-web spider	(Aranaeidae)
Gasteracantha sp.	Kite spiders	(Araneidae)
Pararaneus sp.	Spiky field spiders	(Araneidae)
Menneus sp.	Net-casting spiders and ogre-faced spiders	(Deinopidae)
-	Flatties or wall spiders	(Selenopidae)

Scientific name	Common name	Family
Portia schultzi	Schultz's dandy jumping spiders	(Salticidae)

Source: www.adu.org/vm

8.11.5 Insects

The atlas of Lepidoptera returned 160 butterfly species for the 3125CA quarter degree square. Of these, one butterfly species is of conservation concern and is considered to be endagered according to Henning, *et.al*. (2009):

a) *Aloeides barbarae* - Barbara's copper- (LYCAENIDAE)

A search of the online Atlas of African Neuroptera (net-winged insects) and Megaloptera (dobsonflies and alderflies) returned the following records for the 2531CA quarter degree square.

Table 8-10: Records for Neuroptera and Megaloptera observed in 2531CA

Scientific name	Family	Scientific name	Family
Hagenomyia tristis	(Myrmeleontidae)	*Macroleon quinquemaculatus*	(Myrmeleontidae)
Silveira marshalli	(Psychopsidae)	*Zygophlebius leoninus*	(Psychopsidae)
Banyutus lethalis	(Myrmeleontidae)	*Italochrysa zulu*	(Chrysopidae)
Cymothales eccentros	(Myrmeleontidae)	*Italochrysa impar*	(Chrysopidae)
Zygophlebius leoninus	(Psychopsidae)	*Zygophlebius leoninus*	(Psychopsidae)
Centroclisis distincta	(Myrmeleontidae)	*Tmesibasis laceratus* (Owlfly)	(Ascalaphidae)
Centroclisis distincta	(Myrmeleontidae)	*Banyutus lethalis*	(Myrmeleontidae)

Source: www.adu.org/vm

The Odonata Atlas of Africa returned the following sightings of dragon- and damselflies in the 2531CA.

Table 8-11: Records for Odonata observed in 2531CA

Scientific name	Common name	Family
Anax imperator	Blue Emperor	(Aeshnidae)
Phaon iridipennis	Glistening Demoiselle	(Calopterygidae)
Platycypha caligata	Dancing Jewel	(Chlorocyphidae)
Pseudagrion hageni	Painted Sprite	(Coenagrionidae)
Pseudagrion acacia	Acacia Sprite	(Coenagrionidae)
Pseudagrion gamblesi	Great Sprite	(Coenagrionidae)
Pseudagrion kersteni	Powder-faced Sprite	(Coenagrionidae)
Pseudagrion sp.	-	(Coenagrionidae)
Gomphidia quarrei	Southern Fingertail	(Gomphidae)
Paragomphus genei	Common Hooktail	(Gomphidae)
Trithemis arteriosa	Red-veined Dropwing	(Libellulidae)
Nesciothemis farinose	Eastern Blacktail	(Libellulidae)

Scientific name	Common name	Family
Brachythemis lacustris	Red Groundling	(Libellulidae)
Zygonoides fuelleborni	Southern Riverking	(Libellulidae)
Brachythemis lacustris	Red Groundling	(Libellulidae)
Orthetrum julia	Julia Skimmer	(Libellulidae)
Bradinopyga cornuta	Horned Rockdweller	(Libellulidae)
Trithemis furva	Navy Dropwing	(Libellulidae)
Orthetrum chrysostigma	Epaulet Skimmer	(Libellulidae)
Palpopleura portia	Portia Widow	(Libellulidae)
Trithemis kirbyi	Orange-winged Dropwing	(Libellulidae)
Crocothemis erythraea	Broad Scarlet	(Libellulidae)
Acisoma inflatum	Stout Pintail (Libellulidae)	(Libellulidae)
Allocnemis leucosticta	Goldtail	(Platycnemididae)
Elattoneura glauca	Common Threadtail	(Platycnemididae)
Mesocnemis singularis	Common (Forest/Savanna) Riverjack	(Platycnemididae)

Source: www.adu.org/vm

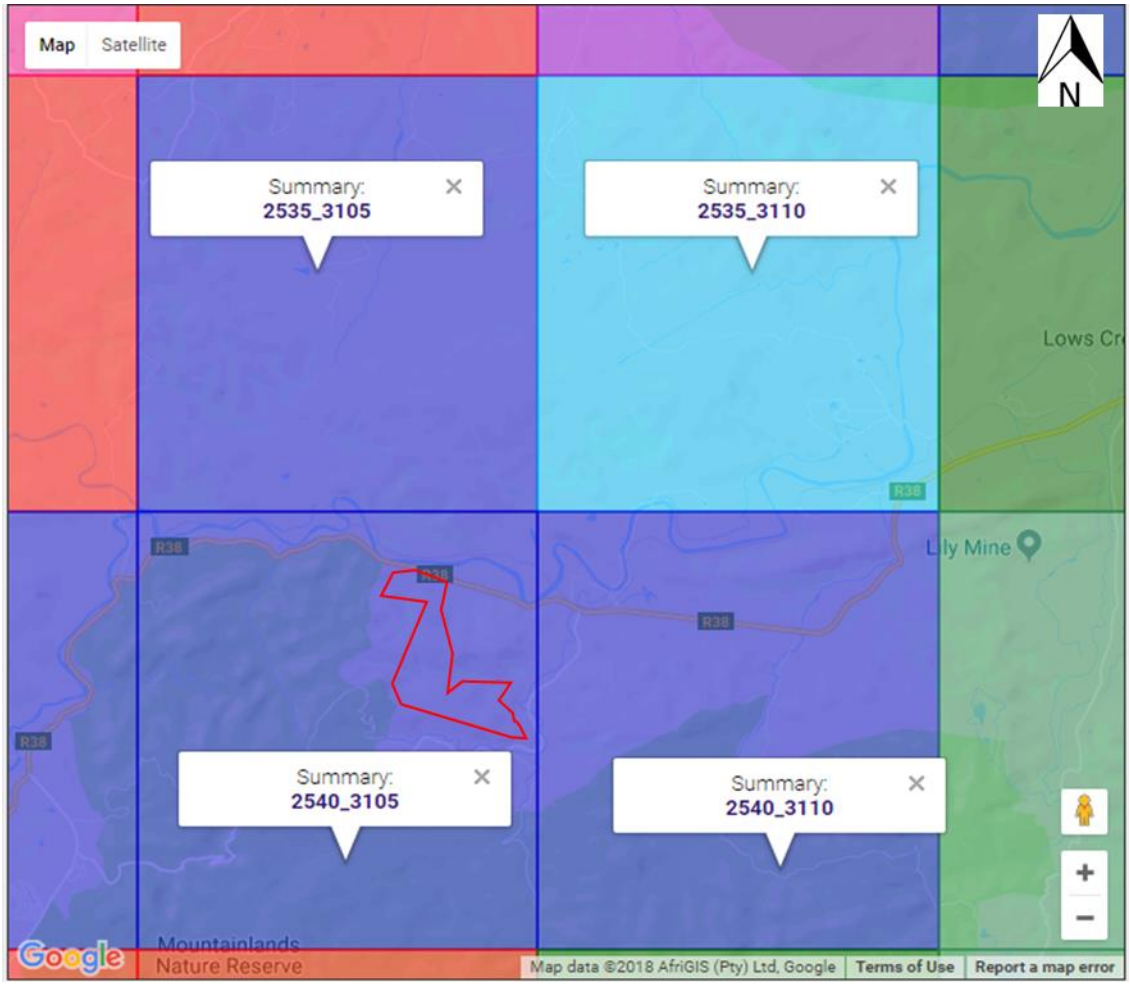
8.11.6 Avifauna / Birds

The Second Southern African Bird Atlas Project (SABAP2) is the most important bird monitoring project in the region. It holds this status because all other conservation initiatives depend on the results of the bird atlas, to a greater or lesser extent. SABAP2 is the follow-up project to the Southern African Bird Atlas Project (for which the acronym was SABAP, and which is now referred to as SABAP1). This first bird atlas project took place from 1987-1991. The second bird atlas project started on 1 July 2007 and plans to run indefinitely. The project aims to map the distribution and relative abundance of birds in southern Africa and the atlas area includes South Africa, Lesotho and Swaziland (www. sabap2.adu.org.za).

The unit of data collection is the pentad, five minutes of latitude by five minutes of longitude, squares with sides of roughly 9 km. There are 17339 pentads in the original atlas area of South Africa, Lesotho and Swaziland. At the end of June 2017, the SABAP2 database contained more than 189,000 checklists (www.sabap2.adu.org.za).

A total of 308 bird species were recorded for the pentads (2535_3105; 2535-3110, 2540_3105 and 2540_3110) as part of the South African Bird Atlas Projects (SABAPs).

Figure 8-23: Location of PR application area in relation to SABAP2 pentads



Source: www.sabap2.adu.org.za

According to the 2018 BirdLife South Africa checklist of Birds in South Africa nine of the all the birds observed during the SABAPs are of conservation concern.

Table 8-12: Red data bird species observed for SABAP pentads

Scientific Name	Common name	Regional Red Data Status
Terathopius ecaudatus	Bateleur, Bateleur	Endangered
Polemaetus bellicosus	Eagle, Martial	Endangered
Aquila verreauxii	Eagle, Verreaux's	Vulnerable
Falco biarmicus	Falcon, Lanner	Vulnerable
Podica senegalensis	Finfoot, African	Vulnerable
Alcedo semitorquata	Kingfisher, Half-collared	Near Threatened
Coracias garrulus	Roller, European	Near Threatened
Sagittarius serpentarius	Secretarybird,	Vulnerable
Rostratula benghalensis	Painted-snipe, Greater	Near Threatened

Source: www.sabap2.adu.org.za

8.12 BIODIVERSITY

The Mpumalanga Biodiversity Sector Plan (MBSP) was developed by updating and revising an earlier provincial systematic biodiversity plan that was known as the

Mpumalanga Biodiversity Conservation Plan (MBCP, 2006). The MBSP replaces the earlier MBCP and should be used as the official reference for biodiversity priority areas (MTPA, 2014).

The Mpumalanga Biodiversity Sector Plan (MBSP) is a spatial tool with land-use guidelines that forms part of a broader set of national biodiversity planning tools and initiatives that are provided for in national legislation and policy. It comprises a set of maps of biodiversity priority areas accompanied by contextual information and land-use guidelines that make the most recent and best quality biodiversity information available for use in land-use and development planning, environmental assessment and regulation, and natural resource management (MTPA, 2014).

The main purpose of a biodiversity sector plan is to ensure that the most recent and best quality spatial biodiversity information can be accessed and used to inform land-use and development planning, environmental assessments and authorisations, and natural resource management. The key output of a systematic biodiversity plan is a map of biodiversity priority areas (i.e. the CBA map).

The CBA maps show the following five broad map categories, some of which are further divided into sub-categories (MTPA, 2014):

a) **Protected Areas**: Areas that are formally protected by law and recognised in terms of the Protected Areas Act (this includes contract protected areas declared through the biodiversity stewardship programme).
b) **Critical Biodiversity Areas (CBAs)**: Areas that are required to meet biodiversity targets for species, ecosystems or ecological processes. These include:

    (i) All areas required to meet biodiversity pattern targets and to ensure continued existence and functioning of species and ecosystems, special habitats and species of conservation concern;

    (ii) Critically Endangered ecosystems; and

    (iii) Critical linkages (corridor 'pinch-points') to maintain connectivity.

c) CBAs are areas of high biodiversity value and need to be kept in a natural state, with no further loss of habitat or species.

d) **Ecological Support Areas (ESAs)**: Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of protected areas or CBAs and for delivering ecosystem services. In the terrestrial assessment they support landscape connectivity and strengthen resilience to climate change. ESAs need to be maintained in at least a functional and often natural state, supporting the purpose for which they were identified. They include features such as riparian habitat surrounding rivers or wetlands, corridors, over-wintering sites for Blue Cranes, and so on.

e) **Other Natural Areas (ONAs)**: Areas that have not been identified as a priority in the current systematic biodiversity plan but retain most of their natural character and perform a range of biodiversity and ecological infrastructural functions.

f) **Moderately or Heavily Modified Areas** (sometimes called 'transformed'): Areas that have been heavily modified by human activity so that they are by-and-large no longer natural, and do not contribute to biodiversity targets. Some of these areas may still provide limited biodiversity and ecological infrastructural functions but, their biodiversity value has been significantly and, in many cases, irreversibly compromised.

The MBSP biodiversity map categories have been integrated with the existing zonation definitions used in other planning schemes, so far as possible. According to the land use guideline or terrestrial critical biodiversity areas prospecting activities may compromise the biodiversity objective and are only permissible under certain conditions in the following MBSP categories/sub-categories (MTPA, 2014):

a) CBA: Optimal - Areas that are optimally located as part of the most efficient solution to meet biodiversity targets.

b) ESA: Landscape corridor - Areas that are the ideal or best route option to support existing biodiversity and allow them to adapt to the impacts of climate change.

c) ESA Local Corridor - Fine scale connectivity pathways that contribute to resilience and connectivity between climate change focal areas.

d) ESA: Species Specific - Areas required for the persistence of specific species in production landscapes, including modified areas. Blue crane overwintering sites.

e) ESA: Protected area Buffer - a buffer distance of either 10 km for national Parks; 5 km for all other Pas; and 1 km for Protected environments.

f) ESA: Important Sub-catchments & FSA - FEPA sub-catchments, fish support areas.

g) ESA: wetland Clusters - FEPA wetland clusters.

h) ESA: wetlands - Non- FEPA wetlands.

i) ESA: Strategic water Source areas - SWS areas map, 10% of area producing >50% of Mpumalanga's water.

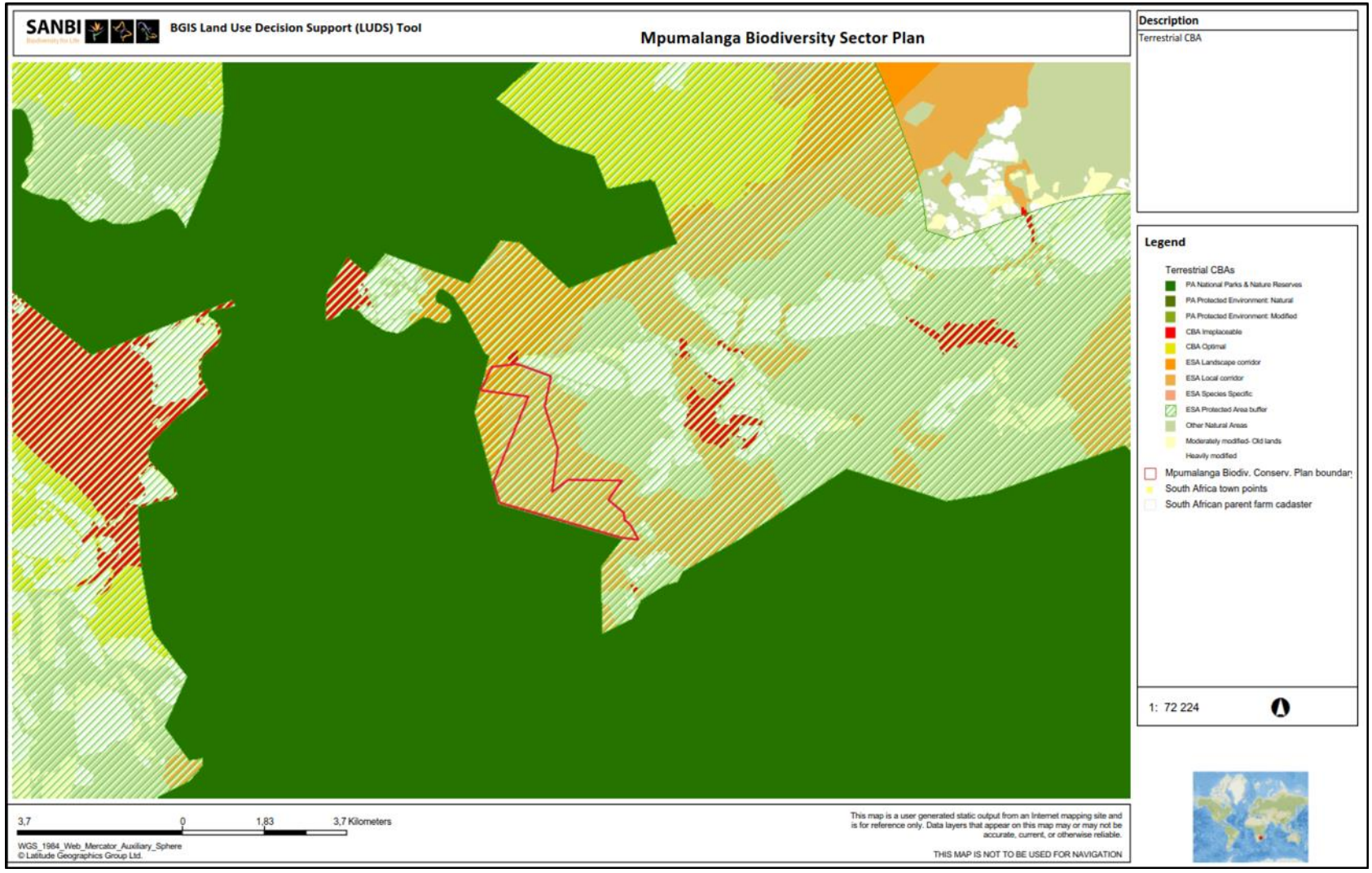
j) Other natural areas - Natural areas which are not identified as CBAs or ESAs but which provide a range of ecosystem services from their ecological infrastructure.

k) Heavily Modified - Transformed areas, where biodiversity and ecological function have been lost to the point that they are not worth considering for conservation at all.

l) Moderately Modified / old lands - Areas which were modified within the last 80 years but now abandoned, including old mines and old cultivated lands.

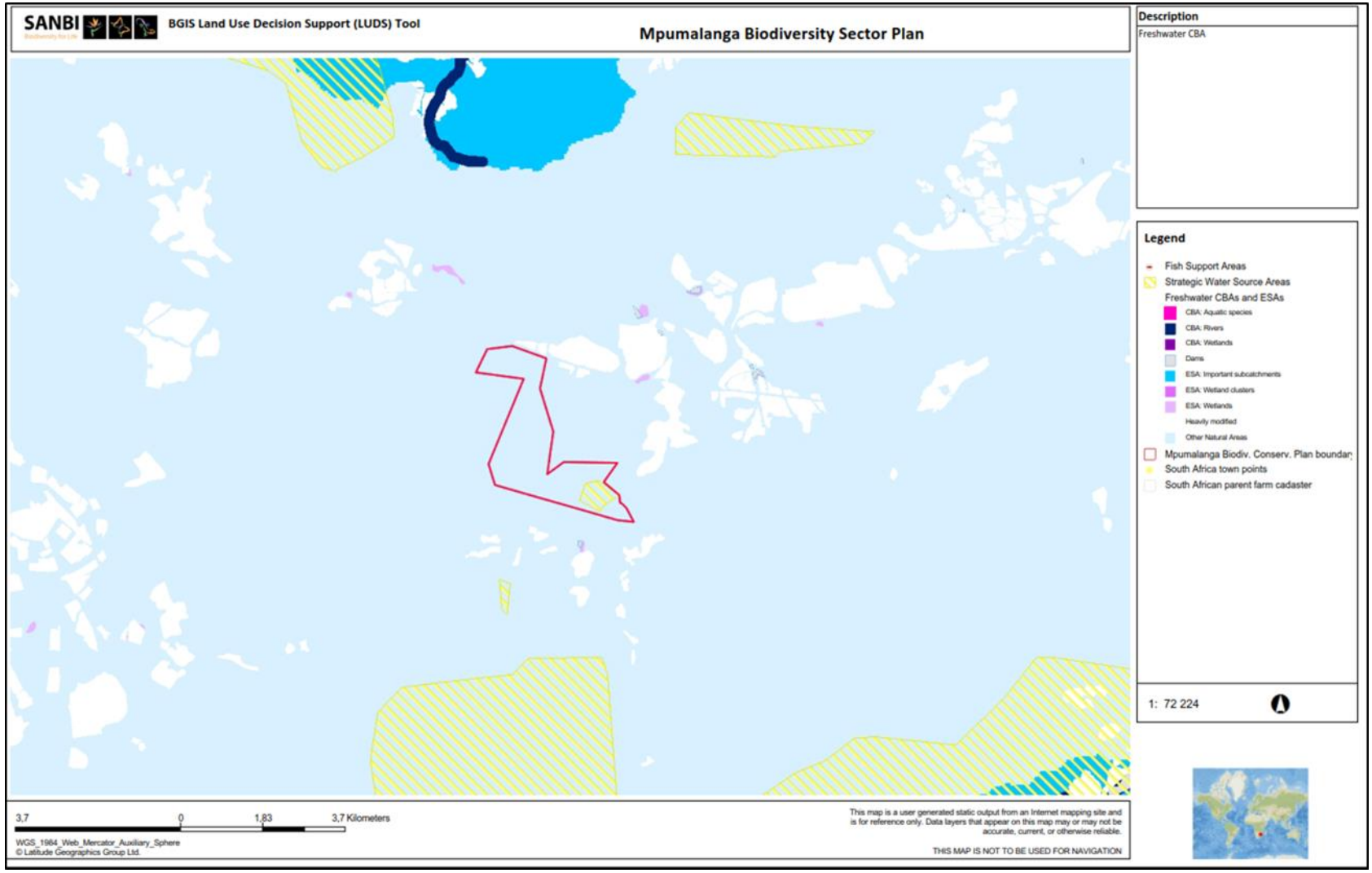
The map below presents the location of the proposed prospecting area relative to these biodiversity conservation areas.

Figure 8-24: Mpumalanga Biodiversity Sector Plan – Terrestrial CBA and ESA



Source: Sanbi.BGIS/MBSP, 2014

Figure 8-25: Mpumalanga Biodiversity Sector Plan – Freshwater CBA and ESA



Source: Sanbi.BGIS/MBSP, 2014

The PR application area falls within ESA Local corridor; ESA Protected areas buffer, ESA Strategic water Source areas and Other natural areas.

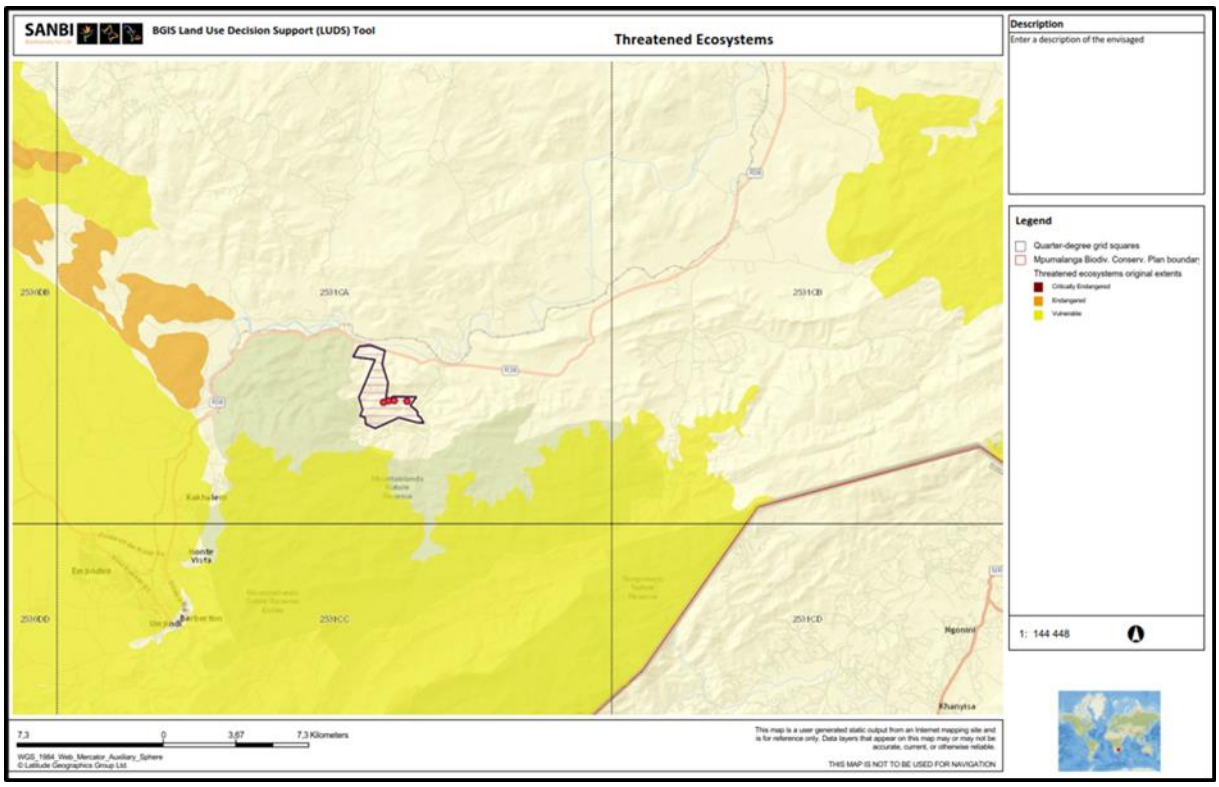
8.13 SENSITIVE ENVIRONMENTS

8.13.1 Ecosystem Status

The National Department of Environmental Affairs (DEA) has published a list of threatened terrestrial ecosystems (DEA, 2011), which classifies all threatened or protected ecosystems in South Africa in terms of four categories: Critically Endangered (CR), Endangered (EN), Vulnerable (VU), or Protected. The purpose of categorising these ecosystems was to prioritise conservation areas, to reduce the rates of ecosystem and species extinction, as well as to prevent further degradation and loss of structure, function and composition of these ecosystems (www.bgis.sanbi.org)

The PR application area is not located within a threatened ecosystem.

Figure 8-26: Location of PR application area in relation to threatened ecosystems



Source: www.bgis.sanbi.org

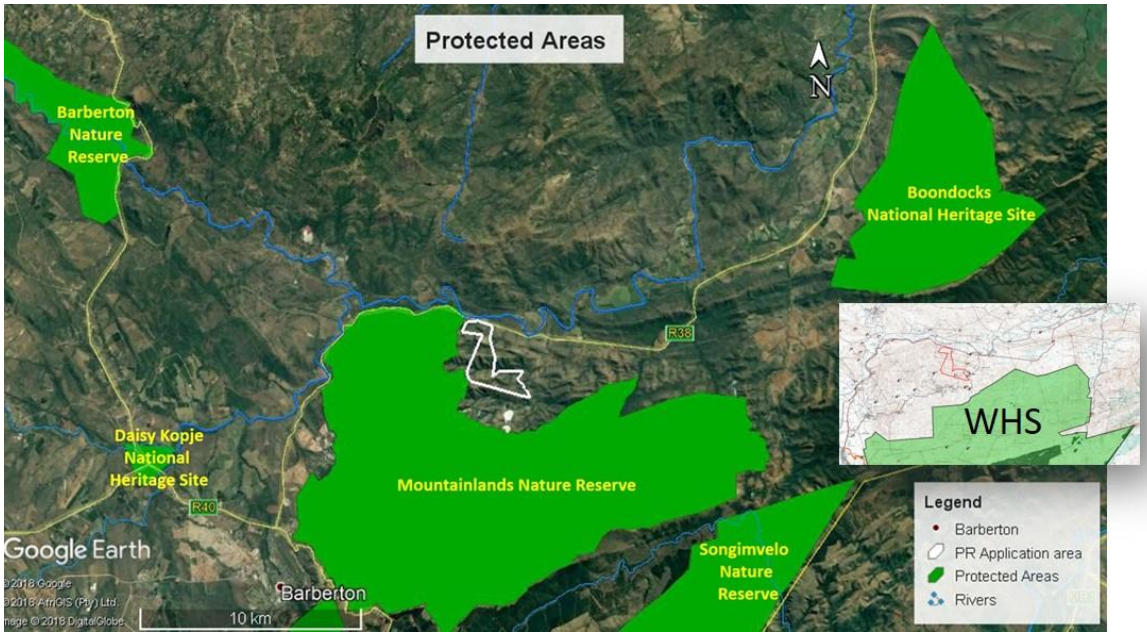
8.13.2 Protected Areas

There is a total of 117 protected areas in Mpumalanga, accounting for some 1 591 418 ha of land that is under formal protection.

The PR application area is located next to the Mountainlands Nature Reserve.

In 2006 an effort to declare all the proclaimed Nature Reserves in the Barberton/Makhonjwa Mountain (BMM) Land region by UNESCO, as a potential World Heritage Site (WHS) on the South African Tentative List was initiated. The Barberton Makhonjwa Mountain Land was recognised by geologists for its World Heritage potential about ten (10) years ago. It was confirmed on South Africa's World Heritage Tentative List by UNESCO in June 2008 and declared as a WHS on 2 July 2018 (UNESCO, 2018). A large portion of the Mountainlands Nature Reserve is included in the BMM WHS. The PR application does not fall within the BMM WHS as can be seen in the insertion in the figure below which shows the location of the PR application area in relation with the WHS northern boundary.

Figure 8-27: Location of PR application area in relation to Protected Areas



Source: www.bgis.sanbi.org/Protected Areas Layer

8.13.3 Mining and Biodiversity Guideline, 4 October 2012

The Mining and Biodiversity Guideline & associated maps were developed to facilitate the sustainable development of South Africa's mineral resources in a way that enables regulators, industry and practitioners to minimise the impact of mining on the country's

biodiversity and ecosystem services. The document was approved by MINMEC on 4 October 2012 and was formally launched in 2013.

The Guideline provides the mining sector with a practical, user-friendly manual for integrating biodiversity considerations into the planning processes and managing biodiversity during the operational phases of a mine, from exploration through to closure. The Guideline provides explicit direction in terms of where mining-related impacts are legally prohibited, where biodiversity priority areas may present high risks for mining projects, and where biodiversity may limit the potential for mining (Department of Environmental Affairs, Department of Mineral Resources, Chamber of Mines, South African Mining and Biodiversity Forum, and South African National Biodiversity Institute, 2013).

The Guideline distinguishes between four categories of biodiversity priority areas in relation to the importance from a biodiversity and ecosystem service point of view as well as the implications for mining. It gives direction on how to avoid, minimise or remedy mining impacts, as part of a thorough environmental impact assessment and robust environmental management programme. The mitigation of negative impacts on biodiversity and ecosystem services is a legal requirement and should take on different forms depending on the significance of the impact and the area being affected. Mitigation requires proactive planning that is enabled by following the mitigation hierarchy. Its application is intended to avoid disturbance of ecosystems and loss of biodiversity, and where they cannot be avoided altogether, to minimise, rehabilitate or offset negative impacts on biodiversity (Department of Environmental Affairs *et.al.,* 2013)

The map below indicates the classification of the PR application area in accordance with the Mining and Biodiversity Guideline. The map also indicates active and abandoned mines in the area. The largest portion of the PR application area falls within an area classified as being of highest biodiversity importance (see Figure 8-25).

In terms of the guidelines areas with highest biodiversity importance are:

a) Critically endangered and endangered ecosystems;

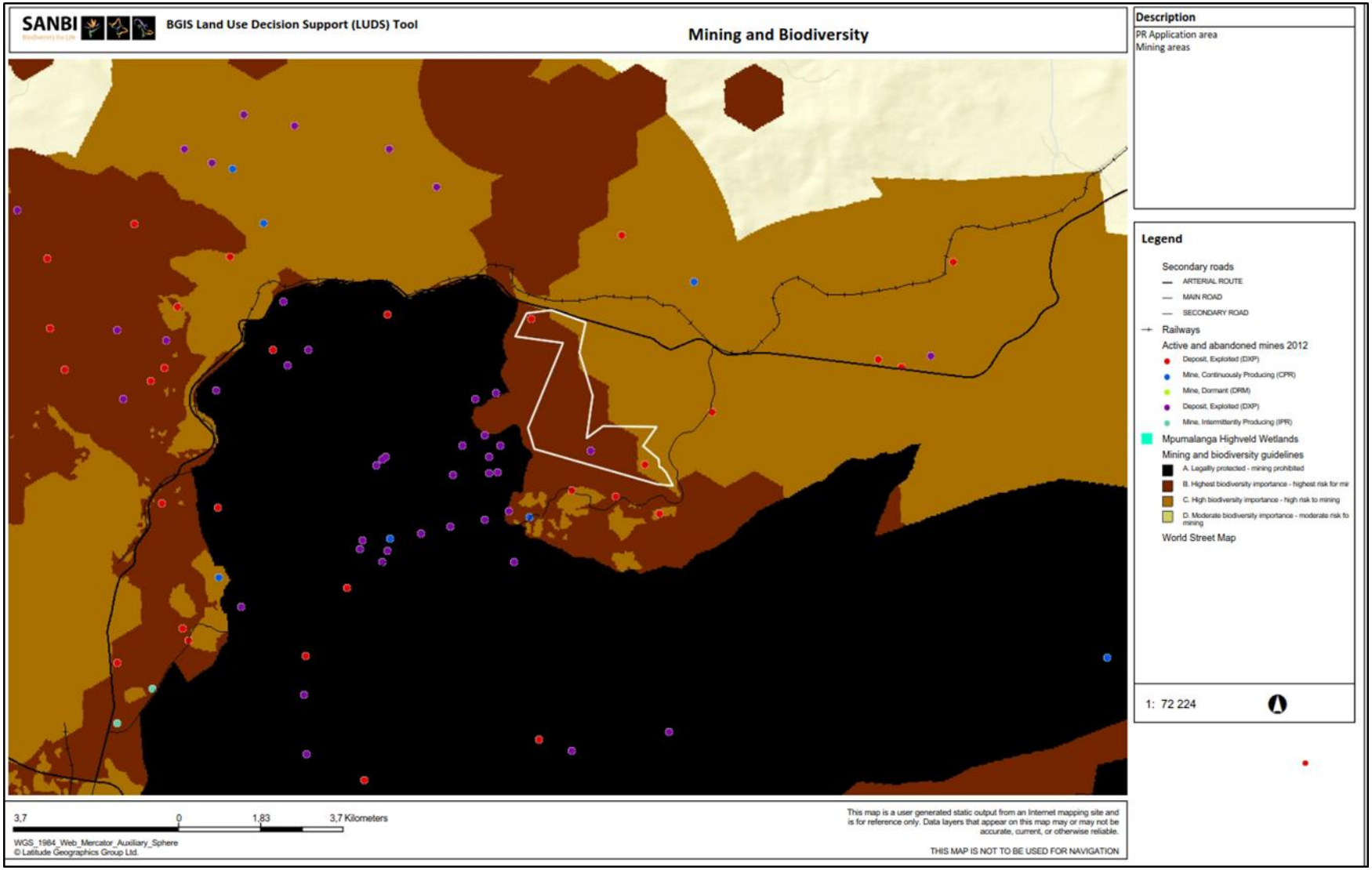
b) Critical Biodiversity Areas (or equivalent areas) from provincial spatial biodiversity plans;

c) River and wetland Freshwater Ecosystem Priority Areas (FEPAs), and a 1km buffer around these FEPAs; and

d) Ramsar Sites.

It should be noted that none of the criteria above applies to the PR application area. The reason for the high classification could be due to the location of the application area next to the formally protected Mountainland Nature Reserve. From Figure 8-28 it is clear that the area has lots of mineral deposits that are currently being mined or that were exploited previously.

Figure 8-28: Mining Biodiversity Guideline Map



Source: Mining Biodiversity Guideline 2013; SANBI BGIS

8.14 SOCIO-ECONOMIC ENVIRONMENT

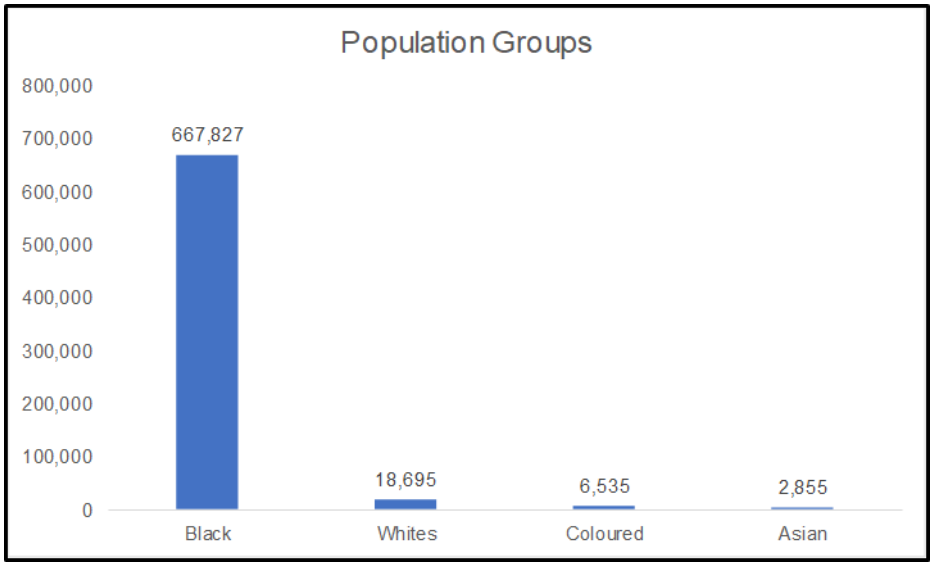
The application area for the prospecting right is located on Ward 43 of City of Mbombela Municipality in the Ehlanzeni District Municipality of the Mpumalanga Province. In August 2016, the Umjindi Local Municipality merged into the Mbombela Municipality. The farms over which the prospecting area lies, were part of the Umjindi Local Municipality.

The main towns in the municipality include Mbombela, White River, Hazyview and Barberton This application area is closest to the town of Barberton. Barberton is known for the first gold rush in this region.

According to the 2018/2019 Mbombela Integrated Development Plan, the population of City of Mbombela Municipality is 695 913.

The area is predominantly rural with a majority of black people (96%) making up most of the population within the municipality. The graph below indicates the distribution by ethnicity.

Figure 8-29: Populations Groups



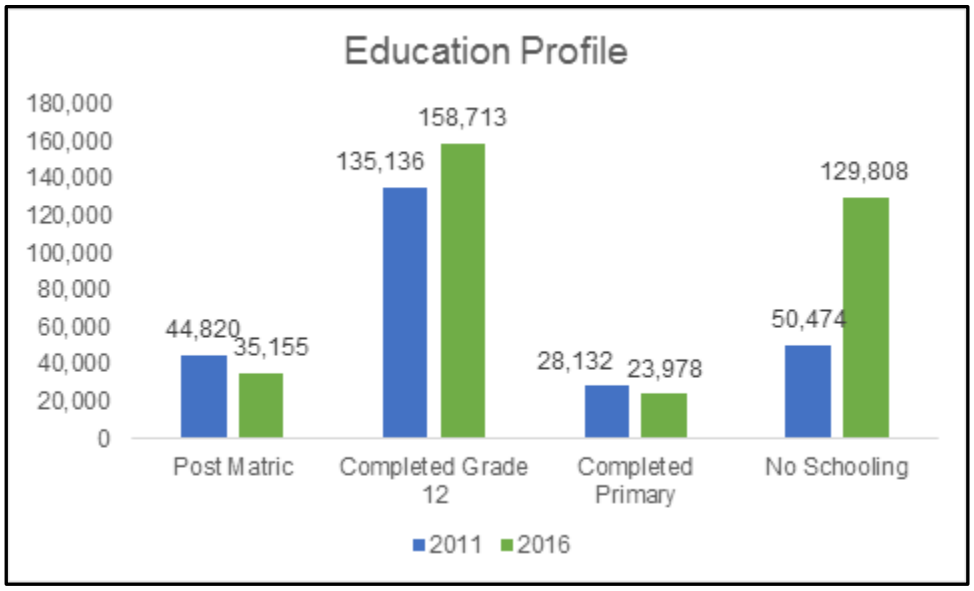
Source: (Mbombela IDP, 2018)

Education is one of the key drivers of community development and economic activities. With the City of Mbombela having 37.6% of its population living in poverty, community development is important. In 2016 129,808 individuals (37%) within the municipality were reported to have no schooling, the majority of the population 46% has completed matric, which is a 17% increase from 2011. The number of individuals not having any

form of schooling also increased quite drastically. The number of people with no schooling showed an increase by 79 334 and a 27.4% decline in the number of people in possession of post matric qualifications.

The graph shows the educational levels of the municipality, the 2011 numbers are a combination of the old Umjindi Local Municipality and Mbombela Local Municipality.

Figure 8-30: Education profile



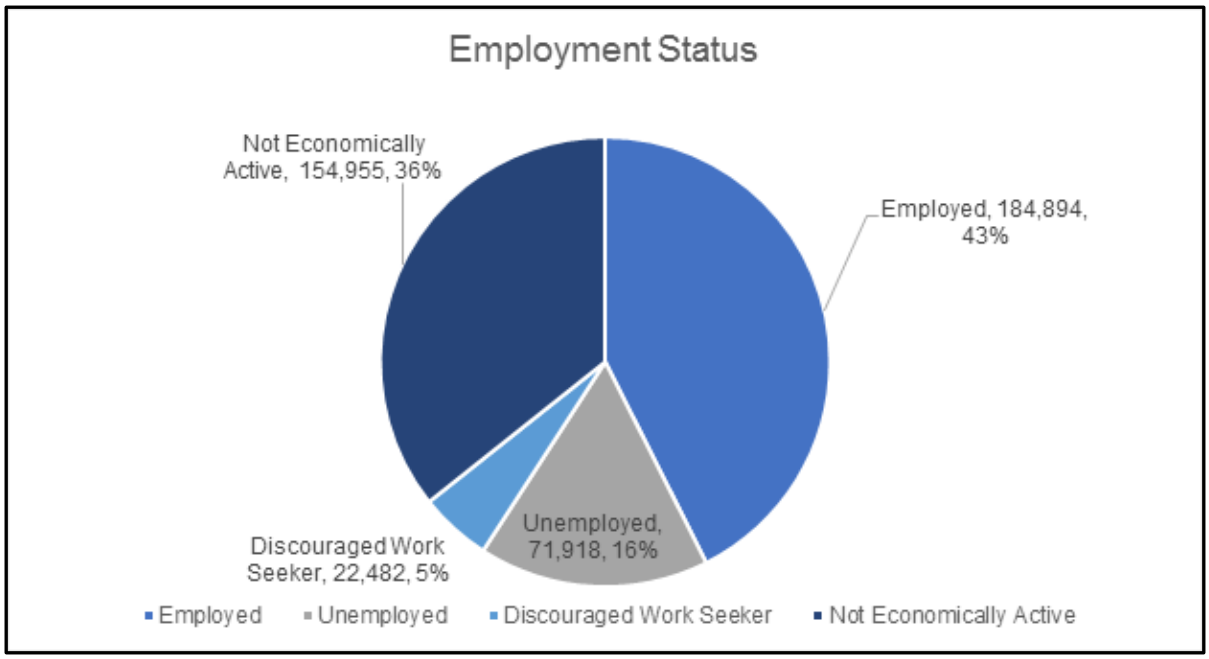
Source: (Mbombela IDP, 2018)

City of Mbombela Municipality has a growing economy, which is expected to grow on average at 2% per annum until 2022. In 2016 the municipality contributed to 23.2% of Mpumalanga's economy. This municipality is the capital of the province and hence attracts investments in the trade, agriculture, tourism and mining sectors. The main contributing sectors to the economy in the City of Mbombela in 2016 was Community services (24.2%), trade (22.2%) and finance (18%).

The combined Mbombela LM and Unjindi LM had an unemployment rate of 16% and an employment rate of 43% in 2011 (StatsSA, 2011).

The graph below depicts the overall employment status of City of Mbombela (combined Mbombela LM and Umjindi LM).

Figure 8-31: Employment status of City of Mbombela

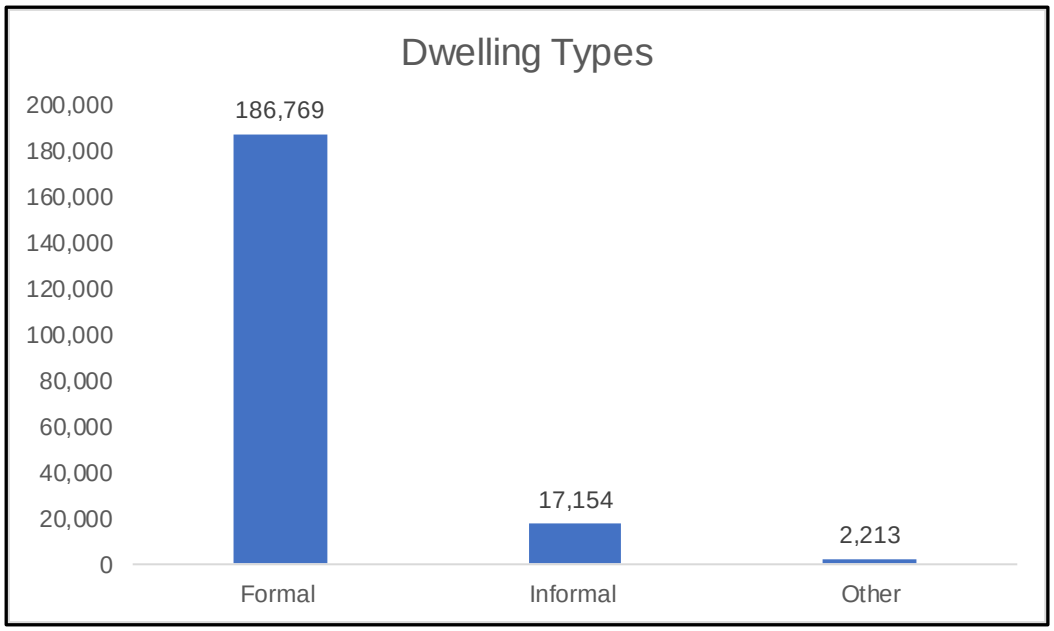


Source: (StatsSA, 2011)

The municipality has 206,136 households in 2016 compared to 181,366 in 2011. The majority of the households are formal dwellings and of which 66% have access to piped water and 92.2% with an electrical connection. However, there is still an increase in the number of informal dwellings within the 2011 to 2016 period. The Municipality, in partnership with Provincial Department of Human Settlements is in a process of establishing new settlements and formalising the informal settlements (Mbombela IDP, 2018).

A graph of the various dwelling types in ILLM is depicted below (StatsSA, 2011).

Figure 8-32: Dwelling types

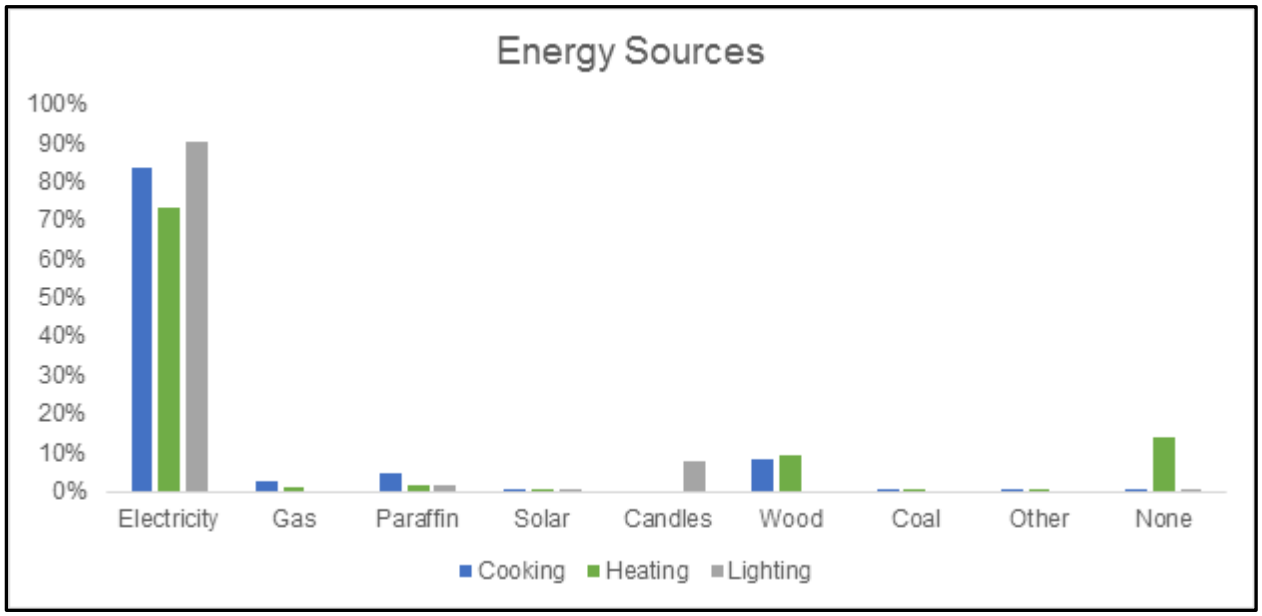


Source: (Mbombela IDP, 2018)

Most South African households use a mix of energy sources including electricity, liquid petroleum gas, coal, paraffin, firewood, candles and solar energy (HESASA, 2017) for household uses such as lighting, cooking and heating. The population of City of Mbombela is largely dependent on wood and electricity for energy.

The graph below shows the various energy sources used.

Figure 8-33: Energy sources



Source: (StatsSA, 2011).

8.15 CULTURAL ENVIRONMENT

Heritage studies have been conducted around the area previously. In 2012, the National Cultural Museum conducted an archaeological survey of a section of the Secuda-Mozambique Gas Pipeline, Barberton District. In this study the closest heritage site is 9.9 km north east of the northern boundary of the prospecting area. This site was a single grave.

On 15 June 2018, the South African Heritage Resources Agency declared a few sites in the Barberton Makhonjwa Mountains as National Heritage sites (GN 585 of 15 June 2018). The closest of these sites is 11 km southwest of the southern boundary of the prospecting right area.

8.15.1 Barberton Geo-heritage sites

The rocks of the Barberton Mountain Range are some of the oldest rocks in the world, around 3.6Ga (Billion years ago). These volcanic and sedimentary are well preserved providing evidence of early life forms, meteorite impacts and geological structures from volcanic eruptions and the sedimentary formations. This mountain land is home to the type locality of komatiites, which is exposed in the pillow basalts.

(b) Description of the current land uses.

8.16 LAND USE

The land use in the area is characterised by natural or undeveloped areas which have been partially transformed and degraded as a result of rural settlement and agricultural activities in the form of livestock grazing, subsistence and commercial farming and mining activities.

The farms are situated at about 13 km northeast of town of Barberton and on the northern edge of the Mountainlands Nature Reserve, in the Mpumalanga Province. The settlement of Sheba is approximately 1km south east of the proposed prospecting area.

Ehlanzeni District is characterized by a sub- tropical climate, which makes it an ideally suited region for the cultivation of subtropical, citrus and deciduous fruits. The areas of Mbombela, White River, Barberton and Bushbuckridge form the second largest citrus producing area in the country. The Barberton area is the largest irrigable area, which produces citrus, cotton, tobacco, wheat and vegetables. (IDP, 2017)

The five mines operating in the Barberton area are: Agnes, Fairview, Consort, Makonjwaan Imperial open-cast and Sheba. The sector has contributed in the past decade to between 17- 26% of the Provincial GDP. (IDP, 2017).

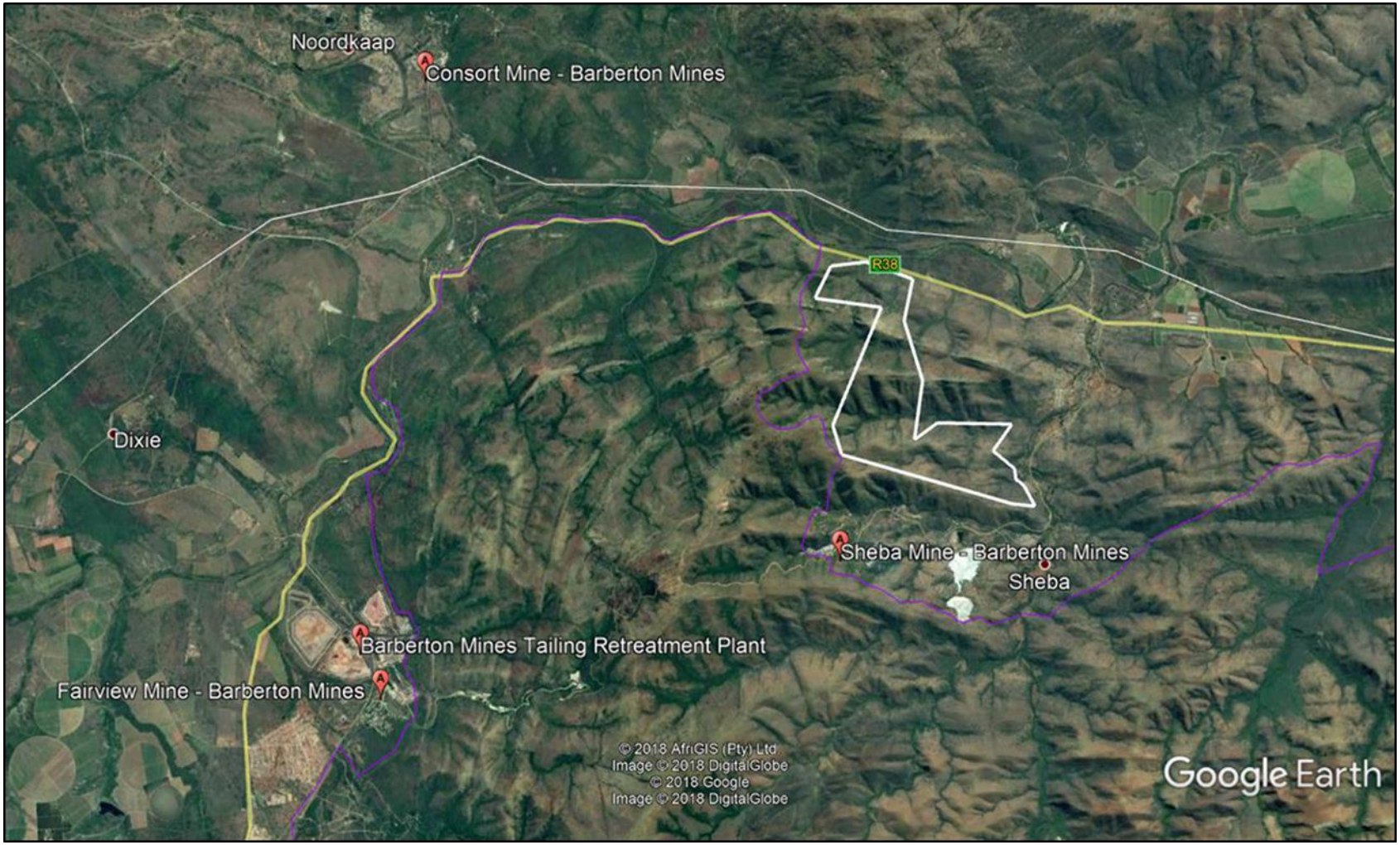
Figure 8-34: Historic verdite quarry

Source: EcoPartners, 2018

The area north of Sheba mine and south of the farm Camelot was provided to communities that occupied state land within the Mountainland Nature Reserve as grazing areas (MTPA, 2012.)

The PR application area is thus currently used for cattle grazing.

Figure 8-35: Land use Map



Source: Google imagery

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

8.16.1 Environmental features

The Barberton Nature Reserve, Phase 3 Implementation Management Plan describes the topography of the area as a variation between low lying bushveld, high mountains scenic valleys and rolling grassland. The topography in the proposed application area can be described as a mountainous area.

Ehlanzeni District is also rich in terms of its biodiversity and mineral resources. Gold mines are operating at Barberton and Pilgrims Rest and chrome mines at Lydenburg. (IDP, 2017)

The perennial Kaap River is located approximately 150 m away from the northern boundary of the prospecting application area. The Kaap River falls in an upstream Freshwater Ecosystem Priority Area (FEPA) management area. A number of non-perennial water courses are present on the PR application area.

According to the National FEPA Wetlands Geographical Information System (GIS) layer (2011) on the South African National Biodiversity Institute GIS website no wetlands can be found on the application area.

The proposed prospecting area falls within the Inkomati Catchment and the Inkomati-Usuthu Water Management Area (WMA).

The prospecting right application area is located in a transitional zone between the grassland and savannah biomes (Mucina and Rutherford, 2006). The largest area falls in the savannah biome.

The largest portion of the of the PR application area falls within the Kaalrug Mountain Bushveld vegetation unit. The vegetation type is considered "Least Threatened". The target for conservation is set at 24%. Some 16% of this vegetation type enjoy statutorily protection, almost all in Mountainlands Nature Reserve which is located to the east and south of the application area.

A strategic water source area has been identified on a portion of the PR application area. None of the drill holes will affect the Strategic Water source area located within the PR application area.

8.16.2 Infrastructure

Infrastructure on the prospecting application area is limited to dirt access roads.

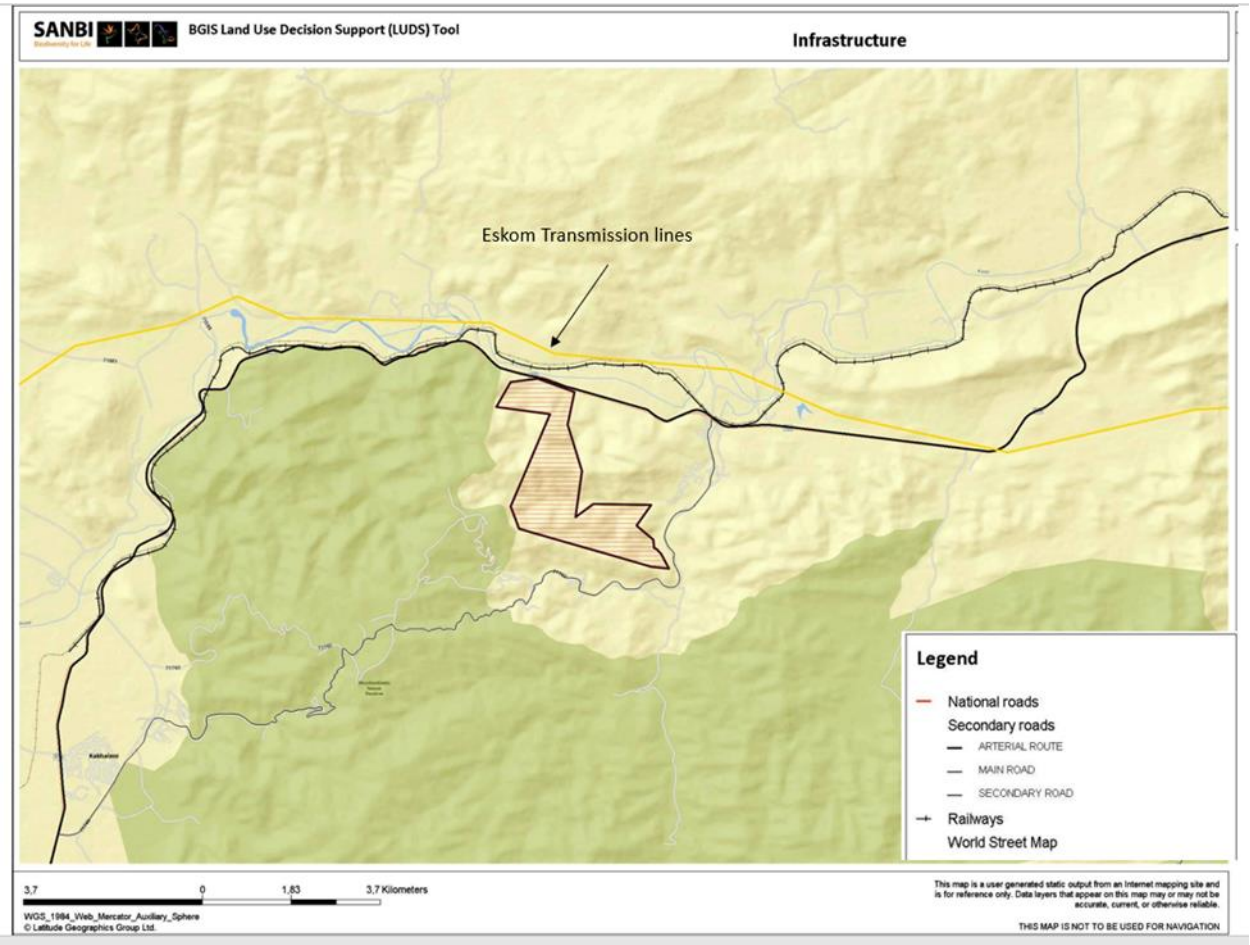
Infrastructure in the surrounding area include roads, formal and informal housing and farming activities.

The formal conservation area, Mountainlands Nature Reserve, is located west and south west of the proposed prospecting area.

Agricultural activities are located east and mining activities are located south of the PR application area.

An Eskom power line is located north of the proposed prospecting area close to main road (R38) and the railway line, see Figure 8-36 below.

Figure 8-36: Infrastructure map

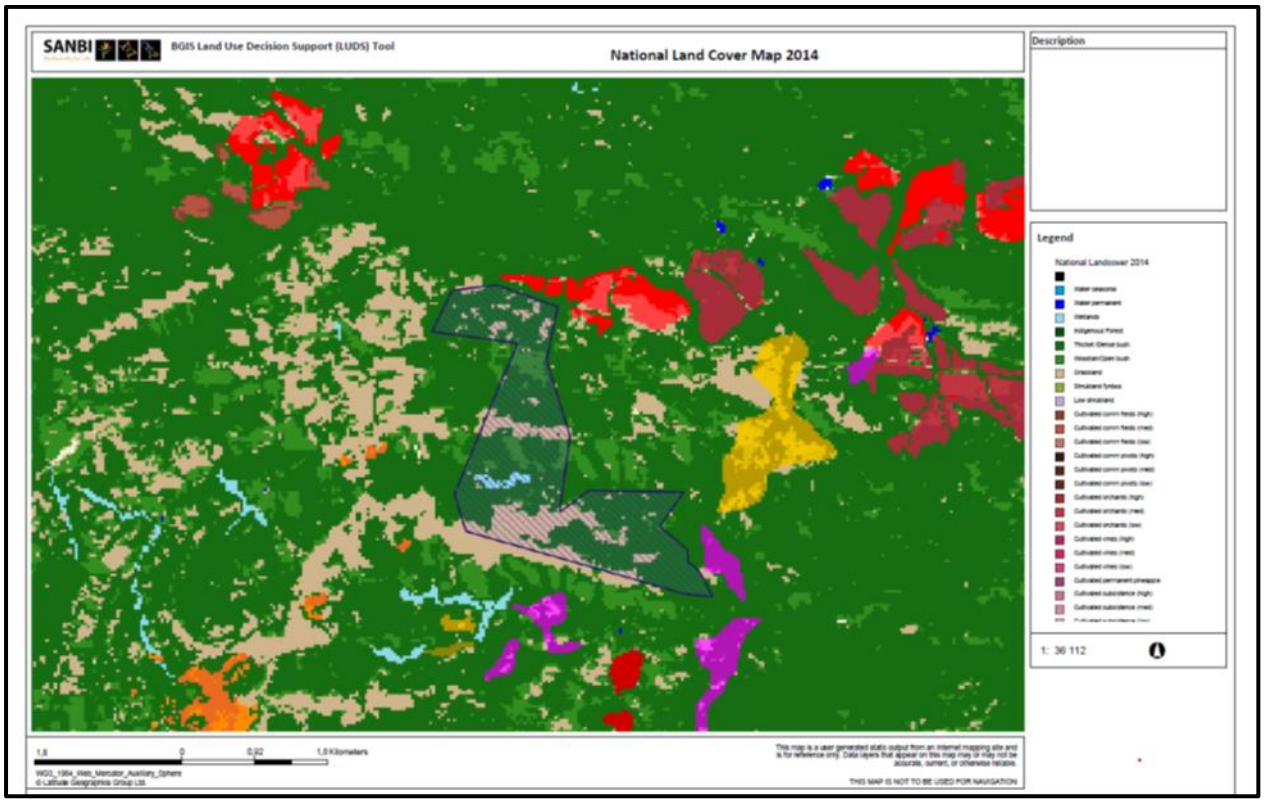


Source: World Street Map

(640)	**Environmental and current land use map.**
(Show all environmental, and current land use features)	

The land use in the area is characterized by natural or undeveloped areas which have been partially transformed and degraded as a result of rural settlement and agricultural activities in the form of livestock grazing, and subsistence farming. The land parcels are fairly undeveloped.

Figure 8-37: National Land Cover Map



Source: SANBI BGIS, National Landcover, 2014

In terms of the National Land Cover Map, 2014 (SANBI, BGIS) the area consists mostly of thicket or dense bush, open bush and some small grassland areas. There is also a small wetland area indicated but this area has not been identified in terms of the Mpumalanga Province Biodiversity and National FEPA maps, see Section 8.6. There are a number of non-perennial drainage lines bisecting the area, which contains water for short periods after rains (Section 8.6) which has been indicated as wetland area in terms of the National Land Cover Map.

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

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

9 IMPACT ASSESSMENT

The impact Assessment is presented in the table below. The assessment provides the impact rating without consideration of any mitigation measures.

Table 9-1: Impact Assessment Table

RE = Receiving Environment; SC – Spatial Extent; D = Duration; C = Consequence
OA = Occurrence of Activity; CI = Certainty of Impact, L = Likelihood

ACTIVITIES	PHASE	POTENTIAL IMPACT	RE	SC	D	C	OA	CI	L	IMPACT
Prospecting - access road Vegetation clearance	Construction	Removal of / damage to natural vegetation	3	1	3	9	5	5	25	225
Access road construction erosion	Construction	Erosion loss of topsoil	3	1	3	9	5	4	20	180
Access road impacts on fauna	Construction and Operational	Impact on Fauna during construction of access road	3	2	3	18	5	3	15	270
Vegetation clearance & cutting of vegetation at drill sites	Operational	Removal of / damage to natural vegetation	3	1	3	9	5	5	25	225
Vegetation clearance & cutting of vegetation at drill sites	Operational	The stripping of soil if needed, incorrect stockpiling, erosion and storm water run-off can lead to the loss of topsoil	3	1	3	9	5	3	15	135
Vegetation clearance & cutting of vegetation at drill sites	Operational	Changes to the shape or form of the land	3	1	3	9	5	1	5	45
Vegetation clearance & cutting of vegetation at drill sites	Operational	Impact on current land use	3	1	3	9	5	1	5	45
Vegetation clearance, Site establishment, Drilling activities & movement of people and equipment on site	Operational	Destruction of cultural heritage sites and artefacts	3	1	3	9	5	4	20	180

ACTIVITIES	PHASE	POTENTIAL IMPACT	RE	SC	D	C	OA	CI	L	IMPACT
Vegetation clearance, Site establishment, Drilling activities & movement of people and equipment on site	Operational	Destruction of geosites	3	1	3	9	5	2	10	90
Vegetation clearance & cutting of vegetation at drill sites	Operational	Damage to highest biodiversity areas (mining guidelines)	4	1	3	12	5	2	10	120
Vegetation clearance & cutting of vegetation at drill sites	Operational	Damage to sensitive areas & species	4	1	3	12	5	2	10	120
Vegetation clearance for & cutting of vegetation at drill sites	Operational	Air Quality Impact (Dust)	3	2	1	6	5	3	15	90
Vegetation clearance & cutting of vegetation at drill sites	Operational	Disturbance of commercial & community activities on site	3	2	3	18	5	3	15	270
Vegetation clearance & cutting of vegetation at drill sites	Operational	Storm water run-off from cleared areas could lead to erosion	3	2	3	18	5	3	15	270
Workers & material on site	Operational	Contamination of soils through spills from sanitation facilities & litter	3	2	3	18	5	4	20	360
Workers & material on site	Operational	Poaching / Killing of snakes & animals	3	2	3	18	5	4	20	360
Workers & material on site	Operational	Fire	3	3	3	27	5	3	15	405
Workers & material on site	Operational	Collection of fire wood,	3	2	3	18	5	4	20	360

ACTIVITIES	PHASE	POTENTIAL IMPACT	RE	SC	D	C	OA	CI	L	IMPACT
		damage to property								
Workers & material on site	Operational	Contribution to the economy through employment	3	4	3	36	5	5	25	900 *Positive*
Workers & material on site	Operational	Snake bites	3	1	3	9	5	2	10	90
Workers & material on site	Operational	Spread of HIV/Aids to local community	4	3	3	36	5	3	15	540
Use of heavy machinery & vehicles on site for drilling or activities	Operational	Resource consumption (diesel - non-renewable resource)	3	3	3	27	5	3	15	405
Use of heavy machinery & vehicles on site for drilling	Operational	Contamination of soils through hydrocarbon leaks and spills from machinery & equipment	3	1	2	6	5	2	10	60
Use of heavy machinery & vehicles on site for drilling	Operational	Use of water for drilling activities	4	3	3	36	5	2	10	360
Use of heavy machinery & vehicles on site for drilling	Operational	Compromising strategic water resource areas	4	3	3	36	5	2	10	360
Use of heavy machinery & vehicles on site for drilling	Operational	Contamination of groundwater through hydrocarbon leaks and spills from machinery & equipment	4	2	3	24	5	4	20	480
Use of heavy machinery & vehicles on site for drilling	Operational	Contamination of water courses through hydrocarbon leaks and spills from machinery & equipment	3	3	3	27	5	3	15	405

ACTIVITIES	PHASE	POTENTIAL IMPACT	RE	SC	D	C	OA	CI	L	IMPACT
Use of heavy machinery & vehicles on site for drilling	Operational	Compaction of soils through movement of heavy vehicles and machinery on site	3	1	3	9	5	4	20	180
Use of heavy machinery & vehicles on site for drilling	Operational	Damage to vegetation	3	1	3	9	5	3	15	135
Use of heavy machinery & vehicles on site for drilling	Operational	Damage to highest biodiversity areas (mining guidelines)	4	1	3	12	5	2	10	120
Use of heavy machinery & vehicles on site for drilling	Operational	Damage to fauna and flora	3	2	3	18	5	4	20	360
Use of heavy machinery & vehicles on site for drilling	Operational	Damage to sensitive areas & species	4	1	3	12	5	2	10	120
Use of heavy machinery & vehicles on site for drilling	Operational	Release of gaseous emissions impacting on air quality	4	3	3	36	5	2	10	360
Use of heavy machinery & vehicles on site for drilling	Operational	Air Quality Impact (Dust)	3	3	3	27	5	4	20	540
Use of heavy machinery & vehicles on site for drilling activities	Operational	Increase in ambient noise levels	3	3	3	27	5	4	20	540
Use of heavy machinery & vehicles on site for drilling	Operational	Visual intrusion	3	3	3	27	5	4	20	540
Use of heavy machinery & vehicles on site for drilling	Operational	Disturbance of fauna species in the vicinity	3	2	3	18	5	4	20	360

ACTIVITIES	PHASE	POTENTIAL IMPACT	RE	SC	D	C	OA	CI	L	IMPACT
Use of heavy machinery & vehicles on site for drilling	Operational	Proliferation of invasive plant species	3	2	3	18	5	3	15	270
Prospecting / Drilling activities	Operational	Quantification of mineral resource (Au, Ag & Aggregate)	3	4	3	36	5	4	20	720 *Positive*
Closure										
Concurrent rehabilitation	Closure	Reducing soil compaction of disturbed area and access roads to improve drainage and control erosion	3	1	3	9	5	4	20	180 *Positive*
Concurrent rehabilitation	Closure	Use stockpiled top soil to close sumps	3	1	3	9	5	5	25	225 *Positive*
Close drill hole	Closure	Restoration of land use and land capability	3	1	3	9	5	4	20	180 *Positive*
Rehabilitation of temporary access road	Closure	Reducing soil compaction of disturbed area and access roads to improve drainage and control erosion	4	2	3	24	5	1	5	120 *Positive*

9.1 Potential Cumulative Impacts

Cumulative impacts are impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities (Department of Environmental Affairs and Tourism, June 2006). Impacts may aggregate and interact in the following ways:

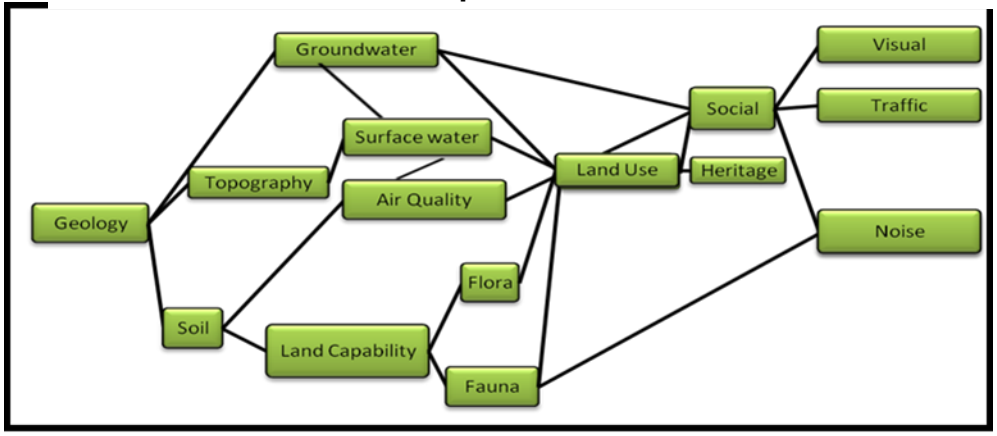
(a) Spatial Impacts – impacts occur over an area. Spatial impacts may vary in both extent and intensity.

(b) Temporal Impacts – impacts that vary over time.

(c) Linked Impacts – involves more complex interaction, such as where one impact triggers another.

The figure below gives a presentation of linked impacts depicting integrated and interrelated environmental factors

Figure 9-1: Integrated and Interrelated Environmental Factors that leads to cumulative impacts



Source: Diagram developed by JC Baartjes

The only activity currently occurring on the PR application area is cattle grazing. Based on an assessment of the above types of cumulative impacts, potential cumulative impacts will be limited to the impact on the community cattle grazing and additional pressure on the vegetation. The area proposed for the prospecting activity is for the most part undeveloped.

Table 9-2: Potential Cumulative Impacts

ACTIVITY	ASPECT	IMPACT
Vegetation clearance & Site establishment	Establishment of drilling site and access road	Disturbance of community activities on site
Workers & material on site	Accidental fires	Disturbance of community activities on site
Drilling Activities	Noise	Disturbance of community activities on site

9.2 IMPACT ASSESSMENT METHODOLOGY

vi) Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;
(Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which the initial site layout needs revision).

The environmental impact assessment procedure assesses the significance of the impacts of the activity identified against the following criteria:

Consequence X Likelihood = Impact

Consequence: The factor of the Receiving Environment x Spatial Scale x Duration = the Consequence

Likelihood: The factor of the Occurrence of Activity x Certainty of Impact = the Likelihood

The following categories will be used to provide a value to each of the factors in the calculation:

Table 9-3: Impact Rating Methodology

CONSEQUENCE: Table 1, Table 2 and Table 3		
Parameter	*TABLE 1 – RECEIVING ENVIRONMENT*	
	How severe does the activity impact on the Environment?	
No Conservation Value	Disturbance of degraded areas, which have little conservation value. Minor change in species occurrence or variety. (Low)	1
Brownfields / Previously Disturbed	Historically disturbed area or brownfields area. Deep water tables (>30m). Plentiful and available renewable resources.	2
Conservation Value (ESA)	Disturbance of areas that have potential conservation value or are of use as resources. Complete change in species occurrence or variety. (Medium)	3
Sensitive Ecological Area (CBA)	Sensitive. Threatened, protected and or endangered areas not in immediate proximity, but not far away. Close proximity of large water courses (within 1: 50 year flood line), very shallow water tables (<1m). Limited non-renewable resources.	4
Ecological Pristine Area (or Protected)	Disturbance of pristine areas that have important conservation value. Destruction of rare or endangered species (High)	5
	TABLE 2 – SPATIAL SCALE	
	How big is the area that the activity is impacting on?	
Immediate Area	Immediate Area	1
On-site	Only the site controlled by the organisation is affected. Within Site Boundary.	2
Local	Beyond site boundary. Local area. Neighbours and surrounding properties are affected.	3
Regional	Local/Regional. Impact of the substance is noticeable in the surrounding community or municipal region.	4
National / Global	Widespread. Far beyond site boundary. National to global	5
	TABLE 3 – DURATION	
	How long does the activity impact on the Environment?	

Few days	< Few days, no measurable sign of pollutant or its effects. Within one day there is no observable or detectable sign of the pollutant. The substance is no longer impacting on the environment.	1
Short-term	Up to 1 month. Substance has dissipated or disappeared within a month of release. Minimal loss of resource, species, habitat.	2
Medium-term	Quickly reversible. Less than the project lifespan. Short term (0 – 5 years).	3
Long-term	Reversible over time. Lifespan of the project. Medium term (5 – 15 years).	4
Permanent	Permanent. Beyond decommissioning. Long term (More than 15 years).	5
LIKELIHOOD: Table 4 and Table 5		
	TABLE 4 – OCCURRENCE OF ACTIVITY	
	What is the probability for the activity to occur?	
Negligible	Negligible. Less than 10%	1
Occasionally	Occasionally. 10%-30%	2
Medium Likelihood	Medium Likelihood. 30% - 50%	3
High Likelihood	High Likelihood Greater than 50% - 75%	4
Definite	>75% - 100% chance of occurring	5
	TABLE 5 – CERTAINTY OF IMPACT	
	How often does the activity impact on the environment?	
Uncertain	Unsure. Less than 10% sure of a particular fact or the likelihood of an impact occurring. Rare (could happen but unlikely)	1
Possible	Possible. 10-30% sure of a particular fact or of the likelihood of an impact occurring. Unlikely (has occurred somewhere	2
Probable	Probable. Over 30%-50% sure of a particular fact of the likelihood of that impact occurring. Likely (known to occur)	3
Certain	High Likelihood Greater than 50% - 75% sure of a particular fact of the likelihood of that impact occurring	4
Definite	Definite. 75%-100% sure of a particular fact. Substantial supportive data exist to verify the assessment. Inevitable (Expected to happen often)	5
CALCULATIONS		
Table 1 X Table 2 X Table 3 = Consequence		
Table 4 X Table 5 = Likelihood		
Consequence X Likelihood = Impact		
IMPACT SIGNIFICANCE		
How acceptable is the impact?		*Impact Significance Rating*
Low (Acceptable). Low risk to public health; environment.		<72
Medium (Manageable). With regulatory controls. With project proponent's commitments.		72-639
High (Unacceptable). Redesign project to remove or avoid impact.		640-3125
Positive Impact		

The rating methodology will be done twice: - once without consideration of mitigation measures and thereafter with consideration of mitigation measures. This is done to demine the mitigatory potential of the impact.

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

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

Positive impacts associated with the proposed prospecting obtained the highest significance rating:

(a) Quantification of mineral resource (Au, Ag & Aggregate)

(b) Employment contributing to the economy

(c) Rehabilitation

Negative impacts associated with the proposed prospecting:

(d) Removal / damage of natural vegetation

(e) Generation of dust

(f) Loss of soil resources

(g) Increase in erosion due to vegetation clearance & compaction

(h) Use of vehicles on site – compaction

(i) Possible destruction of cultural heritage sites and artifacts

(j) Contamination of soils

(k) Litter

9.3 MITIGATION MEASURES

	viii) The possible mitigation measures that could be applied and the level of risk. (With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/ discussion of the mitigations or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered).

Mitigation measures were identified for all possible impacts even though no impact was of high significance. Mitigation measures gives an indication to what degree these impacts can be reversed.

Table 9-4: Impact and Mitigation Table

ACTIVITIES	POTENTIAL IMPACT	MITIGATION MEASURES
Prospecting - access road Vegetation clearance	Removal of / damage to natural vegetation	1) Drill holes and access road(s) will be located in areas that will result in the least soil disturbance. 1a) Avoid steep slopes 1b) Make as far as possible use of existing roads 2) The relevant occupant and owner will be consulted prior to the development of the access road to ensure that consensus is reached on the manner and the placement and how it will be

ACTIVITIES	POTENTIAL IMPACT	MITIGATION MEASURES
		rehabilitated at the end of the drilling programme. 3) Vegetation clearance will be limited to 0.15 ha for the access road(s). 4) If the clearing of vegetation can be avoided it will, vegetation will rather be cut than cleared.
Access road construction erosion	Erosion loss of topsoil	1) Drill holes and access road(s) will be located in areas that will result in the least soil disturbance. 1a) Avoid steep slopes 1b) Make as far as possible use of existing roads 2) The relevant occupant and owner will be consulted prior to the development of the access road to ensure that consensus is reached on the manner and the placement and how it will be rehabilitated at the end of the drilling programme. 3) Vegetation clearance will be limited to 0.15 ha for the access road(s). 4) If the clearing of vegetation can be avoided it will, vegetation will rather be cut than cleared.
Access road impacts on fauna	Impact on Fauna during construction of access road	1) Hunting / poaching will not be allowed. 2) Employees will be receiving faunal protection awareness training. 3) All employees will be present at the construction sites with appropriate supervision.
Vegetation clearance & cutting of vegetation at drill sites	Removal of / damage to natural vegetation	1) Drill holes will be connected with access road(s) as far as possible making use of existing roads 2) The relevant occupant and owner will be consulted prior to the development of the access road to ensure that consensus is reached on the manner and the placement and how it will be rehabilitated at the end of the drilling programme. 3) Vegetation clearance will be limited to 0.01 ha per drill hole (0.04 ha for 4 drill holes).
Vegetation clearance & cutting of vegetation at drill sites	The stripping of soil if needed, incorrect stockpiling, erosion and storm water run-off can lead to the loss of topsoil	1) Topsoil will only be stripped for permanent structures, if stripped it will be stored outside drainage lines or watercourses. 2) Topsoil will be adequately protected from being blown away or being eroded. 3) Drill holes and access tracks will be located in areas that will result in minimal soil disturbance. 4) If the clearing of vegetation can be avoided it will, vegetation will rather be cut than cleared.
Vegetation clearance & cutting of vegetation at drill sites	Changes to the shape or form of the land	It is unlikely that the clearance or cutting of vegetation, for 4 boreholes will change the topography of the area. 1) During the planning phase for each drill hole, specific controls will be identified and implemented, based on site conditions. 2) Only 4 drill holes will be made 3) Drill areas will be rehabilitated concurrently
Vegetation clearance & cutting of vegetation at drill sites	Impact on current land use	1) Land disturbed will be rehabilitated to a stable and permanent form, suitable for subsequent land use.

ACTIVITIES	POTENTIAL IMPACT	MITIGATION MEASURES
		2) Exact location of drill holes and new access routes will be determined through communication with the land owner. 3) If the clearing of vegetation can be avoided it will, vegetation will rather be cut than cleared.
Vegetation clearance, Site establishment, Drilling activities & movement of people and equipment on site	Destruction of cultural heritage sites and artefacts	1) Where drill holes are sited in proximity to any heritage sites and depending on the proximity to the drilling site, appropriate measures such as flagging, pegging or installation of temporary fencing will be undertaken to ensure that the site is not impacted on during prospecting.
Vegetation clearance, Site establishment, Drilling activities & movement of people and equipment on site	Destruction of geosites	1) No geo sites identified on site 2) PR area located next to protected area where similar geosites enjoy formal protection 3) Should a site be identified, appropriate measures such as flagging, pegging or installation of temporary fencing will be undertaken to ensure that the site is not impacted on during prospecting
Vegetation clearance & cutting of vegetation at drill sites	Damage to highest biodiversity areas (mining guidelines)	1) Drill holes are located in Ecological Support Areas and not CBA; FPA or Ramsar Wetlands 2) Drill holes not located on critical endangered or endangered ecosystem 3) Before drilling commences, a field survey will be undertaken by a qualified ecologist that has the capacity to identify wetland vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive areas / species are present in sections to be cleared. 4) If the clearing of vegetation can be avoided it will, vegetation will rather be cut than cleared.
Vegetation clearance & cutting of vegetation at drill sites	Damage to sensitive areas & species	1) Drill holes not located in threatened or endangered ecosystem 2) More than 10% of the Barberton Centre for Endemism is formally protected. 3) PR area located next to protected area where similar potentially sensitive areas & species are formally protected. 4) Part of the PR area was previously transformed by a historic mine 5) Before drilling commences, a field survey will be undertaken by a qualified ecologist that has the capacity to identify wetland vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive areas / species are present in sections to be cleared.
Vegetation clearance for & cutting of vegetation at drill sites	Air Quality Impact (Dust)	1) Dust will be effectively controlled in all areas cleared from vegetation through water spraying or other soil stabilization techniques. 2) If the clearing of vegetation can be avoided it will, vegetation will rather be cut than cleared. 3) The impact on air quality can be reduced by considering alternative soil stabilisation techniques, like, but not limited to, re-vegetating areas.

ACTIVITIES	POTENTIAL IMPACT	MITIGATION MEASURES
		4) Other alternatives for stabilisation include the covering of areas with mulch or alternatively use organic material to cover areas where the vegetation has been cleared.
Vegetation clearance & cutting of vegetation at drill sites	Disturbance of commercial & community activities on site	1) Prospecting activities will be discussed with landowners / occupiers prior to work commencing. 2) Drill holes and access routes not wanted by land owners on completion of prospecting activities will be rehabilitated.
Vegetation clearance & cutting of vegetation at drill sites	Storm water run-off from cleared areas could lead to erosion	1) Controls will be aimed at reducing erosion and sediment washing from drill pads, access roads and other disturbed areas. 2) Sediment and erosion controls will be designed to prevent runoff from the prospecting site. 3) Sediment and erosion controls may include cut-off trenches and drains, culverts for tracks, silt fences, straw.
Workers & material on site	Contamination of soils through spills from sanitation facilities & litter	1) A chemical toilet will be used on site during prospecting and will be used in such a way as to prevent water pollution. The use of a chemical toilet will be undertaken in consultation with the landowner. 2) Full or leaking toilets must be reported to the Supervisor for corrective action or replacement. 3) Prospecting areas will be maintained in a clean and tidy condition at all times. 4) All waste will be collected and stored in properly constructed containers with lids and removed to an approved landfill or another site according to local municipal requirements. 5) Full waste bins must be reported to the Supervisor for collection and disposal at an approved landfill.
Workers & material on site	Poaching / Killing of snakes & animals	1) Hunting / poaching will not be allowed. 2) All employees will be present at the drill sites with appropriate supervision.
Workers & material on site	Fire	1) Vegetation around each drilling site within a 5m radius will be kept short to create a fire management zone. 2) Collection of firewood will not be allowed. 3) Open fires will be prohibited to people involved in prospecting. 4) No burning cigarettes or matches may be thrown down within the prospecting area. A bucket with sand will be provided for the disposal of cigarettes and matches. 5) No smoking will be allowed near gas, paints or fuel storage areas. 6) Suitable welding blankets are to be used when welding or operating grinders and this equipment is to be serviced regularly. 7) Rubbish or vegetation may under no

ACTIVITIES	POTENTIAL IMPACT	MITIGATION MEASURES
		circumstances be burnt. All waste will be removed off site and disposed of at an approved landfill.
Workers & material on site	Collection of fire wood, damage to property	1) Collection of firewood will not be allowed. 2) All employees will be present at the drill sites with appropriate supervision 3) Complaints and outcomes of subsequent investigations will be recorded in a Complaints Register that will be available for inspection. 4) If damage to private property occurs as a result of prospecting activities, such damage will be repaired or owners will be compensated as appropriate.
Workers & material on site	Contribution to the economy through employment	1) Due to the nature of prospecting, employment opportunities will be minimal. The prospecting crew is small (6 people) with specialised skills. Were possible, local people will however be employed during the project. 2) Local people and businesses with appropriate skills will be identified and included in the project tender process. The applicant is committed to employ local people and make use of local businesses during the project, where possible.
Workers & material on site	Snake bites	1) Visual inspections for snakes will be conducted before any work will commence in a specific area. 2) Workers will be instructed to be aware of the possible presence of snakes at all times. 3) Workers will be trained on what emergency actions to take in case of a snake bite.
Workers & material on site	Spread of HIV/Aids to local community	1) Due to the nature of prospecting, a limited number of employees (6 people) will come to site daily to work and then leave for their own accommodation at night. 2) Employees will stay in town 3) Aids awareness talks will be conducted.
Use of heavy machinery & vehicles on site for drilling or activities	Resource consumption (diesel - non-renewable resource)	1) Vehicles and equipment to be serviced regularly and maintained in good working condition
Use of heavy machinery & vehicles on site for drilling	Contamination of soils through hydrocarbon leaks and spills from machinery & equipment	1) All chemicals, fuels and oils to be stored on site will be appropriately bunded. 2) Precautions will be taken to prevent spills and soil contamination (e.g. use of drip trays) 3) Material Safety Data Sheets for the item(s) spilled will be consulted for information concerning clean-up requirements to ensure correct clean-up procedures. 4) Any contaminated soil will be collected into non-permeable bags and disposed of to an approved landfill site or other legal disposal mechanism.

ACTIVITIES	POTENTIAL IMPACT	MITIGATION MEASURES
Use of heavy machinery & vehicles on site for drilling	Use of water for drilling activities	1) Water will be sourced from a local legal source and delivered to site by water tanker. 2) Water collected in sump will be re-used for drilling
Use of heavy machinery & vehicles on site for drilling	Compromising strategic water resource areas	1) No prospecting activities to occur within Strategic water resource areas 2) Water collected in sump will be re-used for drilling 3) Water will be sources from local legal supplier
Use of heavy machinery & vehicles on site for drilling	Contamination of groundwater through hydrocarbon leaks and spills from machinery & equipment	1) Machinery and equipment will be maintained over a drip tray, a thin concrete slab or a PVC lining to prevent soil and water contamination. 2) No vehicle will be extensively repaired on site. 3) Material Safety Data Sheets for the item(s) spilled will be consulted for information concerning clean-up requirements to ensure correct clean-up procedures. 4) Any contaminated soil will be collected into non-permeable bags and disposed of to an approved landfill site or other legal disposal mechanism.
Use of heavy machinery & vehicles on site for drilling	Contamination of water courses through hydrocarbon leaks and spills from machinery & equipment	1) The drilling fluid that will be used during prospecting must be biodegradable and not pose a water pollution threat. 2) Drilling sumps and containment measures will be designed to contain all drilling fluid. 3) Material Safety Data Sheets for the item(s) spilled will be consulted for information concerning clean-up requirements top ensure correct clean-up procedure. 4) Any contaminated soil will be collected into non-permeable bags and disposed of to an approved landfill site or other legal disposal mechanism. 5) Any hydrocarbon contaminated water in sump will be pumped to containers for safe disposal at a registered disposal facility.
Use of heavy machinery & vehicles on site for drilling	Compaction of soils through movement of heavy vehicles and machinery on site	1) Stay on predefined areas and routes. 2) Scarify access roads and stockpile areas to a depth of 500 mm and restore topsoil cover. 3) Re-seed or plant vegetation indigenous to the area.
Use of heavy machinery & vehicles on site for drilling	Damage to vegetation	1) Vehicles will only stay on dedicated roads (turning circles). 2) No movement of heavy machinery outside dedicated routes. 3) All routes and turning circles will be scarified and re-seeded with seeds from vegetation indigenous to the area, if the landowner is not still utilising it.
Use of heavy machinery & vehicles on site for drilling	Damage to highest biodiversity areas	1) Drill holes not located in threatened or endangered ecosystem 2) More than 10% of the Barberton Centre for Endemism is formally protected.

ACTIVITIES	POTENTIAL IMPACT	MITIGATION MEASURES
	(mining guidelines)	3) PR area located next to protected area where similar potentially sensitive areas & species are formally protected. 4) Part of the PR area was previously transformed by a historic mine 5) Before drilling commences, a field survey will be undertaken by a qualified ecologist that has the capacity to identify wetland vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive areas / species are present in sections to be cleared.
Use of heavy machinery & vehicles on site for drilling	Damage to fauna and flora	1) Before drilling commences, a field survey will be undertaken by a qualified ecologist that has the capacity to identify wetland vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive areas / species are present in sections to be cleared. 2) No movement of heavy machinery outside dedicated routes. 3) All routes and turning circles will be scarified and re-seeded with seeds from vegetation indigenous to the area, if the landowner is not still utilising it.
Use of heavy machinery & vehicles on site for drilling	Damage to sensitive areas & species	1) Drill holes not located in threatened or endangered ecosystem 2) More than 10% of the Barberton Centre for Endemism is formally protected. 3) PR area located next to protected area where similar potentially sensitive areas & species are formally protected. 4) Part of the PR area was previously transformed by a historic mine 5) Before drilling commences, a field survey will be undertaken by a qualified ecologist that has the capacity to identify wetland vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive areas / species are present in sections to be cleared.
Use of heavy machinery & vehicles on site for drilling	Release of gaseous emissions impacting on air quality	1) Vehicles and equipment will be maintained in a good working order.
Use of heavy machinery & vehicles on site for drilling	Air Quality Impact (Dust)	1) Speed limits on gravel roads will be 40 km/hr to reduce dust and noise generation. 2) Dust will be effectively controlled in all disturbed areas through water spraying or other soil stabilization techniques. 3) The type and compaction of road building material, can reduce the amount of dust generated.
Use of heavy machinery & vehicles on site for drilling activities	Increase in ambient noise levels	1) Speed limits on gravel roads will be 40 km/hr to reduce dust and noise generation. 2) Prospecting activities will be restricted to day

ACTIVITIES	POTENTIAL IMPACT	MITIGATION MEASURES
		light hours. 3) No sensitive receptors in close proximity
Use of heavy machinery & vehicles on site for drilling	Visual intrusion	1) A maximum of one drill site to be drilled at any one time 2) Concurrent rehabilitation
Use of heavy machinery & vehicles on site for drilling	Disturbance of fauna species in the vicinity	1) Before drilling commences, a field survey will be undertaken by a qualified ecologist that has the capacity to identify wetland vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive areas / species are present in sections to be cleared. 2) No animals will be trapped / killed 3) No bird nests will be disturbed
Use of heavy machinery & vehicles on site for drilling	Proliferation of invasive plant species	1) Machinery will be cleared of dust/mud and seed prior to relocation to the next site to prevent the spread of alien invasive species.
Prospecting / Drilling activities	Quantification of mineral resource (Au, Ag & Aggregate)	1) Quantification will provide information to make decisions on best manner to utilise the resource for the benefit of South Africa
Closure		
Concurrent rehabilitation	Reducing soil compaction of disturbed area and access roads to improve drainage and control erosion	1) Remaining refuse, chemicals, fuels and waste materials will be removed from the site following the completion of the prospecting programme. Such waste will be disposed of to an approved landfill. 2) Erosion and sediment controls as well as the disturbed area will be rehabilitated. 3) An inspection on whether there is evidence of weeds or pest invasion as a result of prospecting activities will be undertaken and appropriate remediation actions will be implemented as required.
Concurrent rehabilitation	Use stockpiled top soil to close sumps	1) Scarify access roads and stockpile storage areas to a depth of 500 mm. 2) Restore topsoil cover. 3) Re-seed or plant vegetation indigenous to the area.
Close drill hole	Restoration of land use and land capability	1) Exploration boreholes are to be capped when no drilling work is being undertaken. 2) Exploration boreholes which will not be used during production to be sealed with cement once exploration work has been completed.
Rehabilitation of temporary access road	Reducing soil compaction of disturbed area and access roads to improve	1) Scarify access roads and stockpile storage areas to a depth of 500 mm. 2) Restore topsoil cover. 3) Re-seed or plant vegetation indigenous to the area.

ACTIVITIES	POTENTIAL IMPACT	MITIGATION MEASURES
	drainage and control erosion	

ix) Motivation where no alternative sites were considered.

Location Alternatives: There are no sites which have a similar location advantage. The proposed prospecting application area hosts an old gold mine, which was mined between the 1880's and the 1980's. The location of the application area is determined by the possible location of the mineral resource. The PR application area is surrounded by mining operations and presented the only "open" option in the specific area for the specific mineral resource.

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

No prospecting activities will occur within 100 m of a water course. No groundwater will be abstracted. Drill holes will not be located within 50 m from identified heritage resources and a buffer of a 100 m will be kept from provincial roads and any dwellings that may occur on the proposed prospecting area. Only approximately 0.19 ha of the total 400 ha will be disturbed. No drilling activities will occur in the Strategic Water Source Area.

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

Please refer to Table 9-1 and Table 9-3

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

Table 9-5: Assessment of potentially significant impacts

The significance of the impacts after the implementation of mitigation measures were determined to ascertain if impacts with high significance could still cause irreplaceable loss of resources even with the implementation of the mitigation measures identified. This aided in the identification of any residual risk i.e. impacts with high significance even after the implementation of mitigation measures.

NAME OF ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	SIGNIFI-CANCE if not mitigated	MITIGATION TYPE	SIGNIFI-CANCE if mitigated
(E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc…etc…etc E.g. For mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)	*In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post closure)*	*(Including the potential impacts for cumulative impacts) (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc….etc…)*		*if not mitigated*	*(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. Modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation.*	*if mitigated*
Prospecting - access road Vegetation clearance	Construction	Removal of / damage to natural vegetation	Vegetation	225	1) Drill holes and access road(s) will be located in areas that will result in the least soil disturbance. 1a) Avoid steep slopes 1b) Make as far as possible use of existing roads 2) The relevant occupant and owner will be consulted prior to the development of	90

NAME OF ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	SIGNIFI-CANCE if not mitigated	MITIGATION TYPE	SIGNIFI-CANCE if mitigated
					the access road to ensure that consensus is reached on the manner and the placement and how it will be rehabilitated at the end of the drilling programme. 3) Vegetation clearance will be limited to 0.15 ha for the access road(s). 4) If the clearing of vegetation can be avoided it will, vegetation will rather be cut than cleared.	
Access road construction erosion	Construction	Erosion loss of topsoil	Soils	180	1) Drill holes and access road(s) will be located in areas that will result in the least soil disturbance. 1a) Avoid steep slopes 1b) Make as far as possible use of existing roads 2) The relevant occupant and owner will be consulted prior to the development of the access road to ensure that consensus is reached on the manner and the placement and how it will be rehabilitated at the end of the drilling programme. 3) Vegetation clearance will be limited to 0.15 ha for the access road(s). 4) If the clearing of vegetation can be avoided it will, vegetation will rather be cut than cleared.	90
Access road impacts on fauna	Construction and Operational	Impact on Fauna during construction of access road	Fauna	270	1) Hunting / poaching will not be allowed. 2) Employees will be receiving faunal protection awareness training. 3) All employees will be present at the construction sites with appropriate supervision.	180

NAME OF ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	SIGNIFI-CANCE if not mitigated	MITIGATION TYPE	SIGNIFI-CANCE if mitigated
Vegetation clearance & cutting of vegetation at drill sites	Operational	Removal of / damage to natural vegetation	Vegetation	225	1) Drill holes will be connected with access road(s) as far as possible making use of existing roads 2) The relevant occupant and owner will be consulted prior to the development of the access road to ensure that consensus is reached on the manner and the placement and how it will be rehabilitated at the end of the drilling programme. 3) Vegetation clearance will be limited to 0.01 ha per drill hole (0.04 ha for 4 drill holes).	90
Vegetation clearance & cutting of vegetation at drill sites	Operational	The stripping of soil if needed, incorrect stockpiling, erosion and storm water run-off can lead to the loss of topsoil	Soils	135	1) Topsoil will only be stripped for permanent structures, if stripped it will be stored outside drainage lines or watercourses. 2) Topsoil will be adequately protected from being blown away or being eroded. 3) Drill holes and access tracks will be located in areas that will result in minimal soil disturbance. 4) If the clearing of vegetation can be avoided it will, vegetation will rather be cut than cleared.	90
Vegetation clearance & cutting of vegetation at drill sites	Operational	Changes to the shape or form of the land	Topography	45	It is unlikely that the clearance or cutting of vegetation, for 4 boreholes will change the topography of the area. 1) During the planning phase for each drill hole, specific controls will be identified and implemented, based on site conditions. 2) Only 4 drill holes will be made 3) Drill areas will be rehabilitated concurrently	90

NAME OF ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	SIGNIFI-CANCE if not mitigated	MITIGATION TYPE	SIGNIFI-CANCE if mitigated
Vegetation clearance & cutting of vegetation at drill sites	Operational	Impact on current land use	Land Use & Land Capability	45	1) Land disturbed will be rehabilitated to a stable and permanent form, suitable for subsequent land use. 2) Exact location of drill holes and new access routes will be determined through communication with the land owner. 3) If the clearing of vegetation can be avoided it will, vegetation will rather be cut than cleared.	45
Vegetation clearance, Site establishment, Drilling activities & movement of people and equipment on site	Operational	Destruction of cultural heritage sites and artefacts	Cultural Heritage	180	1) Where drill holes are sited in proximity to any heritage sites and depending on the proximity to the drilling site, appropriate measures such as flagging, pegging or installation of temporary fencing will be undertaken to ensure that the site is not impacted on during prospecting.	60
Vegetation clearance, Site establishment, Drilling activities & movement of people and equipment on site	Operational	Destruction of geosites	Cultural Heritage	90	1) No geo sites identified on site 2) PR area located next to protected area where similar geosites enjoy formal protection 3) Should a site be identified, appropriate measures such as flagging, pegging or installation of temporary fencing will be undertaken to ensure that the site is not impacted on during prospecting	30
Vegetation clearance & cutting of vegetation at drill sites	Operational	Damage to highest biodiversity areas (mining guidelines)	Biodiversity	120	1) Drill holes are located in Ecological Support Areas and not CBA; FPA or Ramsar Wetlands 2) Drill holes not located on critical endangered or endangered ecosystem 3) Before drilling commences, a field survey will be undertaken by a qualified ecologist that has the capacity to identify	60

NAME OF ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	SIGNIFI-CANCE if not mitigated	MITIGATION TYPE	SIGNIFI-CANCE if mitigated
					wetland vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive areas / species are present in sections to be cleared. 4) If the clearing of vegetation can be avoided it will, vegetation will rather be cut than cleared.	
Vegetation clearance & cutting of vegetation at drill sites	Operational	Damage to sensitive areas & species	Biodiversity	120	1) Drill holes not located in threatened or endangered ecosystem 2) More than 10% of the Barberton Centre for Endemism is formally protected. 3) PR area located next to protected area where similar potentially sensitive areas & species are formally protected. 4) Part of the PR area was previously transformed by a historic mine 5) Before drilling commences, a field survey will be undertaken by a qualified ecologist that has the capacity to identify wetland vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive areas / species are present in sections to be cleared.	80
Vegetation clearance for & cutting of vegetation at drill sites	Operational	Air Quality Impact (Dust)	Air Quality	90	1) Dust will be effectively controlled in all areas cleared from vegetation through water spraying or other soil stabilization techniques. 2) If the clearing of vegetation can be avoided it will, vegetation will rather be cut than cleared. 3) The impact on air quality can be reduced by considering alternative soil	30

NAME OF ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	SIGNIFI-CANCE if not mitigated	MITIGATION TYPE	SIGNIFI-CANCE if mitigated
					stabilisation techniques, like, but not limited to, re-vegetating areas. 4) Other alternatives for stabilisation include the covering of areas with mulch or alternatively use organic material to cover areas where the vegetation has been cleared.	
Vegetation clearance & cutting of vegetation at drill sites	Operational	Disturbance of commercial & community activities on site	Social and Economic Environment	270	1) Prospecting activities will be discussed with landowners / occupiers prior to work commencing. 2) Drill holes and access routes not wanted by land owners on completion of prospecting activities will be rehabilitated.	180
Vegetation clearance & cutting of vegetation at drill sites	Operational	Storm water run-off from cleared areas could lead to erosion	Surface Water	270	1) Controls will be aimed at reducing erosion and sediment washing from drill pads, access roads and other disturbed areas. 2) Sediment and erosion controls will be designed to prevent runoff from the prospecting site. 3) Sediment and erosion controls may include cut-off trenches and drains, culverts for tracks, silt fences, straw.	180
Workers & material on site	Operational	Contamination of soils through spills from sanitation facilities & litter	Soils	360	1) A chemical toilet will be used on site during prospecting and will be used in such a way as to prevent water pollution. The use of a chemical toilet will be undertaken in consultation with the landowner. 2) Full or leaking toilets must be reported to the Supervisor for corrective action or replacement. 3) Prospecting areas will be maintained	120

NAME OF ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	SIGNIFI-CANCE if not mitigated	MITIGATION TYPE	SIGNIFI-CANCE if mitigated
					in a clean and tidy condition at all times. 4) All waste will be collected and stored in properly constructed containers with lids and removed to an approved landfill or another site according to local municipal requirements. 5) Full waste bins must be reported to the Supervisor for collection and disposal at an approved landfill.	
Workers & material on site	Operational	Poaching / Killing of snakes & animals	Fauna	360	1) Hunting / poaching will not be allowed. 2) All employees will be present at the drill sites with appropriate supervision.	180
Workers & material on site	Operational	Fire	Social and Economic & Ecology Environment	405	1) Vegetation around each drilling site within a 5m radius will be kept short to create a fire management zone. 2) Collection of firewood will not be allowed. 3) Open fires will be prohibited to people involved in prospecting. 4) No burning cigarettes or matches may be thrown down within the prospecting area. A bucket with sand will be provided for the disposal of cigarettes and matches. 5) No smoking will be allowed near gas, paints or fuel storage areas. 6) Suitable welding blankets are to be used when welding or operating grinders and this equipment is to be serviced regularly. 7) Rubbish or vegetation may under no circumstances be burnt. All waste will be removed off site and disposed of at an approved landfill.	270

NAME OF ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	SIGNIFI-CANCE if not mitigated	MITIGATION TYPE	SIGNIFI-CANCE if mitigated
Workers & material on site	Operational	Collection of fire wood, damage to property	Vegetation	360	1) Collection of firewood will not be allowed. 2) All employees will be present at the drill sites with appropriate supervision 3) Complaints and outcomes of subsequent investigations will be recorded in a Complaints Register that will be available for inspection. 4) If damage to private property occurs as a result of prospecting activities, such damage will be repaired or owners will be compensated as appropriate.	270
Workers & material on site	Operational	Contribution to the economy through employment	Social and Economic Environment	900 *Positive*	1) Due to the nature of prospecting, employment opportunities will be minimal. The prospecting crew is small (6 people) with specialised skills. Were possible, local people will however be employed during the project. 2) Local people and businesses with appropriate skills will be identified and included in the project tender process. The applicant is committed to employ local people and make use of local businesses during the project, where possible.	900 *Positive*
Workers & material on site	Operational	Snake bites	Safety	90	1) Visual inspections for snakes will be conducted before any work will commence in a specific area. 2) Workers will be instructed to be aware of the possible presence of snakes at all times. 3) Workers will be trained on what emergency actions to take in case of a snake bite.	90

NAME OF ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	SIGNIFI-CANCE if not mitigated	MITIGATION TYPE	SIGNIFI-CANCE if mitigated
Workers & material on site	Operational	Spread of HIV/Aids to local community	Social and Economic Environment	540	1) Due to the nature of prospecting, a limited number of employees (6 people) will come to site daily to work and then leave for their own accommodation at night. 2) Employees will stay in town 3) Aids awareness talks will be conducted.	540
Use of heavy machinery & vehicles on site for drilling or activities	Operational	Resource consumption (diesel - non-renewable resource)	Fossil fuels	405	1) Vehicles and equipment to be serviced regularly and maintained in good working condition	360
Use of heavy machinery & vehicles on site for drilling	Operational	Contamination of soils through hydrocarbon leaks and spills from machinery & equipment	Soils	60	1) All chemicals, fuels and oils to be stored on site will be appropriately bunded. 2) Precautions will be taken to prevent spills and soil contamination (e.g. use of drip trays) 3) Material Safety Data Sheets for the item(s) spilled will be consulted for information concerning clean-up requirements to ensure correct clean-up procedures. 4) Any contaminated soil will be collected into non-permeable bags and disposed of to an approved landfill site or other legal disposal mechanism.	30
Use of heavy machinery & vehicles on site for drilling	Operational	Use of water for drilling activities	Water Quantity	360	1) Water will be sourced from a local legal source and delivered to site by water tanker. 2) Water collected in sump will be re-used for drilling. .	540
Use of heavy machinery & vehicles on site for drilling	Operational	Compromising strategic water resource areas	Water Quantity	360	1) No prospecting activities to occur within Strategic water resource areas	180

NAME OF ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	SIGNIFI-CANCE if not mitigated	MITIGATION TYPE	SIGNIFI-CANCE if mitigated
					2) Water collected in sump will be re-used for drilling 3) Water will be sources from local legal supplier	
Use of heavy machinery & vehicles on site for drilling	Operational	Contamination of groundwater through hydrocarbon leaks and spills from machinery & equipment	Groundwater	480	1) Machinery and equipment will be maintained over a drip tray, a thin concrete slab or a PVC lining to prevent soil and water contamination. 2) No vehicle will be extensively repaired on site. 3) Material Safety Data Sheets for the item(s) spilled will be consulted for information concerning clean-up requirements to ensure correct clean-up procedures. 4) Any contaminated soil will be collected into non-permeable bags and disposed of to an approved landfill site or other legal disposal mechanism.	480
Use of heavy machinery & vehicles on site for drilling	Operational	Contamination of water courses through hydrocarbon leaks and spills from machinery & equipment	Surface Water	405	1) The drilling fluid that will be used during prospecting must be biodegradable and not pose a water pollution threat. 2) Drilling sumps and containment measures will be designed to contain all drilling fluid. 3) Material Safety Data Sheets for the item(s) spilled will be consulted for information concerning clean-up requirements top ensure correct clean-up procedure. 4) Any contaminated soil will be collected into non-permeable bags and disposed of to an approved landfill site or other legal disposal mechanism.	270

NAME OF ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	SIGNIFI-CANCE if not mitigated	MITIGATION TYPE	SIGNIFI-CANCE if mitigated
					5) Any hydrocarbon contaminated water in sump will be pumped to containers for safe disposal at a registered disposal facility.	
Use of heavy machinery & vehicles on site for drilling	Operational	Compaction of soils through movement of heavy vehicles and machinery on site	Soils	180	1) Stay on predefined areas and routes. 2) Scarify access roads and stockpile areas to a depth of 500 mm and restore topsoil cover. 3) Re-seed or plant vegetation indigenous to the area.	90
Use of heavy machinery & vehicles on site for drilling	Operational	Damage to vegetation	Vegetation	135	1) Vehicles will only stay on dedicated roads (turning circles). 2) No movement of heavy machinery outside dedicated routes. 3) All routes and turning circles will be scarified and re-seeded with seeds from vegetation indigenous to the area, if the landowner is not still utilising it.	90
Use of heavy machinery & vehicles on site for drilling	Operational	Damage to highest biodiversity areas (mining guidelines)	Biodiversity	120	1) Drill holes not located in threatened or endangered ecosystem 2) More than 10% of the Barberton Centre for Endemism is formally protected. 3) PR area located next to protected area where similar potentially sensitive areas & species are formally protected. 4) Part of the PR area was previously transformed by a historic mine 5) Before drilling commences, a field survey will be undertaken by a qualified ecologist that has the capacity to identify wetland vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive	60

NAME OF ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	SIGNIFI-CANCE if not mitigated	MITIGATION TYPE	SIGNIFI-CANCE if mitigated
					areas / species are present in sections to be cleared.	
Use of heavy machinery & vehicles on site for drilling	Operational	Damage to fauna and flora	Biodiversity	360	1) Before drilling commences, a field survey will be undertaken by a qualified ecologist that has the capacity to identify wetland vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive areas / species are present in sections to be cleared. 2) No movement of heavy machinery outside dedicated routes. 3) All routes and turning circles will be scarified and re-seeded with seeds from vegetation indigenous to the area, if the landowner is not still utilising it.	180
Use of heavy machinery & vehicles on site for drilling	Operational	Damage to sensitive areas & species	Biodiversity	120	1) Drill holes not located in threatened or endangered ecosystem 2) More than 10% of the Barberton Centre for Endemism is formally protected. 3) PR area located next to protected area where similar potentially sensitive areas & species are formally protected. 4) Part of the PR area was previously transformed by a historic mine 5) Before drilling commences, a field survey will be undertaken by a qualified ecologist that has the capacity to identify wetland vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive areas / species are present in sections to be cleared.	40

NAME OF ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	SIGNIFI-CANCE if not mitigated	MITIGATION TYPE	SIGNIFI-CANCE if mitigated
Use of heavy machinery & vehicles on site for drilling	Operational	Release of gaseous emissions impacting on air quality	Air Quality	360	1) Vehicles and equipment will be maintained in a good working order.	360
Use of heavy machinery & vehicles on site for drilling	Operational	Air Quality Impact (Dust)	Air Quality	540	1) Speed limits on gravel roads will be 40 km/hr to reduce dust and noise generation. 2) Dust will be effectively controlled in all disturbed areas through water spraying or other soil stabilization techniques. 3) The type and compaction of road building material, can reduce the amount of dust generated.	360
Use of heavy machinery & vehicles on site for drilling activities	Operational	Increase in ambient noise levels	Social and Economic Environment	540	1) Speed limits on gravel roads will be 40 km/hr to reduce dust and noise generation. 2) Prospecting activities will be restricted to day light hours. 3) No sensitive receptors in close proximity	405
Use of heavy machinery & vehicles on site for drilling	Operational	Visual intrusion	Social and Economic Environment	540	1) A maximum of one drill site to be drilled at any one time 2) Concurrent rehabilitation	405
Use of heavy machinery & vehicles on site for drilling	Operational	Disturbance of fauna species in the vicinity	Fauna	360	1) Before drilling commences, a field survey will be undertaken by a qualified ecologist that has the capacity to identify wetland vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive areas / species are present in sections to be cleared. 2) No animals will be trapped / killed 3) No bird nests will be disturbed	270
Use of heavy machinery & vehicles on site for drilling	Operational	Proliferation of invasive plant species	Vegetation	270	1) Machinery will be cleared of dust/mud and seed prior to relocation to the next	180

NAME OF ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	SIGNIFI-CANCE if not mitigated	MITIGATION TYPE	SIGNIFI-CANCE if mitigated
					site to prevent the spread of alien invasive species.	
Prospecting / Drilling activities	Operational	Quantification of mineral resource (Au, Ag & Aggregate)	Mineral resource	720 *Positive*	1) Quantification will provide information to make decisions on best manner to utilise the resource for the benefit of South Africa	720 *Positive*
Closure						
Concurrent rehabilitation	Closure	Reducing soil compaction of disturbed area and access roads to improve drainage and control erosion	Land Use & Land Capability	180 *Positive*	1) Remaining refuse, chemicals, fuels and waste materials will be removed from the site following the completion of the prospecting programme. Such waste will be disposed of to an approved landfill. 2) Erosion and sediment controls as well as the disturbed area will be rehabilitated. 3) An inspection on whether there is evidence of weeds or pest invasion as a result of prospecting activities will be undertaken and appropriate remediation actions will be implemented as required.	225 *Positive*
Concurrent rehabilitation	Closure	Use stockpiled top soil to close sumps	Soils	225 *Positive*	1) Scarify access roads and stockpile storage areas to a depth of 500 mm. 2) Restore topsoil cover. 3) Re-seed or plant vegetation indigenous to the area.	180 *Positive*
Close drill hole	Closure	Restoration of land use and land capability	Land Use & Land Capability	180 *Positive*	1) Exploration boreholes are to be capped when no drilling work is being undertaken. 2) Exploration boreholes which will not be used during production to be sealed with cement once exploration work has been completed.	180 *Positive*

NAME OF ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	SIGNIFI-CANCE if not mitigated	MITIGATION TYPE	SIGNIFI-CANCE if mitigated
Rehabilitation of temporary access road	Closure	Reducing soil compaction of disturbed area and access roads to improve drainage and control erosion	Land Use & Land Capability	120 *Positive*	1) Scarify access roads and stockpile storage areas to a depth of 500 mm. 2) Restore topsoil cover. 3) Re-seed or plant vegetation indigenous to the area.	180 *Positive*

The supporting impact assessment conducted by the EAP is attached as an appendix, marked **Appendix 5.**

9.4 SPECIALIST STUDIES

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

Table 9-6: List of Specialist studies

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
No specialist studies required for the prospecting application	No specialist studies required for the prospecting application	No specialist studies required for the prospecting application	No specialist studies required for the prospecting application

Attach copies of Specialist Reports as appendices

Motivation on why no specialist studies were conducted:

As a qualified professional (See CV Attached) the EAP of this application has executed a desktop study and research to describe the environmental features of the project area.

The desktop vegetation investigation included the following:

(a) Classification of the main biome and description of the dominant vegetation type;

(b) Investigation of the dominant indigenous species within this region;

(c) Listing the endemic species;

(d) Listing the IUCN Red Data species; and

(e) The desktop invertebrate and mammal investigation, included the following:

(f) Endemic species;

(g) Baseline occurrences of species within the area;

(h) IUCN Red Data species

(i) Specialist reports for assessments conducted on or close to the proposed prospecting area

The following provincial and national legislation and best-practice documents are relevant to this study:

(a) Mpumalanga Biodiversity Sector Plan 2014

(b) National Environmental Management Protected Areas Act (Act 57 of 2003)

(c) National Environmental Management Biodiversity Act (Act 10 of 2004)

(d) National Protected Area Expansion Strategy

(e) National Biodiversity Assessment (2004, updated 2011)

(f) National Freshwater Ecosystems Priority Atlas (2011)

(g) Mining and Biodiversity Guidelines. Mainstreaming biodiversity into the mining sector

(h) National Forests Act, 1998 (Act No. 84 of 1998)

The following information resources were consulted in order to ascertain whether any environmental features of biodiversity conservation concern occur, or could possibly occur within the study area:

(a) CITES;

(b) IUCN Red Data List;

(c) SANBI Red List of South African Plants;

(d) List of Protected Trees - National Forests Act, 1998 (Act No. 84 of 1998);

(e) ToPS List – Government Gazette Notice No. 389 of 2013: “Publication of Lists of species that are Threatened or Protected, Activities that are prohibited and Exemption from Restriction”;

(f) National Environmental Management: Biodiversity Act (NEMBA), 2004 (Act 10 of 2004);

(g) SANBI Biodiversity GIS:

(h) National Information

(i) Important Bird Areas (2015)

(ii) DEA South African National Land-Cover (2013)

(iii) Mining Guidelines (2013)

(iv) Vegetation Map of Southern Africa (2012)

(v) National Biodiversity Assessment (2011)

(vi) National Freshwater Ecosystem Priority Areas (2011)

(vii) National List of Threatened Ecosystems (2011)

(viii) Protected Areas (2010)

(ix) National Land Cover (2009)

(x) National Wetlands Inventory (2006)

(xi) National Spatial Biodiversity Assessment (2004)

(xii) Soils (1940)

(i) Provincial Information

(i) Mpumalanga Biodiversity Sector Plans 2014

The desktop study enabled the identification of sensitive environmental areas / habitats on the proposed site. These sensitive areas were considered during the impact assessment process. Mitigation measures / buffers are recommended to ensure that these areas are not impacted on.

The area of disturbance is considered small (0.19 ha), all impacts were rated as low - medium with the implementation of mitigation measures. Furthermore, adequate financial provision is made for rehabilitation. It should be noted that SAHRA is being consulted. Should SAHRA requires an additional Heritage Assessment to be conducted, this can be specified as a Prospecting Right condition. To date no comments were received from the organisation.

9.5 ENVIRONMENTAL IMPACT STATEMENT

l) Environmental impact statement

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

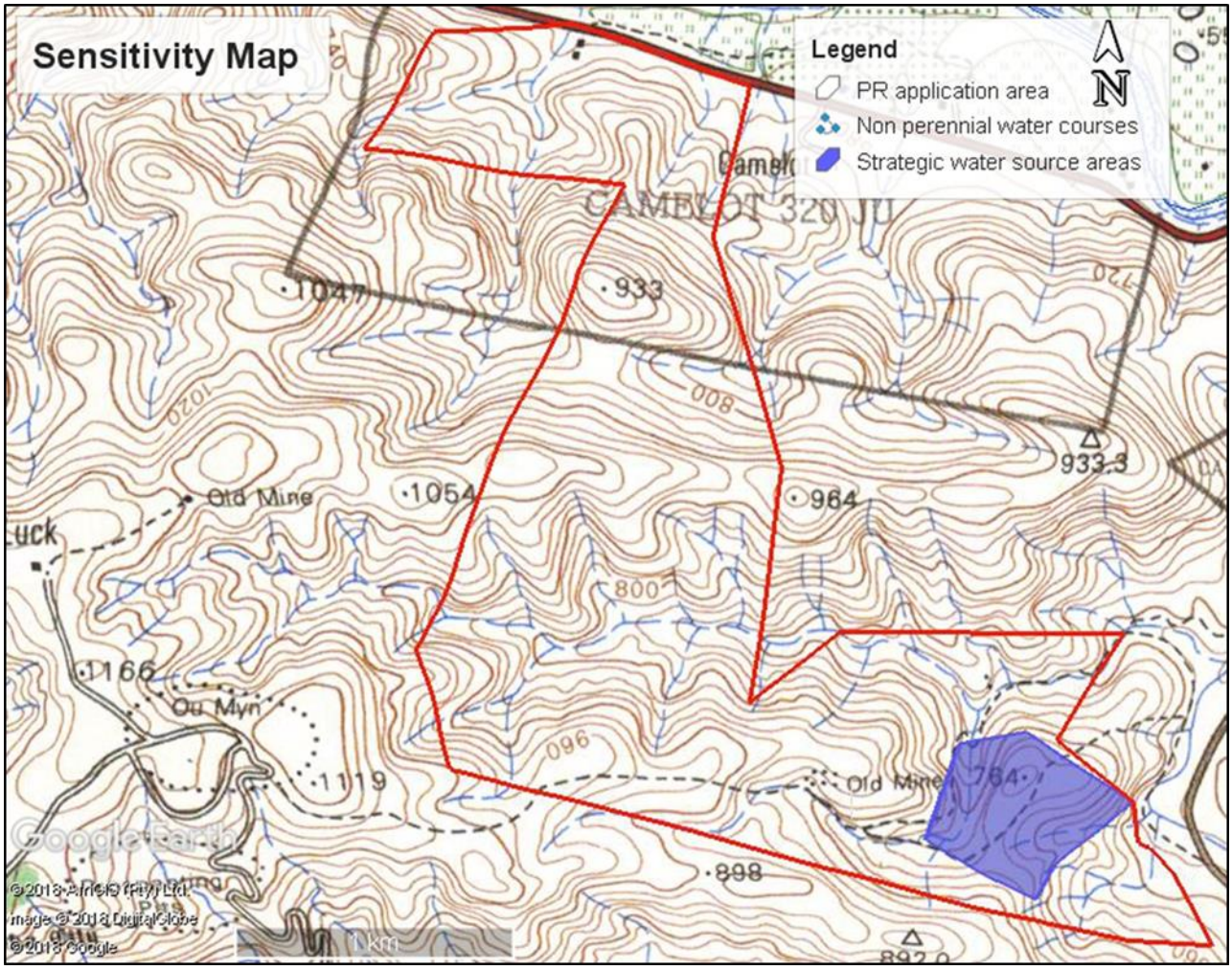
The drilling will be done by a diamond drill rig, the drill team will not require site infrastructure and will stay in town or in existing dwellings on site. Water will be sourced from a local legal source and delivered to site by water tanker. The main impacts are associated with air quality (dust) and possible species of conservation concern that may be present on the proposed prospecting area. The prospecting programme will be designed to avoid identified heritage sites and strategic water source areas. The programme will be designed to leave a buffer zone of 100 m from water courses.

Impacts were rated as low to medium without mitigation measures. This is mainly due to the small scale of the activities (0.19 ha) and the short duration of the invasive phase (12 months). During the impact assessment process, the highest significance was obtained for the positive impacts.

Should the prospecting activities avoid the sensitive areas as identified (Figure 9-2) the possible environmental impacts associated with the proposed prospecting are considered low, provided the mitigation measures are implemented.

Based on the presented impact assessment the EAPs are of the opinion that the It’s a Good Time (Pty) Ltd prospecting project should be authorised.

Figure 9-2: Sensitivity Map



Source: EcoPartners

	(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 4

The location of proposed drill holes, will be determined from the non-invasive geological mapping, pre-existing literature and field surveys. A preliminary activity map is provided in Figure 9-3.

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

Positive impacts associated with the proposed prospecting:

(a) Quantification of mineral resource (Au, Ag & Aggregate)

(b) Employment contributing to the economy

(c) Rehabilitation

Negative impacts associated with the proposed prospecting:

(a) Removal / damage of natural vegetation

(b) Generation of dust

(c) Loss of soil resources

(d) Increase in erosion due to vegetation clearance & compaction

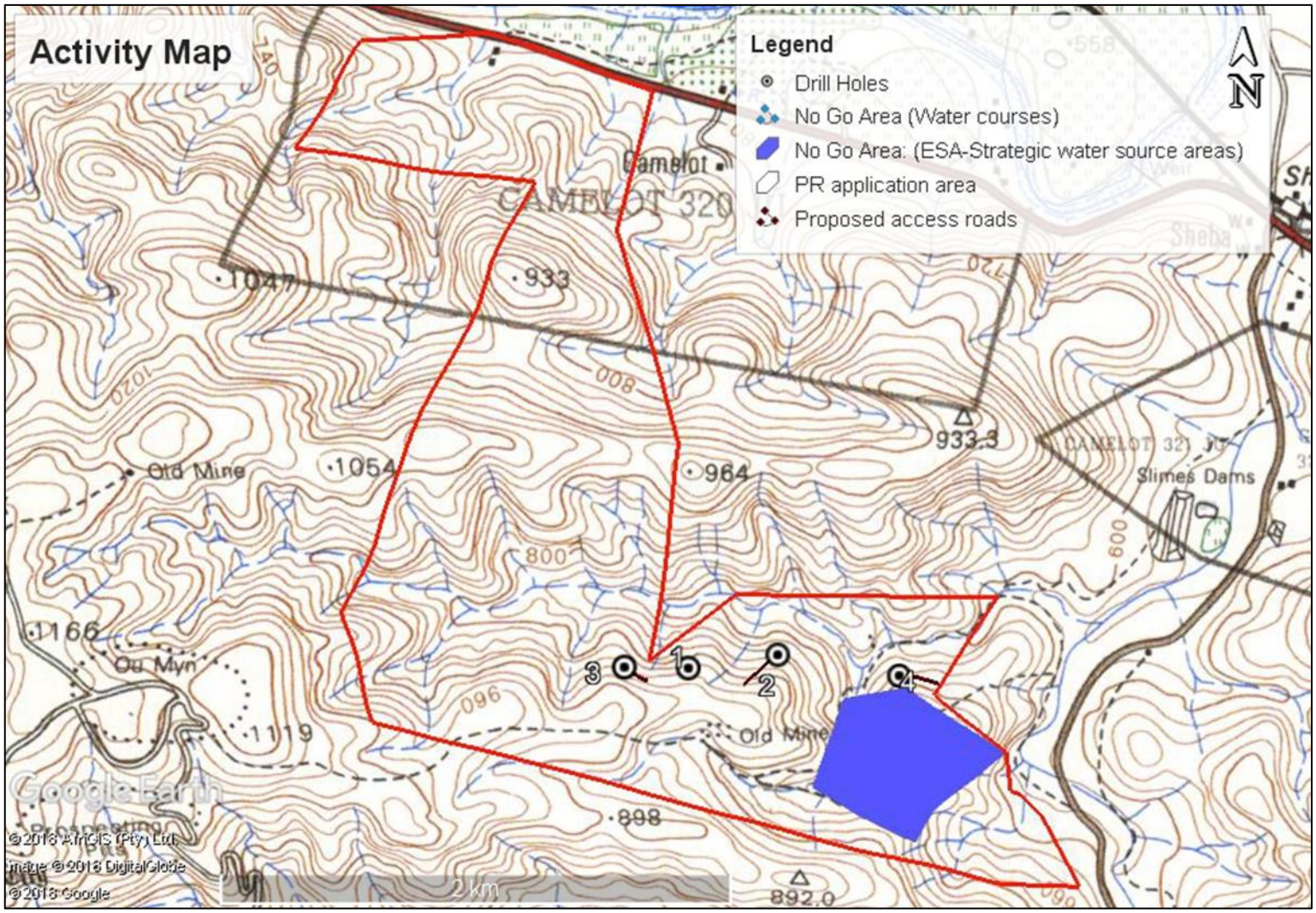
(e) Use of vehicles on site – compaction

(f) Possible destruction of cultural heritage sites and artifacts

(g) Contamination of soils

(h) Litter

Figure 9-3: Activity Map



Source: EcoPartners

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

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

The objectives of the impact management process are as follows:

Air Quality:

To ensure that the prospecting activities has a minimal adverse impact on air quality. Dust limitation and suppression to be applied.

Groundwater:

To ensure that the prospecting activities have minimal adverse impact on the surrounding groundwater water quality and prevents pollution of existing groundwater resources.

Soils

To ensure that the prospecting activities does not have a negative impact on land and soils by mitigating potential erosion, preventing contamination and pollution.

Biodiversity

To ensure that the prospecting activities do not have an adverse impact on the biodiversity of the area.

Socio-Economic

To aid in the improvement of the current local economy and improve the social environment of communities affected by the prospecting activities.

Visual

To limit the visual impact of the prospecting activities. A maximum of one drill rig to be used and concurrent rehabilitation to be implemented.

Noise

To control noise pollution stemming from the prospecting activities through the restriction of operational hours.

Heritage

To ensure that the prospecting activities avoid the heritage sites when identified and avoid adverse impacts on unidentified heritage resources of significance. Interaction with local residents to identify and confirm heritage sites. Marking and avoidance of sites if identified.

Waste

To ensure that the proposed prospecting operation adopts and implements waste management principles that are environmentally responsible.

n) Aspects for inclusion as conditions of Authorisation.

Any aspects which must be made conditions of the Environmental Authorisation

Prospecting should not occur within 100 m from any watercourse without authorisation from DWS.

Water to be sourced from a local legal source and delivered to site by water tanker.

Drill holes and access tracks to be located in areas that will result in the least ground disturbance.

During the planning phase for each drill hole, specific controls must be identified and implemented, based on site conditions.

A field survey must be undertaken by a qualified ecologist that has the capacity to identify wetland vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive areas / species are present in sections to be cleared, before the commencement of invasive activities.

Collection of firewood will not be allowed.

Where an access road is needed, the relevant occupant and owner will be consulted prior to the development of that access to ensure that consensus is reached on the

manner and the placement and how it will be rehabilitated at the end of the drilling programme.

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

The presence of conservation important species on the proposed prospecting application area.

Presence of heritage sites on areas not previously assessed.

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

This is a proposed prospecting application to determine the value of the gold, silver and aggregate resources. The holes will be drilled to a depth of 290 – 335 m.

Drilling will have low impact on the natural environment and is not expected to impact on unidentified heritage artefacts. The prospecting programme is limited to 4 boreholes over a total area of 400 ha. No permanent structures or infrastructure will be required on site. Workers will stay in the local community of Sheba Siding. Water will be sourced from a local legal source and delivered to site by water tanker and will not be abstracted from surface or groundwater resources.

Rehabilitation will be done concurrently with prospecting. After drilling, when each site is left, a clearing team will restore the site and monitor its recovery. Any completed hole that is not required for groundwater monitoring, will be sealed with cement to prevent groundwater contamination. All sumps, cut-off trenches and berms will be rehabilitated.

The area will be shaped to avoid ponding of water. Vegetation will be allowed to establish on the top-soiled areas by means of natural colonisation, from the rich seed bed present in the topsoil as well as seed blown in from adjacent areas. The success of rehabilitation and vegetation establishment will be monitored on a 6-monthly basis (early winter and after the first rains).

Compacted areas (access roads, stockpile storage areas) will be scarified to a depth of 500 mm and topsoil cover will be restored. Indigenous vegetation will be

encouraged to grow on the site. Remaining refuse, chemicals, fuels and waste materials will be removed from the site following the completion of the prospecting programme. Such waste will be disposed of to an approved landfill. An inspection on whether there is evidence of weeds or pest invasion as a result of prospecting activities will be undertaken and appropriate remediation actions will be implemented if required.

The purpose of the Environmental Impact Regulations (see section 2 of the Regulations) is to regulate the procedure and criteria as contemplated in Chapter 5 of the National Environmental Management Act (Act 107 of 1998) relating to the preparation, evaluation, submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to environmental impact assessment, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts, and for matters pertaining thereto.

This impact assessment identified and assessed detrimental impacts and recommends measures to avoid or mitigate them. The highest significance was obtained for the positive impacts and by authorising the application these positive impacts could be optimised.

Impacts were rated as low to medium without mitigation measures. This is mainly due to the small scale of the activities (0.19 ha) and the short duration of the invasive phase (12 months). Should the prospecting activities avoid the sensitive areas as identified (Figure 9-2) the possible environmental impacts associated with the proposed prospecting are considered low, provided the mitigation measures are implemented.

Based on the presented impact assessment the EAPs are of the opinion that the It's a Good Time (Pty) Ltd prospecting project should be authorised.

ii) Conditions that must be included in the authorisation

Drill holes will not be located closer than a 100 m to a watercourse without authorisation from the Department of Water and Sanitation. Water to be sourced from a local legal source and delivered to site by water tanker. Holes will not be located within 50 m from identified heritage resources and a buffer of a 100 m will be kept from provincial roads and any dwellings that may occur on the proposed prospecting area. No prospecting activities may occur in the strategic water source area.

A field survey must be undertaken by a qualified ecologist that has the capacity to identify wetland vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive areas / species are present in sections to be cleared, before the commencement of invasive activities.

q) Period for which the Environmental Authorisation is required

3 years.

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

It's a Good Time (Pty) Ltd herewith confirm both its capacity and willingness to make the financial provision required should the prospecting right be granted.

9.6 FINANCIAL PROVISION

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

Grand Total = R 119 336 without concurrent rehabilitation

Available in Appendix 6.

i) Explain how the aforesaid amount was derived.

General Surface Rehabilitation

The prospecting plan consists of drilling 4 drill holes and one access road. Four new access roads will be constructed (0.15 ha) to access the drill holes. The roads will be constructed to branch off from the existing road network on the property. No new infrastructure will be constructed. The exploration boreholes will be drilled to a depth of 290 – 335 m.

Drilling will take place one hole at a time. The drill site will be cleared of obstructions and debris and then drilled. Rehabilitation will occur concurrently with drilling.

Experience in other sites have indicated that including the turning circle of vehicle, the area disturbed at the drill sites rarely exceeds 100 m^2 or 0.01 ha per hole. For the drilling of the envisaged 4 holes (or 0.04 ha). The use of the existing road network on

the property will be used where possible, however, provision is made for 1 452 m^2 new access route to be built. The roads will branch off from existing road network. In total the areas to be affected will be approximately 0.19 ha. Fencing will be temporary.

2-3 years Maintenance and Aftercare

Should there be a need for maintenance and aftercare post the prospecting stage to ensure that the prospected areas have returned to their original state, an area of 0.04 ha, that includes all drill holes sites, will be considered.

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 as such in the Mining Work Programme, Financial and Technical Competence Report or Prospecting Work Programme as the case may be)

The financial support for It's a Good Time 174 Pty (Ltd) proves the availability of funds to undertake prospecting the desired mineral.

9.7 SPECIFIC INFORMATION

t) Specific Information required by the competent Authority **i) Compliance with the provisions of sections 24(4)(a) and (b) read with section 24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of 1998). the EIA report must include the:-** **(1) Impact on the socio-economic conditions of any directly affected person** (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as an Appendix .

Prospecting could affect the existing activities (cattle grazing) of the communities where the proposed drill holes are located in the natural areas. Kindly refer Appendix 5 for the social economic impacts.

(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).

Potential heritage sites will be identified during the planning phase to ensure that such areas are avoided. Each prospecting site will be visited prior to any work starting to identify possible heritage sites.

Prospecting activities will be kept away from excluded and exempted areas.

Where drill holes are sited in proximity to any heritage sites and depending on the proximity to the drilling site, appropriate measures such as flagging, pegging or installation of temporary fencing will be undertaken to ensure that the site is not impacted on during prospecting. No specialist investigation has been conducted to date.

u) Other matters required in terms of sections 24(4)(a) and (b) of the Act. (the EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation 22(2)(h), exist. The EAP must attach such motivation as Appendix 5).

Please refer to Appendix 5 for the Impact Table.

PART B: ENVIRONMENTAL MANAGEMENT PROGRAMME

10 ENVIRONMENTAL MANAGEMENT PROGRAMME

1) Draft environmental management programme.

a) Details of the EAP,

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

Please refer to the Details of the EAP included in Part A, section 1(a).

b) Description of the Aspects of the Activity

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

The aspects of the activity are described in Part A Section 1(h).

c) Composite Map

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

Please refer to Appendix 2.

d) Description of Impact management objectives including management statements

i) Determination of closure objectives.

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

The overall goal for closure of the prospecting site is to re-instate the predetermined land-use of the land owners, neighbours and community, ensuring that the land is stable and safe in the long-term.

The closure objectives apply to the prospecting area in its final closed state and not whilst the site is in transformation towards this state. They nevertheless provide guidance during the operational phase. Closure objectives relate to the following:

Physical stability: To back-fill boreholes & sumps on the prospecting site to ensure continuation of the land use after completion of prospecting activities.

Environmental quality: To ensure that local environmental quality is not adversely affected by possible physical effects and chemical contaminants arising from the prospecting site after completion of prospecting activities.

Health and safety: To limit the possible health and safety threats to humans and animals using the rehabilitated prospecting area after completion of prospecting activities.

Land capability/land-use: To ensure continuation or to the re-instate a suitable land capability over as large as possible area affected during prospecting.

Aesthetic quality: To leave behind a rehabilitated prospecting site that is neat and tidy, giving an acceptable overall aesthetic appearance.

Biodiversity: To encourage the re-establishment of indigenous and/ or appropriate vegetation on the rehabilitated prospecting site, such that the biodiversity is largely re-instated over time, as well as protect the undisturbed areas to maintain/enhance the biodiversity of these areas. The prospecting area should be rehabilitated to limit the impact on the current land use.

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

The drilling rig will require approximately 4 m^3/day. Water will be sourced from a local legal source and delivered to site by water tanker.

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

No Water use license is required for the prospecting application. Water will be sourced from local legal source and transported in via road tanker. No groundwater or surface water will be abstracted

Should drilling occur within 100 m of a water course or 500m from a wetland authorisation from DWS will be required.

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

Table 10-1: Impact mitigation

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
*(**E.g. For prospecting** - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route **etc…etc…etc E.g. For mining,-** excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, **etc…etc…etc.)*	*(of operation in which activity will take place. State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).*	*of disturbance (volumes, tonnages and hectares or m²)*	*(describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)*	*(A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)*	*Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either: Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.*
Prospecting - access road Vegetation clearance	Construction	0.15 ha	1) Drill holes and access road(s) will be located in areas that will result in the least soil disturbance. 1a) Avoid steep slopes 1b) Make as far as possible use of existing roads 2) The relevant occupant and owner will be consulted prior to the development of the access road to ensure that consensus is reached on the manner and the placement and how it will be rehabilitated at the end of the drilling programme. 3) Vegetation clearance will be limited to 0.15 ha for the access road(s). 4) If the clearing of vegetation can be avoided it will, vegetation will rather be cut than cleared.	Concurrent rehabilitation in line with sustainable development practices	During drill site establishment

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Access road construction erosion	Construction	0.15 ha	1) Drill holes and access road(s) will be located in areas that will result in the least soil disturbance. 1a) Avoid steep slopes 1b) Make as far as possible use of existing roads 2) The relevant occupant and owner will be consulted prior to the development of the access road to ensure that consensus is reached on the manner and the placement and how it will be rehabilitated at the end of the drilling programme. 3) Vegetation clearance will be limited to 0.15 ha for the access road(s). 4) If the clearing of vegetation can be avoided it will, vegetation will rather be cut than cleared.	Avoidance of erosion in line with Regulation 70 of GN 527 (2004)	During drill site establishment & drill operations
Access road impacts on fauna	Construction and Operational	0.15 ha	1) Hunting / poaching will not be allowed. 2) Employees will be receiving faunal protection awareness training. 3) All employees will be present at the construction sites with appropriate supervision.	No poaching in line with Animals Protection Act (No. 71 of 1962)	For duration of prospecting activities on site
Vegetation clearance & cutting of vegetation at drill sites	Operational	0.04 ha	1) Drill holes will be connected with access road(s) as far as possible making use of existing roads 2) The relevant occupant and owner will be consulted prior to the development of the access road to ensure that consensus is reached on the manner and the placement and how it will be rehabilitated at the end of the drilling programme. 3) Vegetation clearance will be limited to 0.01 ha per drill hole (0.04 ha for 4 drill holes).	Concurrent rehabilitation in line with sustainable development practices	During drill site establishment

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Vegetation clearance & cutting of vegetation at drill sites	Operational	0.04 ha	1) Topsoil will only be stripped for permanent structures, if stripped it will be stored outside drainage lines or watercourses. 2) Topsoil will be adequately protected from being blown away or being eroded. 3) Drill holes and access tracks will be located in areas that will result in minimal soil disturbance. 4) If the clearing of vegetation can be avoided it will, vegetation will rather be cut than cleared.	Storage of topsoil in line with Regulation 70 of GN 527 (2004)	During drill site establishment & drill operations
Vegetation clearance & cutting of vegetation at drill sites	Operational	0.04 ha	It is unlikely that the clearance or cutting of vegetation, for 4 boreholes will change the topography of the area. 1) During the planning phase for each drill hole, specific controls will be identified and implemented, based on site conditions. 2) Only 4 drill holes will be made 3) Drill areas will be rehabilitated concurrently	Number of drill holes and trial pits stipulated in Prospecting Work Programme	During drilling operations
Vegetation clearance & cutting of vegetation at drill sites	Operational	0.04 ha	1) Land disturbed will be rehabilitated to a stable and permanent form, suitable for subsequent land use. 2) Exact location of drill holes and new access routes will be determined through communication with the land owner. 3) If the clearing of vegetation can be avoided it will, vegetation will rather be cut than cleared.	Concurrent rehabilitation in line with sustainable development practices	Prior to drill site establishment
Vegetation clearance, Site establishment, Drilling activities & movement of people and equipment on site	Operational	0.19 ha	1) Where drill holes are sited in proximity to any heritage sites and depending on the proximity to the drilling site, appropriate measures such as flagging, pegging or installation of temporary fencing will be	Avoidance in line with National Heritage Resources Act (No. 25 of 1999)	Prior to drill site establishment

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			undertaken to ensure that the site is not impacted on during prospecting.		
Vegetation clearance, Site establishment, Drilling activities & movement of people and equipment on site	Operational	0.19 ha	1) No geo sites identified on site 2) PR area located next to protected area where similar geosites enjoy formal protection 3) Should a site be identified, appropriate measures such as flagging, pegging or installation of temporary fencing will be undertaken to ensure that the site is not impacted on during prospecting	Avoidance in line with National Heritage Resources Act (No. 25 of 1999)	Prior to drill site establishment
Vegetation clearance & cutting of vegetation at drill sites	Operational	0.04 ha	1) Drill holes are located in Ecological Support Areas and not CBA; FPA or Ramsar Wetlands 2) Drill holes not located on critical endangered or endangered ecosystem 3) Before drilling commences, a field survey will be undertaken by a qualified ecologist that has the capacity to identify wetland vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive areas / species are present in sections to be cleared. 4) If the clearing of vegetation can be avoided it will, vegetation will rather be cut than cleared.	Avoidance in line with National Biodiversity Act (10 of 2004)	Prior to drill site establishment
Vegetation clearance & cutting of vegetation at drill sites	Operational	0.04 ha	1) Drill holes not located in threatened or endangered ecosystem 2) More than 10% of the Barberton Centre for Endemism is formally protected. 3) PR area located next to protected area where similar potentially sensitive areas & species are formally protected. 4) Part of the PR area was previously transformed by a historic mine 5) Before drilling commences, a field survey	Avoidance in line with National Biodiversity Act (10 of 2004) / Authorisation	Prior to drill site establishment

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			will be undertaken by a qualified ecologist that has the capacity to identify wetland vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive areas / species are present in sections to be cleared.		
Vegetation clearance for & cutting of vegetation at drill sites	Operational	0.04 ha	1) Dust will be effectively controlled in all areas cleared from vegetation through water spraying or other soil stabilization techniques. 2) If the clearing of vegetation can be avoided it will, vegetation will rather be cut than cleared. 3) The impact on air quality can be reduced by considering alternative soil stabilisation techniques, like, but not limited to, re-vegetating areas. 4) Other alternatives for stabilisation include the covering of areas with mulch or alternatively use organic material to cover areas where the vegetation has been cleared.	National Dust Control Regulations GN 827 (2013)	During drill site establishment & drilling operations
Vegetation clearance & cutting of vegetation at drill sites	Operational	0.04 ha	1) Prospecting activities will be discussed with landowners / occupiers prior to work commencing. 2) Drill holes and access routes not wanted by land owners on completion of prospecting activities will be rehabilitated.	Concurrent rehabilitation in line with sustainable development practices	During to drill site establishment & drilling operations
Vegetation clearance & cutting of vegetation at drill sites	Operational	0.04 ha	1) Controls will be aimed at reducing erosion and sediment washing from drill pads, access roads and other disturbed areas. 2) Sediment and erosion controls will be designed to prevent runoff from the prospecting site.	Storm water management in line with National Water Act (36 of 1998)	For duration of prospecting activities on site

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			3) Sediment and erosion controls may include cut-off trenches and drains, culverts for tracks, silt fences, straw.		
Workers & material on site	Operational	6 crew members on site for 12 months	1) A chemical toilet will be used on site during prospecting and will be used in such a way as to prevent water pollution. The use of a chemical toilet will be undertaken in consultation with the landowner. 2) Full or leaking toilets must be reported to the Supervisor for corrective action or replacement. 3) Prospecting areas will be maintained in a clean and tidy condition at all times. 4) All waste will be collected and stored in properly constructed containers with lids and removed to an approved landfill or another site according to local municipal requirements. 5) Full waste bins must be reported to the Supervisor for collection and disposal at an approved landfill.	Maintenance and replacement of chemical toilets in line with Regulation 71 of GN 527 (2004). Waste collection and disposal in line with Regulation 69 of GN 527 of 2004 and with National Environmental Management: Waste Act (59 of 2008)	For duration of prospecting activities on site
Workers & material on site	Operational	6 crew members on site for 12 months	1) Hunting / poaching will not be allowed. 2) All employees will be present at the drill sites with appropriate supervision.	No poaching in line with Animals Protection Act (No. 71 of 1962)	For duration of prospecting activities on site
Workers & material on site	Operational	6 crew members on site for 12 months	1) Vegetation around each drilling site within a 5m radius will be kept short to create a fire management zone. 2) Collection of firewood will not be allowed. 3) Open fires will be prohibited to people involved in prospecting. 4) No burning cigarettes or matches may be thrown down within the prospecting area. A bucket with sand will be provided for the disposal of cigarettes and matches. 5) No smoking will be allowed near gas,	Fire prevention in line with Regulation 65 of GN 527 (2004) and with National Veldt and Forest Fire Act	For duration of prospecting activities on site

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			paints or fuel storage areas. 6) Suitable welding blankets are to be used when welding or operating grinders and this equipment is to be serviced regularly. 7) Rubbish or vegetation may under no circumstances be burnt. All waste will be removed off site and disposed of at an approved landfill.		
Workers & material on site	Operational	6 crew members on site for 12 months	1) Collection of firewood will not be allowed. 2) All employees will be present at the drill sites with appropriate supervision 3) Complaints and outcomes of subsequent investigations will be recorded in a Complaints Register that will be available for inspection. 4) If damage to private property occurs as a result of prospecting activities, such damage will be repaired or owners will be compensated as appropriate.	Conditions stipulated in Access Agreement	For duration of prospecting activities on site
Workers & material on site	Operational	6 crew members on site for 12 months	1) Due to the nature of prospecting, employment opportunities will be minimal. The prospecting crew is small (6 people) with specialised skills. Were possible, local people will however be employed during the project. 2) Local people and businesses with appropriate skills will be identified and included in the project tender process. The applicant is committed to employ local people and make use of local businesses during the project, where possible.	Contractual agreements between the service provider and the applicant	For duration of prospecting activities on site
Workers & material on site	Operational	6 crew members on site for 12 months	1) Visual inspections for snakes will be conducted before any work will commence in a specific area. 2) Workers will be instructed to be aware of the possible presence of snakes at all		For duration of prospecting activities on site

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			times. 3) Workers will be trained on what emergency actions to take in case of a snake bite.		
Workers & material on site	Operational	6 crew members on site for 12 months	1) Due to the nature of prospecting, a limited number of employees (6 people) will come to site daily to work and then leave for their own accommodation at night. 2) Employees will stay in town 3) Aids awareness talks will be conducted.	National Strategic Plan on HIV, STIs and TB 2012-2016	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling or activities	Operational	1 drill rig and 2 field vehicles on site for 12 months	1) Vehicles and equipment to be serviced regularly and maintained in good working condition	Maintenance of vehicles and equipment in line with responsible environmental management practice	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Operational	1 drill rig and 2 field vehicles on site for 12 months	1) All chemicals, fuels and oils to be stored on site will be appropriately bunded. 2) Precautions will be taken to prevent spills and soil contamination (e.g. use of drip trays) 3) Material Safety Data Sheets for the item(s) spilled will be consulted for information concerning clean-up requirements to ensure correct clean-up procedures. 4) Any contaminated soil will be collected into non-permeable bags and disposed of to an approved landfill site or other legal disposal mechanism.	Prevention of soil pollution in line with Regulation 70 of GN 527 (2004)	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Operational	1 drill rig and 2 field vehicles on site for 12 months	1) Water will be sourced from a local legal source and delivered to site by water tanker. 2) Water collected in sump will be re-used for drilling. .	Responsible use of surface water & groundwater resources in line with Regulation 68 of GN 527 (2004) and with the National Water Act (36 of 1998)	For duration of prospecting activities on site

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Use of heavy machinery & vehicles on site for drilling	Operational	1 drill rig and 2 field vehicles on site for 12 months	1) No prospecting activities to occur within Strategic water resource areas 2) Water collected in sump will be re-used for drilling 3) Water will be sources from local legal supplier	Avoidance in line with the National Water Act (36 of 1998)	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Operational	1 drill rig and 2 field vehicles on site for 12 months	1) Machinery and equipment will be maintained over a drip tray, a thin concrete slab or a PVC lining to prevent soil and water contamination. 2) No vehicle will be extensively repaired on site. 3) Material Safety Data Sheets for the item(s) spilled will be consulted for information concerning clean-up requirements to ensure correct clean-up procedures. 4) Any contaminated soil will be collected into non-permeable bags and disposed of to an approved landfill site or other legal disposal mechanism.	Prevention of groundwater pollution in line with National Water Act (36 of 1998)	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Operational	1 drill rig and 2 field vehicles on site for 12 months	1) The drilling fluid that will be used during prospecting must be biodegradable and not pose a water pollution threat. 2) Drilling sumps and containment measures will be designed to contain all drilling fluid. 3) Material Safety Data Sheets for the item(s) spilled will be consulted for information concerning clean-up requirements top ensure correct clean-up procedure. 4) Any contaminated soil will be collected into non-permeable bags and disposed of to an approved landfill site or other legal disposal mechanism.	Prevention of surface water pollution in line with National Water Act (36 of 1998)	For duration of prospecting activities on site

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			5) Any hydrocarbon contaminated water in sump will be pumped to containers for safe disposal at a registered disposal facility.		
Use of heavy machinery & vehicles on site for drilling	Operational	1 drill rig and 2 field vehicles on site for 12 months	1) Stay on predefined areas and routes. 2) Scarify access roads and stockpile areas to a depth of 500 mm and restore topsoil cover. 3) Re-seed or plant vegetation indigenous to the area.	Concurrent rehabilitation in line with sustainable development practices	Concurrently on completion of drilling activities at drill site
Use of heavy machinery & vehicles on site for drilling	Operational	1 drill rig and 2 field vehicles on site for 12 months	1) Vehicles will only stay on dedicated roads (turning circles). 2) No movement of heavy machinery outside dedicated routes. 3) All routes and turning circles will be scarified and re-seeded with seeds from vegetation indigenous to the area, if the landowner is not still utilising it.	Concurrent rehabilitation in line with sustainable development practices	Concurrently on completion of drilling activities at drill site
Use of heavy machinery & vehicles on site for drilling	Operational	1 drill rig and 2 field vehicles on site for 12 months	1) Drill holes not located in threatened or endangered ecosystem 2) More than 10% of the Barberton Centre for Endemism is formally protected. 3) PR area located next to protected area where similar potentially sensitive areas & species are formally protected. 4) Part of the PR area was previously transformed by a historic mine 5) Before drilling commences, a field survey will be undertaken by a qualified ecologist that has the capacity to identify wetland vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive areas / species are present in sections to be cleared.	Avoidance in line with National Biodiversity Act (10 of 2004)	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Operational	1 drill rig and 2 field vehicles on	1) Before drilling commences, a field survey will be undertaken by a qualified ecologist that has the capacity to identify wetland	Avoidance in line with National Biodiversity Act (10 of 2004)	Prior to drill site establishment

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
		site for 12 months	vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive areas / species are present in sections to be cleared. 2) No movement of heavy machinery outside dedicated routes. 3) All routes and turning circles will be scarified and re-seeded with seeds from vegetation indigenous to the area, if the landowner is not still utilising it.		
Use of heavy machinery & vehicles on site for drilling	Operational	1 drill rig and 2 field vehicles on site for 12 months	1) Drill holes not located in threatened or endangered ecosystem 2) More than 10% of the Barberton Centre for Endemism is formally protected. 3) PR area located next to protected area where similar potentially sensitive areas & species are formally protected. 4) Part of the PR area was previously transformed by a historic mine 5) Before drilling commences, a field survey will be undertaken by a qualified ecologist that has the capacity to identify wetland vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive areas / species are present in sections to be cleared.	Avoidance in line with National Biodiversity Act (10 of 2004) / Authorisation	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Operational	1 drill rig and 2 field vehicles on site for 12 months	1) Vehicles and equipment will be maintained in a good working order.	Maintenance of vehicles and equipment in line with responsible environmental management practice	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Operational	1 drill rig and 2 field vehicles on site for 12 months	1) Speed limits on gravel roads will be 40 km/hr to reduce dust and noise generation. 2) Dust will be effectively controlled in all disturbed areas through water spraying or other soil stabilization techniques.	National Dust Control Regulations GN 827 (2013)	During drill site establishment & drilling operations

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			3) The type and compaction of road building material, can reduce the amount of dust generated.		
Use of heavy machinery & vehicles on site for drilling activities	Operational	1 drill rig and 2 field vehicles on site for 12 months	1) Speed limits on gravel roads will be 40 km/hr to reduce dust and noise generation. 2) Prospecting activities will be restricted to day light hours. 3) No sensitive receptors in close proximity	Noise Standards - SANS 10103:2008	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Operational	1 drill rig and 2 field vehicles on site for 12 months	1) A maximum of one drill site to be drilled at any one time 2) Concurrent rehabilitation		For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Operational	1 drill rig and 2 field vehicles on site for 12 months	1) Before drilling commences, a field survey will be undertaken by a qualified ecologist that has the capacity to identify wetland vegetation and fauna and flora species of conservation concern, to confirm that no ecologically sensitive areas / species are present in sections to be cleared. 2) No animals will be trapped / killed 3) No bird nests will be disturbed	Number of drill holes stipulated in Prospecting Work Programme	During drilling operations
Use of heavy machinery & vehicles on site for drilling	Operational	1 drill rig and 2 field vehicles on site for 12 months	1) Machinery will be cleared of dust/mud and seed prior to relocation to the next site to prevent the spread of alien invasive species.	Prevention of proliferation of invasive plant species in line with National Environmental Management Biodiversity Act (10 of 2004)	For duration of prospecting activities on site
Prospecting / Drilling activities	Operational	0.19 ha	1) Quantification will provide information to make decisions on best manner to utilise the resource for the benefit of South Africa	Sustainable development	For duration of prospecting activities on site
Closure					

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Concurrent rehabilitation	Closure	0.19 ha	1) Remaining refuse, chemicals, fuels and waste materials will be removed from the site following the completion of the prospecting programme. Such waste will be disposed of to an approved landfill. 2) Erosion and sediment controls as well as the disturbed area will be rehabilitated. 3) An inspection on whether there is evidence of weeds or pest invasion as a result of prospecting activities will be undertaken and appropriate remediation actions will be implemented as required.	Concurrent rehabilitation in line with sustainable development practices	During drilling operations after site has been rehabilitated
Concurrent rehabilitation	Closure	0.19 ha	1) Scarify access roads and stockpile storage areas to a depth of 500 mm. 2) Restore topsoil cover. 3) Re-seed or plant vegetation indigenous to the area.	Concurrent rehabilitation in line with sustainable development practices	During drilling operations after site has been rehabilitated
Close drill hole	Closure	0.04 ha	1) Exploration boreholes are to be capped when no drilling work is being undertaken. 2) Exploration boreholes which will not be used during production to be sealed with cement once exploration work has been completed.	Capping of boreholes in line with sustainable management principles	For duration of prospecting activities on site
Rehabilitation of temporary access road	Closure	0.15 ha	1) Scarify access roads and stockpile storage areas to a depth of 500 mm. 2) Restore topsoil cover. 3) Re-seed or plant vegetation indigenous to the area.	Rehabilitation in line with sustainable development practices	After drilling operations when site has been rehabilitated

e) Impact Management Outcomes

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

Table 10-2: Impact management

ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION TYPE	STANDARD TO BE ACHIEVED
(whether listed or not listed). (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.).	*In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post- closure)*	*(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc….etc…)*		*(modify, remedy, control, or stop) through (e.g. noise control measures, storm- water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. • Modify through alternative method. • Control through noise control; Control through management and monitoring remedy through rehabilitation.*	*(Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc*
Prospecting - access road Vegetation clearance	Construction	Removal of / damage to natural vegetation	Vegetation	Control through location and size of access road	Rehabilitate impacted area to be in line with current land use
Access road construction erosion	Construction	Erosion loss of topsoil	Soils	Control through location and size of access road	No erosion at access road
Access road impacts on fauna	Construction and Operational	Impact on Fauna during construction of access road	Fauna	Control through Code of Conduct & Supervision	No loss of domestic animals and/ or wildlife
Vegetation clearance & cutting of vegetation at drill sites	Operational	Removal of / damage to natural vegetation	Vegetation	Control through location and size of drill holes and access roads	Rehabilitate impacted area to be in line with current land use
Vegetation clearance & cutting of vegetation at drill sites	Operational	The stripping of soil if needed, incorrect stockpiling, erosion and storm water run-off can lead to the loss of topsoil	Soils	Avoid through limiting the stripping of topsoil or correct stockpiling methods	Impact avoided through storage of topsoil
Vegetation clearance & cutting of vegetation at drill sites	Operational	Changes to the shape or form of the land	Topography	Remedy through rehabilitation	Rehabilitate impacted area to be in line with current land use
Vegetation clearance & cutting of vegetation at drill sites	Operational	Impact on current land use	Land Use & Land Capability	Control through location and size of access road	Minimise disturbance to and alternation of current land use practices
Vegetation clearance, Site establishment, Drilling	Operational	Destruction of cultural heritage sites and artefacts	Cultural Heritage	Avoid through buffer	Avoid impact - identify as no go area. SAHRA authorisation.

ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION TYPE	STANDARD TO BE ACHIEVED
activities & movement of people and equipment on site					
Vegetation clearance, Site establishment, Drilling activities & movement of people and equipment on site	Operational	Destruction of geosites	Cultural Heritage	Avoid through location / buffer	Avoid impact - identify as no go area. SAHRA authorisation.
Vegetation clearance & cutting of vegetation at drill sites	Operational	Damage to highest biodiversity areas (mining guidelines)	Biodiversity	Avoid through identification of sensitive areas	Impact avoided
Vegetation clearance & cutting of vegetation at drill sites	Operational	Damage to sensitive areas & species	Biodiversity	Avoid through identification of sensitive areas	Impact avoided
Vegetation clearance for & cutting of vegetation at drill sites	Operational	Air Quality Impact (Dust)	Air Quality	Control through dust suppression	Dust suppression to ensure dust fall out is below thresholds stipulated in Dust Control Regulations
Vegetation clearance & cutting of vegetation at drill sites	Operational	Disturbance of commercial & community activities on site	Social and Economic Environment	Manage through communication & access agreements	Minimise disturbance of current activities on area
Vegetation clearance & cutting of vegetation at drill sites	Operational	Storm water run-off from cleared areas could lead to erosion	Surface Water	Control through storm water management features	Avoid storm water runoff from cleared areas into watercourses, dams & wetlands
Workers & material on site	Operational	Contamination of soils through spills from sanitation facilities & litter	Soils	Remedy through spill clean-up; Avoid through maintenance; Control through waste management practices	Impact to be controlled to avoid contamination of soil
Workers & material on site	Operational	Poaching / Killing of snakes & animals	Fauna	Control through Code of Conduct & Supervision	No loss of cattle and/ or wildlife
Workers & material on site	Operational	Fire	Social and Economic & Ecology Environment	Avoid through fire breaks and Code of Conduct	No fires
Workers & material on site	Operational	Collection of fire wood, damage to property	Vegetation	Control through Code of Conduct & Supervision	No complaints from land owners, no collection of fire wood

ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Workers & material on site	Operational	Contribution to the economy through employment	Social and Economic Environment		Creation of employment opportunities
Workers & material on site	Operational	Snake bites	Safety	Avoid through awareness training	Impact to be avoided
Workers & material on site	Operational	Spread of HIV/Aids to local community	Social and Economic Environment	Avoid through awareness training	Impact to be avoided
Use of heavy machinery & vehicles on site for drilling or activities	Operational	Resource consumption (diesel - non-renewable resource)	Fossil fuels	Control through maintenance	Well maintained equipment & vehicles (annually)
Use of heavy machinery & vehicles on site for drilling	Operational	Contamination of soils through hydrocarbon leaks and spills from machinery & equipment	Soils	Remedy through clean-up of spillages	No hydrocarbon spillages
Use of heavy machinery & vehicles on site for drilling	Operational	Use of water for drilling activities	Water Quantity	Control though using water from local legal source & re-use	No abstraction of groundwater or surface water
Use of heavy machinery & vehicles on site for drilling	Operational	Compromising strategic water resource areas	Water Quantity	Avoid through location; Control though using water from local legal source & re-use	Impact avoided
Use of heavy machinery & vehicles on site for drilling	Operational	Contamination of groundwater through hydrocarbon leaks and spills from machinery & equipment	Groundwater	Control through engineering design and clean-up of spills	No groundwater contamination
Use of heavy machinery & vehicles on site for drilling	Operational	Contamination of water courses through hydrocarbon leaks and spills from machinery & equipment	Surface Water	Avoid through use of biodegradable drilling fluid; Control through construction of lined sumps and safe disposal	No surface water contamination
Use of heavy machinery & vehicles on site for drilling	Operational	Compaction of soils through movement of heavy vehicles and machinery on site	Soils	Control through dedicated routes; Remedy through rehabilitation	Limit areas of compaction. Rehabilitate impacted area to be in line with current land use

ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Use of heavy machinery & vehicles on site for drilling	Operational	Damage to vegetation	Vegetation	Control through dedicated routes; Remedy through rehabilitation	Limit areas. Rehabilitate impacted area to be in line with current land use
Use of heavy machinery & vehicles on site for drilling	Operational	Damage to highest biodiversity areas (mining guidelines)	Biodiversity	Avoid through location & identification of sensitive areas	Impact avoided
Use of heavy machinery & vehicles on site for drilling	Operational	Damage to fauna and flora	Biodiversity	Avoid through field survey by qualified ecologist; Control through dedicated routes; Remedy through rehabilitation	Impact avoided
Use of heavy machinery & vehicles on site for drilling	Operational	Damage to sensitive areas & species	Biodiversity	Avoid through location and identification of sensitive areas	Impact avoided
Use of heavy machinery & vehicles on site for drilling	Operational	Release of gaseous emissions impacting on air quality	Air Quality	Control through maintenance	Well maintained equipment & vehicles (annually)
Use of heavy machinery & vehicles on site for drilling	Operational	Air Quality Impact (Dust)	Air Quality	Control through speed limit; Avoid through dust suppression	Dust suppression to ensure dust fall out is below thresholds stipulated in Dust Control Regulations
Use of heavy machinery & vehicles on site for drilling activities	Operational	Increase in ambient noise levels	Social and Economic Environment	Control through speed limit and operational hours	Ambient noise levels to be below thresholds stipulated in SANS 10103:2008 for sub-urban sound environment-
Use of heavy machinery & vehicles on site for drilling	Operational	Visual intrusion	Social and Economic Environment	Control through drilling sequence	No complaints from land owners / neighbours.
Use of heavy machinery & vehicles on site for drilling	Operational	Disturbance of fauna species in the vicinity	Fauna	Avoid through field survey by qualified ecologist; Control through rules of conduct	Rehabilitate impacted area to be in line with current land use
Use of heavy machinery & vehicles on site for drilling	Operational	Proliferation of invasive plant species	Vegetation	Avoid through management practice	No proliferation of invasive plant species
Prospecting / Drilling activities	Operational	Quantification of mineral resource (Au, Ag & Aggregate)	Mineral resource	None required	Quantification of mineral resource
Closure					

ACTIVITY	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Concurrent rehabilitation	Closure	Reducing soil compaction of disturbed area and access roads to improve drainage and control erosion	Land Use & Land Capability	Remedy through rehabilitation	Rehabilitate impacted area to be in line with current land use
Concurrent rehabilitation	Closure	Use stockpiled top soil to close sumps	Soils	Remedy through rehabilitation	Rehabilitate impacted area to be in line with current land use
Close drill hole	Closure	Restoration of land use and land capability	Land Use & Land Capability	Remedy through capping / sealing	Capping of all boreholes
Rehabilitation of temporary access road	Closure	Reducing soil compaction of disturbed area and access roads to improve drainage and control erosion	Land Use & Land Capability	Remedy through rehabilitation	Rehabilitate impacted area to be in line with current land use

f) Impact Management Actions

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

Table 10-3: Management Actions

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
whether listed or not listed. (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.).	*(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc….etc…)*	*(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. • Modify through alternative method. • Control through noise control • Control through management and monitoring Remedy through rehabilitation.*	*(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)*	*Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. . With regard to Rehabilitation, therefore state either: -. Upon cessation of the individual activity or. Upon the cessation of*

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
				mining, bulk sampling or alluvial diamond prospecting as the case may be.
Prospecting - access road Vegetation clearance	Removal of / damage to natural vegetation	Control through location and size of access road	Concurrent rehabilitation in line with sustainable development practices	During drill site establishment
Access road construction erosion	Erosion loss of topsoil	Control through location and size of access road	Avoidance of erosion in line with Regulation 70 of GN 527 (2004)	During drill site establishment & drill operations
Access road impacts on fauna	Impact on Fauna during construction of access road	Control through Code of Conduct & Supervision	No poaching in line with Animals Protection Act (No. 71 of 1962)	For duration of prospecting activities on site
Vegetation clearance & cutting of vegetation at drill sites	Removal of / damage to natural vegetation	Control through location and size of drill holes and access roads	Concurrent rehabilitation in line with sustainable development practices	During drill site establishment
Vegetation clearance & cutting of vegetation at drill sites	The stripping of soil if needed, incorrect stockpiling, erosion and storm water run-off can lead to the loss of topsoil	Avoid through limiting the stripping of topsoil or correct stockpiling methods	Storage of topsoil in line with Regulation 70 of GN 527 (2004)	During drill site establishment & drill operations
Vegetation clearance & cutting of vegetation at drill sites	Changes to the shape or form of the land	Remedy through rehabilitation	Number of drill holes and trial pits stipulated in Prospecting Work Programme	During drilling operations
Vegetation clearance & cutting of vegetation at drill sites	Impact on current land use	Control through location and size of access road	Concurrent rehabilitation in line with sustainable development practices	Prior to drill site establishment
Vegetation clearance, Site establishment, Drilling activities & movement of people and equipment on site	Destruction of cultural heritage sites and artefacts	Avoid through buffer	Avoidance in line with National Heritage Resources Act (No. 25 of 1999)	Prior to drill site establishment
Vegetation clearance, Site establishment, Drilling activities & movement of people and equipment on site	Destruction of geosites	Avoid through location / buffer	Avoidance in line with National Heritage Resources Act (No. 25 of 1999)	Prior to drill site establishment

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Vegetation clearance & cutting of vegetation at drill sites	Damage to highest biodiversity areas (mining guidelines)	Avoid through identification of sensitive areas	Avoidance in line with National Biodiversity Act (10 of 2004)	Prior to drill site establishment
Vegetation clearance & cutting of vegetation at drill sites	Damage to sensitive areas & species	Avoid through identification of sensitive areas	Avoidance in line with National Biodiversity Act (10 of 2004) / Authorisation	Prior to drill site establishment
Vegetation clearance for & cutting of vegetation at drill sites	Air Quality Impact (Dust)	Control through dust suppression	National Dust Control Regulations GN 827 (2013)	During drill site establishment & drilling operations
Vegetation clearance & cutting of vegetation at drill sites	Disturbance of commercial & community activities on site	Manage through communication & access agreements	Concurrent rehabilitation in line with sustainable development practices	During to drill site establishment & drilling operations
Vegetation clearance & cutting of vegetation at drill sites	Storm water run-off from cleared areas could lead to erosion	Control through storm water management features	Storm water management in line with National Water Act (36 of 1998)	For duration of prospecting activities on site
Workers & material on site	Contamination of soils through spills from sanitation facilities & litter	Remedy through spill clean-up; Avoid through maintenance; Control through waste management practices	Maintenance and replacement of chemical toilets in line with Regulation 71 of GN 527 (2004). Waste collection and disposal in line with Regulation 69 of GN 527 of 2004 and with National Environmental Management: Waste Act (59 of 2008)	For duration of prospecting activities on site
Workers & material on site	Poaching / Killing of snakes & animals	Control through Code of Conduct & Supervision	No poaching in line with Animals Protection Act (No. 71 of 1962)	For duration of prospecting activities on site
Workers & material on site	Fire	Avoid through fire breaks and Code of Conduct	Fire prevention in line with Regulation 65 of GN 527 (2004) and with National Veldt and Forest Fire Act	For duration of prospecting activities on site
Workers & material on site	Collection of fire wood, damage to property	Control through Code of Conduct & Supervision	Conditions stipulated in Access Agreement	For duration of prospecting activities on site
Workers & material on site	Contribution to the economy through employment		Contractual agreements between the service provider and the applicant	For duration of prospecting activities on site

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Workers & material on site	Snake bites	Avoid through awareness training		For duration of prospecting activities on site
Workers & material on site	Spread of HIV/Aids to local community	Avoid through awareness training	National Strategic Plan on HIV, STIs and TB 2012-2016	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling or activities	Resource consumption (diesel - non-renewable resource)	Control through maintenance	Maintenance of vehicles and equipment in line with responsible environmental management practice	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Contamination of soils through hydrocarbon leaks and spills from machinery & equipment	Remedy through clean-up of spillages	Prevention of soil pollution in line with Regulation 70 of GN 527 (2004)	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Use of water for drilling activities	Control though using water from local legal source & re-use	Responsible use of surface water & groundwater resources in line with Regulation 68 of GN 527 (2004) and with the National Water Act (36 of 1998)	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Compromising strategic water resource areas	Avoid through location; Control though using water from local legal source & re-use	Avoidance in line with the National Water Act (36 of 1998)	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Contamination of groundwater through hydrocarbon leaks and spills from machinery & equipment	Control through engineering design and clean-up of spills	Prevention of groundwater pollution in line with National Water Act (36 of 1998)	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Contamination of water courses through hydrocarbon leaks and spills from machinery & equipment	Avoid through use of biodegradable drilling fluid; Control through construction of lined sumps and safe disposal	Prevention of surface water pollution in line with National Water Act (36 of 1998)	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Compaction of soils through movement of heavy vehicles and machinery on site	Control through dedicated routes; Remedy through rehabilitation	Concurrent rehabilitation in line with sustainable development practices	Concurrently on completion of drilling activities at drill site

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Use of heavy machinery & vehicles on site for drilling	Damage to vegetation	Control through dedicated routes; Remedy through rehabilitation	Concurrent rehabilitation in line with sustainable development practices	Concurrently on completion of drilling activities at drill site
Use of heavy machinery & vehicles on site for drilling	Damage to highest biodiversity areas (mining guidelines)	Avoid through location & identification of sensitive areas	Avoidance in line with National Biodiversity Act (10 of 2004)	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Damage to fauna and flora	Avoid through field survey by qualified ecologist; Control through dedicated routes; Remedy through rehabilitation	Avoidance in line with National Biodiversity Act (10 of 2004)	Prior to drill site establishment
Use of heavy machinery & vehicles on site for drilling	Damage to sensitive areas & species	Avoid through location and identification of sensitive areas	Avoidance in line with National Biodiversity Act (10 of 2004) / Authorisation	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Release of gaseous emissions impacting on air quality	Control through maintenance	Maintenance of vehicles and equipment in line with responsible environmental management practice	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Air Quality Impact (Dust)	Control through speed limit; Avoid through dust suppression	National Dust Control Regulations GN 827 (2013)	During drill site establishment & drilling operations
Use of heavy machinery & vehicles on site for drilling activities	Increase in ambient noise levels	Control through speed limit and operational hours	Noise Standards - SANS 10103:2008	For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Visual intrusion	Control through drilling sequence		For duration of prospecting activities on site
Use of heavy machinery & vehicles on site for drilling	Disturbance of fauna species in the vicinity	Avoid through field survey by qualified ecologist; Control through rules of conduct	Number of drill holes stipulated in Prospecting Work Programme	During drilling operations
Use of heavy machinery & vehicles on site for drilling	Proliferation of invasive plant species	Avoid through management practice	Prevention of proliferation of invasive plant species in line with National Environmental Management Biodiversity Act (10 of 2004)	For duration of prospecting activities on site

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Prospecting / Drilling activities	Quantification of mineral resource (Au, Ag & Aggregate)	None required	Sustainable development	For duration of prospecting activities on site
Closure				
Concurrent rehabilitation	Reducing soil compaction of disturbed area and access roads to improve drainage and control erosion	Remedy through rehabilitation	Concurrent rehabilitation in line with sustainable development practices	During drilling operations after site has been rehabilitated
Concurrent rehabilitation	Use stockpiled top soil to close sumps	Remedy through rehabilitation	Concurrent rehabilitation in line with sustainable development practices	During drilling operations after site has been rehabilitated
Close drill hole	Restoration of land use and land capability	Remedy through capping / sealing	Capping of boreholes in line with sustainable management principles	For duration of prospecting activities on site
Rehabilitation of temporary access road	Reducing soil compaction of disturbed area and access roads to improve drainage and control erosion	Remedy through rehabilitation	Rehabilitation in line with sustainable development practices	After drilling operations when site has been rehabilitated

i) Financial Provision

(1) Determination of the amount of Financial Provision.

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

The calculation of the Financial Provision is included in Appendix 6.

The following closure objectives will be applicable for concurrent rehabilitation:

Land disturbed will be rehabilitated to a stable and permanent form suitable for subsequent land use e.g. eco-tourism, farming and cattle grazing.

The final land use will be similar to surrounding land-use i.e. natural areas (over time) and cattle grazing

There will be no adverse environmental effect outside the small disturbed areas (0.19 ha) and the affected area will be shaped to ensure effective drainage.

The closure objectives are to reduce disturbance wherever possible so that normal land use can continue after closure.

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

The closure objectives as outlined above will be made available to all land owners and I&APs during the period for comment on the BAR. Comments received in terms of the environmental objectives in terms of closure will be inserted here.

Because the closure objectives are to reduce disturbance wherever possible so that normal land use can continue after closure, closure will not adversely affect the rights of the landowners or I&APs.

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

Please note this is an application for the prospecting of gold. Approximately 4 holes will be drilled and four access routes (484 m x 3 m) will be created. Drilled holes and access routes will be closed/ rehabilitated concurrently with drilling.

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

Safety after the completion of the prospecting activities will be done by concurrent rehabilitation of drill holes. Overburden & gold will be recorded and the holes filled back upon completion. The access routes will also be rehabilitated concurrently should the land owner not require the use of the route. Overburden and topsoil will be replaced.

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

Please refer to Quantum Appendix 6.

WITHOUT CONCURRENT REHABILITATION

CALCULATION OF THE QUANTUM

Applicant: It's a Good Time (Pty) Ltd — Ref No.: MP30/5/1/1/2/15259PR

Evaluator: **San Oosthuizen** — Date: 28 June 2018

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	15,2	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	211,8	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	312,12	1	1	0
3	Rehabilitation of access roads	m2	1452	37,9	1	1	55030,8
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	367,86	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	200,65	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	423,6	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0,04	215588,85	1	1	8623,554
7	Sealing of shafts adits and inclines	m3	0	113,7	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0	148036,19	1	1	0
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	184376,4	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	535516,46	1	1	0
9	Rehabilitation of subsided areas	ha	0	123958,01	1	1	0
10	General surface rehabilitation	ha	0	117269,63	1	1	0
11	River diversions	ha	0	117269,63	1	1	0
12	Fencing	m	160	133,77	1	1	21403,2
13	Water management	ha	0	44589,21	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0	15606,22	1	1	0
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
					Sub Total 1		R85 057,55

1	Preliminary and General	10206,90648	weighting factor 2 / 1	R10 206,91
2	Contingencies	R8 505,76		R8 505,76
			Subtotal 2	R 103 770,22
			VAT (15%)	R 15 565,53
			Grand Total	**R119 336**

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

It’s A Good Time (Pty) Ltd herewith confirms both its capacity and willingness to make the financial provision required should the prospecting right be granted.

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

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

Although no significant impacts were identified after the appliance of mitigation measures monitoring requirements for all impacts identified are provided below to ensure that all activities are effectively managed.

Table 10-4: Monitoring requirements

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
Prospecting - access road Vegetation clearance	Removal of / damage to natural vegetation	Visual checks that no more than 0.01 ha vegetation is removed per drill hole	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA Application for Closure Certificate
Access road construction erosion	Erosion loss of topsoil	Visual checks at access road for signs of erosion (especially after rain events)	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Access road impacts on fauna	Impact on Fauna during construction of access road	Daily attendance checks and register	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Vegetation clearance & cutting of vegetation at drill sites	Removal of / damage to natural vegetation	Visual checks that no more than 0.01 ha vegetation is removed per drill hole	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA Application for Closure Certificate

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
Vegetation clearance & cutting of vegetation at drill sites	The stripping of soil if needed, incorrect stockpiling, erosion and storm water run-off can lead to the loss of topsoil	Ensure removal of 250 mm topsoil and storage thereof, if required. Visual checks to ensure topsoil stockpile is protected from being blown away or being eroded.	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Vegetation clearance & cutting of vegetation at drill sites	Changes to the shape or form of the land	Drill equipment - 0.3 to 0.5m drill rig.	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA Application for Closure Certificate
Vegetation clearance & cutting of vegetation at drill sites	Impact on current land use	Communication with land owner. Access agreement conditions	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA Application for Closure Certificate
Vegetation clearance, Site establishment, Drilling activities & movement of people and equipment on site	Destruction of cultural heritage sites and artefacts	Communication with land occupiers and land owners to identify other sites of cultural importance. Identification of such sites as no-go areas	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Vegetation clearance, Site establishment, Drilling activities & movement of people and equipment on site	Destruction of geosites	Communication with land occupiers and land owners to identify other sites of cultural importance. Identification of such sites as no-go areas	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Vegetation clearance & cutting of vegetation at drill sites	Damage to highest biodiversity areas (mining guidelines)	Avoid prospecting activities in sensitive areas	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Vegetation clearance & cutting of vegetation at drill sites	Damage to sensitive areas & species	Avoid drilling activities in sensitive areas / Conditions of Authorisation	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA

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
Vegetation clearance for & cutting of vegetation at drill sites	Air Quality Impact (Dust)	Dust suppression - dry season	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Vegetation clearance & cutting of vegetation at drill sites	Disturbance of commercial & community activities on site	Communication with land owner. Access agreement conditions	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA Application for Closure Certificate
Vegetation clearance & cutting of vegetation at drill sites	Storm water run-off from cleared areas could lead to erosion	Sediment and erosion controls - e.g. cut-off trenches and drains, culverts for tracks, silt fences, straw bales, rock armouring or mulching	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Workers & material on site	Contamination of soils through spills from sanitation facilities & litter	Regular maintenance of chemical toilets. Replacement if required. Collection and disposal of waste	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Workers & material on site	Poaching / Killing of snakes & animals	Daily attendance checks and register	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Workers & material on site	Fire	Visual checks to ensure fire breaks is in place and Code of Conduct is adhered to	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Workers & material on site	Collection of fire wood, damage to property	Complaints register & daily attendance register	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Workers & material on site	Contribution to the economy through employment	Contractual agreement	Site supervisor	Invoicing Performance Assessment & Reporting at frequencies stipulated in EA
Workers & material on site	Snake bites	Toolbox talks	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA

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
Workers & material on site	Spread of HIV/Aids to local community	Toolbox talks	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Use of heavy machinery & vehicles on site for drilling or activities	Resource consumption (diesel - non-renewable resource)	Maintenance records	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Use of heavy machinery & vehicles on site for drilling	Contamination of soils through hydrocarbon leaks and spills from machinery & equipment	Visual checks at storage and vehicle parking areas. Material Safety Data Sheets	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Use of heavy machinery & vehicles on site for drilling	Use of water for drilling activities	No abstraction of groundwater or surface water / Water bowser	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Use of heavy machinery & vehicles on site for drilling	Compromising strategic water resource areas	Avoid drilling activities in strategic water resource areas	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Use of heavy machinery & vehicles on site for drilling	Contamination of groundwater through hydrocarbon leaks and spills from machinery & equipment	Drip trays, PVC Liners or concrete slab. Material Safety Data Sheets	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Use of heavy machinery & vehicles on site for drilling	Contamination of water courses through hydrocarbon leaks and spills from machinery & equipment	Drip trays, PVC Liners, Safe Disposal. Material Safety Data Sheets	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Use of heavy machinery & vehicles on site for drilling	Compaction of soils through movement of heavy vehicles and machinery on site	Determination of access routes (drill grid). Rehabilitation of drill sites & access routes	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA Application for Closure Certificate
Use of heavy machinery & vehicles on site for drilling	Damage to vegetation	Determination of access routes (drill grid). Rehabilitation of drill sites & access routes	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA Application for Closure Certificate

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
Use of heavy machinery & vehicles on site for drilling	Damage to highest biodiversity areas (mining guidelines)	None required	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Use of heavy machinery & vehicles on site for drilling	Damage to fauna and flora	Avoid prospecting activities in areas containing species of conservation concern	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Use of heavy machinery & vehicles on site for drilling	Damage to sensitive areas & species	Avoid drilling activities in sensitive areas / Conditions of Authorisation	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Use of heavy machinery & vehicles on site for drilling	Release of gaseous emissions impacting on air quality	Maintenance records	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Use of heavy machinery & vehicles on site for drilling	Air Quality Impact (Dust)	Dust suppression - dry season	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Use of heavy machinery & vehicles on site for drilling activities	Increase in ambient noise levels	Complaints register	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Use of heavy machinery & vehicles on site for drilling	Visual intrusion	Prospecting Work Programme	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA
Use of heavy machinery & vehicles on site for drilling	Disturbance of fauna species in the vicinity	Drill equipment - 0.3 - 0.5 m drill rig; Rules of conduct	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA Application for Closure Certificate
Use of heavy machinery & vehicles on site for drilling	Proliferation of invasive plant species	Works Instruction	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA

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
				Application for Closure Certificate
Prospecting / Drilling activities	Quantification of mineral resource (Au, Ag & Aggregate)	Core logging	Geologist	Annual update of PWP
Closure				
Concurrent rehabilitation	Reducing soil compaction of disturbed area and access roads to improve drainage and control erosion	Visual checks to determine level of rehabilitation	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA Application for Closure Certificate
Concurrent rehabilitation	Use stockpiled top soil to close sumps	Visual checks to determine level of rehabilitation	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA Application for Closure Certificate
Close drill hole	Restoration of land use and land capability	Visual checks to ensure capping of boreholes	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA Closure Application
Rehabilitation of temporary access road	Reducing soil compaction of disturbed area and access roads to improve drainage and control erosion	Visual checks to determine level of rehabilitation	Site supervisor	Performance Assessment & Reporting at frequencies stipulated in EA Application for Closure Certificate

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

In terms of regulation 26(e) of the EIA Regulations, 2014 the competent authority must specify the frequency of auditing of compliance with the conditions of the environmental authorisation and of compliance with the EMPr. According to the regulation the frequency of the auditing of compliance with the conditions of the environmental authorisation and of compliance with the EMPr may not exceed intervals of five years. It is recommended that an environmental audit be conducted every two years by an independent external auditor and the results of the audit be provided to the regional manager. The environmental audit report must be compiled in accordance with Appendix 7 of the EIA Regulations, 2014.

m) Environmental Awareness Plan

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

All employees will be required to undergo site induction. Additionally, daily toolbox talks will be held each morning before the activities for the day are commenced.

The Site Induction training will focus on the following:

Discussion of environmental impacts as indicated in the Impact Assessment Table (Appendix 5)

(a) Waste management –The removal of all waste from site to prevent litter

(b) Water usage – Conservation of water, correlation between water & erosion.

(c) Driving protocol – Pre-start vehicle checks prior to driving, adhering to speed limits on dirt roads.

(d) Environmental mitigation – Example no collection of wood, no open fires, no snaring of animals, no poaching, no unnecessary destruction of vulnerable natural vegetation, clean-up of hydrocarbon spills, etc.

(e) Emergency procedure – Type of emergencies, type of alarms, emergency equipment, location of assembly point and identification of emergency wardens.

(f) During the daily toolbox talks the following will be discussed:

(g) Any environmental or health and safety incidents that may have occurred the previous day

(h) Status of housekeeping on site

(i) Ad hoc refresher in terms of emergency procedures

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

Please refer to the following:

(a) Appendix 5 for the Impact Table

(b) Table 10-3 presented above in Part B 1 (d) (iv).

n) Specific information required by the Competent Authority
(Among others, confirm that the financial provision will be reviewed annually).

(a) Prospecting Work Programme

(b) The Financial Provision reviewed on an annual basis

(c) Performance assessment

(d) External Audits

2) UNDERTAKING

The EAP herewith confirms

a) the correctness of the information provided in the reports;

b) the inclusion of comments and inputs from stakeholders and I&APs ;

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

d) that the information provided by the EAP to interested and affected parties any responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein.

Signature of the environmental assessment practitioner:

EcoPartners (Pty) Ltd

Name of company:

Date: 17 August 2018

-END-

11 REFERENCES

Animal Demography Unit. 2018. The Vitual Museum@ADU, Available at www.adu.org/vm [28 June 2018]

Barberton Makhonjwa Mountains. 2018. World Heritage Site, Available at https://whc.unesco.org/en/list/1575/ [3 July 2018]

Barnes, K (ed.). 1998. The Important Bird Areas of Southern Africa. Johannesburg: BirdLife South Africa.

BirdLife South Africa. Important Bird Areas 2015 [vector geospatial dataset] 2015. Available from the Biodiversity GIS website, downloaded on 20 June 2018

CITES. 2018. The CITES species, Available at https://www.cites.org/eng/disc/species.php [19 June 2018]

City of Mbombela. 2017. City of Mbombela Final IDP, 2017 – 2022.

City of Mbombela. 2018. Final Integrated Development Plan (IDP) Review 2018-2019

Conservation of Agricultural Resources Act (Act No. 43 of 1983)

Council for Scientific and Industrial Research. 2011. NFEPA wetlands 2011 [vector geospatial dataset]. Available: Biodiversity GIS website,[22 June 2018]

Department of Environmental Affairs, Department of Mineral Resources, Chamber of Mines, South African Mining and Biodiversity Forum, and South African National Biodiversity Institute. 2013. Mining and Biodiversity Guideline: Mainstreaming biodiversity into the mining sector. Pretoria. 100 pages.

Department of Environmental Affairs. 2011. National Environmental Management: Biodiversity Act: National List of ecosystems that are threatened and in need of protection. Government Gazette No,34809. Government Gazette, Pretoria

Department of Environmental Affairs. 2017. Public Participation guideline in terms of NEMA EIA Regulations.

Department of Environmental Affairs. 2017. Guideline on Need and Desirability.

Department of Environmental Affairs. DEA National Landcover (TIFF) 2015 [Raster] 2015. Available from the Biodiversity GIS website, downloaded on 18 June 2018

Department of Water Affairs and Forestry (DWAF), South Africa. 2007. Comprehensive Reserve Determination Study for Selected Water Resources (Rivers, Groundwater and Wetlands) in the Inkomati Water Management Area, Mpumalanga. Inception Report. Prepared by Water for Africa, Louw, MD & Singh, A. Report no. 26/8/3/10/12/001.

Department of Water Affairs and Forestry (DWAF), South Africa. 2007b. Chief Directorate: Resource Directed Measures. Development of the Water Resource Classification System (WRCS) Volume 1 Overview and 7-step classification procedure. October 2006.

Department of Water Affairs, South Africa, March 2014. The determination of water resource classes and associated resource quality objectives in the Inkomati Water Management Area. Ecological Water Requirements. Authored by Birkhead AL, Koekemoer S, Louw D, Huggins G. DWA Report, RDM/WMA05/00/CON/CLA/0114.

Department of Water and Forestry. 1996. Water Quality Guidelines for Domestic Water Use. Pretoria, South Africa

Department of Water and Sanitation (DWS), South Africa, 2017. Determination of Water Resource Classes and Resource Quality Objectives for Water Resources in the Mzimvubu Catchment. Status Quo and (RU and IUA) Delineation Report. Compiled by Rivers for Africa eFlows Consulting (Pty) Ltd. for Scherman Colloty and Associates cc. Report no. WE/WMA7/00/CON/CLA/0316

Driver, A., Nel, J. L., Strydom, W., Maherry, A., Petersen, C., Roux, D.J., Nienaber, S., van Deventer, H., Smith-Adao, L.B. and Hill, L. 2011. Atlas of freshwater ecosystem priority areas in South Africa: maps to support sustainable development of water resources. Water Research Commission, Pretoria, South Africa.

Du Toit. W.H (1999). 1:500 000 Hydrogeological Map Series of the Republic of South Africa: Nelspruit. Department of Water Affairs and Forestry

Ehlanzeni District Municipality. 2017. Ehlanzeni District Municipality’s Final IIDP and Budget 2017-2022

EWT & SANBI. 2016. Red List of Mammals of South Africa, Lesotho and Swaziland

Hazardous Substances Act (Act No.15 of 1979)

IUCN. 2016. The IUCN Red List of Threatened Species. Version 2016-3. Available: http://www.iucnredlist.org [June 2018].

Johnson, M.R, van Vuuren, C.J, Visser, J.N.J, Cole, D.I, Roberts, D.L, Brandl, G. 2006. Sedimentary Rocks of the Karoo Supergroup. In: Johnson, M.R., Annhaeusser, C.R., and Thomas, R.J. (Eds.), The Geology of South Africa, Johannesburg. Council for Geoscience, Pretoria

Kleynhans, C.J. and Louw, M.D. 2007. Module A: EcoClassification and EcoStatus determination. In River EcoClassification: Manual for EcoStatus Determination (version 2) Water Research Commission Report No. TT 333/08. Joint Water Research Commission and Department of Water Affairs and Forestry report, Pretoria, South Africa.

Marnewick, M.D., Retief, E.F., Wright, D.R. and Theron, N.T. 2015. South Africa's Important Bird and Biodiversity Areas Status Report 2015. Johannesburg: BirdLife South Africa.

Meteoblue. 2018. Weather Barberton, Available from https://www.meteoblue.com/en/weather/forecast/week/barberton_south-africa_1021086 [21 June 2018]

Mineral and Petroleum Resources Development Act (Act 28 of 2002) as amended

MPTA. 2014. Mpumalanga Biodiversity Sector Plan (MBSP) Handbook. Compiled by Lotter M.C., Cadman, M.J. and Lechmere-Oertel, R.G. Mpumalanga Tourism & Parks Agency, Mbombele (Nelspruit).

Mpumalanga Tourism and Parks Agency. MBSP Terrestrial Assessment 2014 [Vector] 2014. Available from the Biodiversity GIS website, downloaded on 03 July 2018

Mpumalanga Nature Conservation Act (Act No. 10 of 1998)

Mpumalanga Tourism and Parks Agency (MTPA), 2012. Integrated Management Plan: Barberton Nature Reserve: Phase 3: Mountainlands, Mpumalanga Province, South Africa. MTPA, Nelspruit.

Mpumalanga Tourism and Parks Agency. Archived MBCP Terrestrial Biodiversity Assessment 2006 [vector geospatial dataset] 2006. Available from the Biodiversity GIS website, downloaded on 19 June 2018

MTPA, 2012 The Barberton Nature Reserve, Phase 3 Implementation Management Plan Mpumalanga Tourism and Parks Agency

Mucina, L. and Rutherford, M.C. (eds). 2006. The vegetation of South Africa, Lesotho and Swaziland, in Strelitzia 19. South African National Biodiversity Institute, Pretoria.

National Environmental Management Biodiversity Act (NEMBA: Act 10 0f 2004)

National Environmental Management Protected Areas Act (Act 57 of 2003)

National Environmental Management Waste Act (Act No. 59 of 2008) as amended

National Environmental Management: Air Quality Act (AQA) (Act No. 39 of 2004) as amended

National Heritage Resources Act (Act No 25 of 1999)

National Veld and Forest Fire Act (Act 101 of 1998)

National Water Act (Act No. 36 of 1998) as amended

Pan Africa Resources, 2017, Sustainable Development Report for the Year ended 30 June 2017.

ProEcoServe, CSIR, MTPA. MBSP Strategic Water Source Areas 2014 [Vector] 2014. Available from the Biodiversity GIS website, downloaded on 22 June 2018

SANBI & CSIR. Archived MS Wetlands 2010 [vector geospatial dataset] 2010. Available from the Biodiversity GIS website, downloaded on 23 June 2018

SANBI. 2009. SANBI Biodiversity Series 13 - South African Red Data Book butterflies. G.A. Henning', R.F. Terblanche 2 andJ.B. Ball 3 (Editors).

SANBI. 2018. Red List of South African Plants, Available at http://redlist.sanbi.org/ [25 June 2018]

SANParks/SANBI. South African National Parks (from NPAES) 2010 [vector geospatial dataset] 2010. Available from the Biodiversity GIS website, downloaded on 25 June 2018

South Africa Bird Atlas Project 2. 2018. Available at www. sabap2.adu.org.za [18 June 2018]

South Africa. 1992. Regulation 154 of 10 January 1992 - Noise Control Regulations, Government Gazette No 13717

South Africa. 2004. Regulation 527 of 23 April 2004 – Mineral and Petroleum Resources Development Regulations, Government Gazette No. 26275

South Africa. 2013. National dust control regulations for South Africa of 1 November 2013 Government Gazette No 36974

South Africa. 2014. Regulation 982 of 4 Dec 2014– EIA Regulations. Amended by GNR 326 of 7 Apr 17, Government Gazette No. 40772

South Africa. 2014. Regulation 983 of 4 Dec 2014 – Regulation Listing Notice 3 – Activities in specific identified geographical areas that requires authorisation. Amended by GNR 327 of 7 Apr 17, Government Gazette No. 40772

South Africa. 2014. Regulation 985 of 4 Dec 2014 – Regulation Listing Notice 1 – Activities in specific identified geographical areas that requires authorisation. Amended by GNR 324 of 7 Apr 17, Government Gazette No. 40772

South Africa. 2016. Classes of water resources and resource quality objectives for the catchments of the Inkomati, *Government Gazette* 40531:1616, 30 December 2016.

South Africa. 2018. South African Heritage Resources Agency Declaration of Geosites as part of the Barberton Makhonjwa Mountains as National Heritage Sites GN 585 of 15 June 2018, Government Gazette No. 41704

South Africa.2013. Threatened or Protected Species List (ToPS List) – Government Gazette Notice No. 389 of 2013 Government Gazette No 36375

South African National Biodiversity Institute. 2012 Vegetation Map App [Vector] 2012. Available from the Biodiversity GIS website, downloaded on 21 June 2018

South African National Biodiversity Institute. Mining and Biodiveristy Guidelines 2012 [Raster] 2012. Available from the Biodiversity GIS website, downloaded on 20 June 2018

South African National Biodiversity Institute. 2004. National Spatial Biodiversity Assessment, Authors Rouget, M., Reyers, B., Jonas, Z., Desmet, P., Driver, A., Maze, K., Egoh, B. & Cowling, R.M. 2004. South African National Spatial Biodiversity Assessment 2004: Technical Report. Volume 1: Terrestrial Component. Pretoria.

South African National Biodiversity Institute. 2012. Vegetation Map of South Africa, Lesotho and Swaziland [vector geospatial dataset] 2012. Available: Biodiversity GIS website. [21 June 2018]

South African National Standards. 2006. South African National Standard for drinking water (SANS 241:2006). SABS, Pretoria.

Statistics South Africa. 2011. Census 2011. Available: http://www.statssa.gov.za/?page_id=993&id=umtshezi-municipality. [20 June 2018].

The Constitution of the Republic of South Africa (Act No. 108 of 1996)

The Environment Conservation Act (Act No. 73 of 1989)

The National Environmental Management Act (NEMA) (Act No. 107 of 1998) as amended

The National Forest Act (Act 84 of 1998)

Van der Merwe CR (1940) Soil Groups and Sub-Groups of South Africa. Science Bulletin 231, Department of Agriculture and Forestry, Pretoria, 316 pp.

Van Wyk, A.E., Smith, G.F., 2001. Regions of floristic endemism in South Africa. A Review with Emphasis on Succulents. Chapter 6 — Barberton Center. Umdaus Press, Pretoria, South Africa 1919766189.

World Weather Online. 2018. Barberton Weather Foercast, Available at https://www.worldweatheronline.com/barberton-weather/mpumalanga/za.aspx [21 June 0218]