DRAFT BASIC ASSESSMENT REPORT
AND
ENVIRONMENTAL MANAGEMENT PROGRAMME

In Support of an Environmental Authorisation Application for Prospecting

Prepared on Behalf of
SUNSHINE MINERAL RESERVES (PTY) LTD

AS PER CHAPTER 4 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998) AND SECTION 16 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (ACT 28 OF 2002)

Department of Mineral Resources and Energy Reference Number:
NW 30/5/1/1/2/13107 PR

27 MAY 2022

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DRAFT BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME

NW 30/5/1/1/2/13107 PR

NORTH WEST POTCH GOLDFIELD

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Public Review	
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REVISION AND AMENDMENTS		
Revision	**Date**	**Report**
1	27 May 2022	Draft Basic Assessment Report and Environmental Management Programme

EXECUTIVE SUMMARY

1. Introduction to the Project

Sunshine Mineral Reserves (Pty) Ltd (Sunshine) submitted an Environmental Authorisation application for prospecting via the Department of Mineral Resources and Energy (DMRE) online portal (SAMRAD). The online application was successful and the project was allocated the reference number NW 30/5/1/1/2/13107 PR.

The application for prospecting was accepted by the DMRE on the 12th April 2022 relating to non-invasive exploration activities for the following commodities in respect of various properties situated in the Potchefstroom and Ventersdorp Magisterial Districts:

1. Gold ore
2. Uranium ore
3. Silver ore
4. Iron
5. Copper ore
6. Lead
7. Zinc ore
8. Nickel ore
9. Tin
10. Aluminium
11. Pyrite
12. Sulphur (in pyrite).

The proposed project will be known as North West (NW) Potch Goldfield. Sunshine will, through non-invasive activities, aim to explore and quantify the potential mineral deposits. In order to undertake prospecting activities, the company requires a Prospecting Right in terms of the Mineral and Petroleum Resources Development Act, 2002 (MPRDA, Act No. 28 of 2002, as amended). Sunshine is also required to obtain an Environmental Authorisation (EA) in terms of the National Environmental Management Act, 1998 (NEMA, Act No. 107 of 1998, as amended), which involves the submission of a Basic Assessment Report and Environmental Management Programme (BAR and EMPR). Imbokodo Services (Pty) Ltd (Imbokodo) has been appointed by Sunshine as the Environmental Assessment Practitioner (EAP) to assist in complying with these requirements.

2. Purpose of this Document

This document has been compiled in support of the Environmental Authorisation application for prospecting and aims to assess any impacts associated with prospecting. It is important that all Interested and Affected Parties are provided with an opportunity to review and comment on the assessment report, thereby contributing to the Basic Assessment process and assisting in identifying any additional risks or impacts that may be experienced. As such, public consultation is being undertaken for this application and this document will be made available to the Interested and Affected Parties for review and comment for a period of 30 days before it is finalised. The document will include the results of the consultation and subsequently submitted to the Competent Authority, the Department of Mineral Resources and Energy, for decision-making.

3. Project Location

The application area covers 29 564.85 hectares and extends over 13 parent farms situated in the magisterial districts of Potchefstroom and Ventersdorp, North West Province of South Africa.

4. Project Activities

Only non-invasive prospecting activities will be undertaken as part of the proposed Prospecting Work Programme. The Prospecting Work Programme will be based on a phased approach over approximately five years. Continuation of the prospecting activities will depend on the successful completion of tasks constituting an orderly geological investigation. The scope of these activities is as follows:

1. Desktop studies
2. Data acquisition from the historical prospecting companies
3. QA/QC of all data and database compilation
4. Database finalisation, initial modelling and resource estimations
5. Capturing of any potentially new data and updating of databases
6. Updating resource estimates
7. Finalisation of resource estimate
8. Scoping and/or (pre-)feasibility studies (if required)
9. Updating scoping and/or (pre-)feasibility studies (if required).

5. Exploration Targets

Sunshine's non-invasive exploration programme is targeting the gold- and uranium-bearing horizons (reefs) of the Central and West Rand Group sediments of the Witwatersrand Supergroup, as well as the Ventersdorp Contact Reef at the base of the Ventersdorp Supergroup. Extensive diamond drilling by historical prospecting and mining companies intersected many gold- and uranium-bearing reefs, some of which are being mined today on nearby mines. Secondary minerals are potentially present in the same ore bodies, such as base metals, pyrite and sulphur. Base metals are also potentially available in large vein systems in the overlying Transvaal Supergroup.

6. Baseline Assessment of the Receiving Environment

Owing to the limited scope and short duration of the proposed project, which will consist of non-invasive activities only, specialist studies were not undertaken. Only desktop baseline assessments were undertaken, namely:

1. General description of the application area
2. Socio-economic
3. Biodiversity (fauna and flora)
4. Surface hydrology
5. Heritage
6. Palaeontology.

The key findings of the desktop assessment are detailed below.

6.1 General Description of the Application area

The prospecting area is generally flat to gently undulating, with a few elevated rises and hills. It is characterised by natural vegetation, agricultural activities (cultivated fields), woodland and watercourses. The topography of the application area varies in altitude between 1 350 to 1 550 metres above mean sea level. The area experiences a continental climate, characterised by mild to hot summer temperatures in excess of 30°C and cold winter temperatures during winter months.

6.2 Socio-Economic

The application area is located along the border of the North West and Gauteng provinces close to the town of Carletonville. It can be found in wards 2, 3 and 28 of the JB Marks Local Municipality within the Dr Kenneth Kaunda District Municipality in the North West Province.

According to the 2016 census data, the JB Marks Local Municipality has a population of 243 527. Gold mining is the dominant economic activity in the district, with Potchefstroom and Ventersdorp being the only exceptions. While Ventersdorp to the north-west of Potchefstroom focuses on agricultural activity, Potchefstroom's economic activity is driven by services and manufacturing. The main economic sectors in JB Marks Local Municipality are mining, agriculture, community services, manufacturing, trade, finance and transport.

6.3 Flora

The application area falls within the Carletonville Dolomite Grassland (Gh 15), Rand Highveld Grassland (Gm 11), Gauteng Shale Mountain Bushveld (SVcb 10), Andesite Mountain Bushveld (SVcb 11) and Eastern Temperate Freshwater Wetlands (ZAf 3).

Carletonville Dolomite Grassland (Gh 15) is considered *Vulnerable*. The national target for conservation protection for this vegetation type is 24%, but only a small extent is conserved in statutory areas such as Sterkfontein Caves (part of the Cradle of Humankind World Heritage Site). Almost a quarter of this vegetation type is already transformed for cultivation by urban sprawl or by mining activities as well as dams (Boskop and Klerkskraal dams).

Rand Highveld Grassland (Gm 11) is classified as *Endangered*. The national target for conservation protection for this vegetation type is 24%, but only 1% is statutory conserved in small patches protected in statutory reserves and in private conservation areas. Almost half has been transformed mostly by cultivation, plantations, urbanisation or dam-building.

Gauteng Shale Mountain Bushveld (SVcb 10) is considered *Vulnerable*. Of the 24% national target for conservation protection for this vegetation type, over 1% is statutory conserved nature reserves. About 21% of this vegetation type is transformed mainly by urban and built-up areas, mines and quarries, cultivation and plantations. Wattles are a common invasive plant in places.

Andesite Mountain Bushveld (SVcb 11) is considered *Least Threatened*. Of the 24% national target for conservation protection for this vegetation type, about 7% is statutory conserved mainly in the Suikerbosrand Nature Reserve and Magaliesberg Nature Area. Some 15% is transformed, mainly due

to cultivated and some urban and built-up areas. Some of the unit fringes on major urban areas. Erosion is generally very low.

Eastern Temperate Freshwater Wetlands (ZAf 3) is considered *Vulnerable*. Of the 24% national target for conservation protection for this vegetation, only 5% is conserved in statutory areas such as Blesbokspruit (a Ramsar site), Hogsback, Marievale, Olifantsvlei, Seekoeivlei (a Ramsar site), Wakkerstroom Wetland, Umgeni Vlei, Umvoti Vlei and Pamula Park Nature Reserves. It is also protected in private nature reserves such as the Korsman Bird Sanctuary and Langfontein. Some 15% has been transformed to cultivated land, urban areas or plantations. In places intensive grazing and use of lakes and freshwater pans as drinking pools for cattle or sheep cause major damage to the wetland vegetation.

6.4 Fauna

A baseline assessment was conducted to establish whether any potentially sensitive faunal species occur in the vicinity of the application area. The South African National Biodiversity Institute (SANBI) online biodiversity tool was utilised to query a species list for the 2627CA quarter degree square (QDS) grid cell and the Virtual Museum and Animal Demography Unit (ADU) was used to compile species lists based on the data gathering from SANBI.

6.4.1 Avifauna

Based on the South African Bird Atlas Project, Version 2 (SABAP2) database, 130 bird species are expected to occur in the vicinity of the application area comprising a range of both terrestrial and aquatic species. Of these expected bird species, 3 bird species are of conservation concern.

6.4.2 Mammals

The International Union for Conservation of Nature (IUCN) Red List Spatial Data (IUCN, 2017) lists 80 mammal species that could be expected to occur within, or in the vicinity of the application area. Of these, 6 are of conservation concern.

6.4.3 Reptiles

Based on the IUCN Red List Spatial Data (IUCN, 2017) and the ReptileMAP database provided by the Animal Demography Unit (ADU, 2017), 26 reptile species are expected to occur within, or in the vicinity of the application area. Of these, one is of conservation concern.

6.4.4 Amphibians

Based on the IUCN Red List Spatial Data (IUCN, 2017) and the AmphibianMAP database provided by the Animal Demography Unit (ADU, 2017) 13 amphibian species are expected to occur in the vicinity of the application area.

6.4.5 Anthropoids

There is limited arthropod data available on the Virtual Museum database of the FitzPatrick Institute of African Ornithology (2019) for the 2627CA QDS. No records exist on scorpion diversity. However, ButterflyMAP indicates that 131 butterfly species have been recorded, including one species that is

listed as *Endangered.* Two spiders are considered of conservation value and are listed in the Red List Category of 2016.

6.5 Surface Water

The Vaal Water Management comprises of 12 tertiary catchment areas and the application area is situated in the C23G, C23H and C23K quaternary catchment areas. These catchment areas are rated as having moderate ecological sensitivity. The proposed prospecting activities, which are all non-invasive, will not have any impact on the water resources.

6.6 Critical Biodiversity

Sections within the application area are identified as *Critical Biodiversity Areas* (CBA 1 and 2), *Ecologically Sensitive Areas* (ESA 1 and 2) according to the North West Biodiversity Sector Plan. The plan is a compilation of sensitive ecological elements considered to be a high priority in terms of protection and conservation.

The proposed non-invasive prospecting activities will be undertaken off-site, therefore there will be no impact on critical biodiversity and ecological sensitivity areas within the application area.

6.7 Heritage

No heritage environments were identified by the desktop studies as well as by the on-site inspection undertaken during the site visit. As no invasive prospecting work will be conducted in the application area, no heritage resources will be affected.

6.8 Palaeontology

According to the Palaeontological Sensitivity Map developed by the South African Heritage Resources Agency, the application area is situated in areas classified as very high, high to moderate sensitive.

7. Environmental Impact Assessment

This Basic Assessment was undertaken in order to identify all of the potential impacts associated with each phase of prospecting. Each of the identified risks and impacts were assessed following the impact methodology described in the body of this report. The assessment criteria include nature, extent, duration, magnitude/intensity, reversibility, probability, public response, cumulative impact and irreplaceable loss of resources. Based on the impact assessment conducted by the Environmental Assessment Practitioner (EAP) and the various specialists, the environmental impacts associated with the proposed non-invasive prospecting activities are expected to be localised and of low significance. The significance of the impacts can be reduced to low and the mitigation measures are implemented.

The following negative impacts were identified and assessed in the Basic Assessment Report:

1. Safety and security risks to landowners and lawful occupiers
2. Interference with land-use
3. Sense of place
4. Perceptions and expectations.

In terms of positive impacts, the following key benefits have been identified:

1. Job creation during prospecting operations
2. Discovery of economically viable mineral resources.

8. Environmental Management Programme Mitigation Measures

The Environmental Management Programme has identified appropriate mechanisms for avoidance and mitigation of negative impacts. It is anticipated that the implementation of the mitigation measures stipulated in the Environmental Management Programme will result in effective mitigation of the negative impacts. Conversely, the implementation of the mitigation measures designed to maximise the positive aspects of the project will result in a significant positive influence as a result of the prospecting operation.

9. Public Participation

Public Participation is a requirement of South African Legislation and aims to ensure that all relevant Interested and Affected Parties (I&AP's) are consulted, involved, their opinions are taken into account and that a record thereof is included in the reports submitted to the Authorities. The process ensures that all stakeholders are provided this opportunity as part of a transparent process which allows for a robust and comprehensive environmental study. A Public Participation Process is being undertaken as part of this application.

10. Need and Desirability of the Project

The gold- and uranium-producing Klerksdorp and Carletonville Goldfields which straddle the unmined Potch Goldfield have experienced a sharp decline in gold and uranium production in recent years. This had its effects on the supply-chain industries in the region and has resulted in high unemployment rates and deteriorating local economies. By unlocking the underground reserves in the Potch Goldfield, Sunshine will revitalise the economies of the region and improve the employment situation. This will have a very positive effect on the Province's economy and taxable income.

11. Conclusion

The application area has been selected based predominantly on the extensive historical prospecting data that is available for the region. Historical drilling records, geological reports and assessments indicated that economically viable resources occur. No invasive work will be undertaken for the proposed application. Therefore, there will be no impacts to the biophysical and cultural environments. The only impacts on the social environment can be mitigated through open communication with the landowners.

If this application is granted, it will allow Sunshine to determine if economically viable mineral deposits are present in the area at current prices and by applying modern mining techniques. Should prospecting prove successful and resources and reserves quantified, it could indicate aviable future economic activity in the form of mining. Mining will contribute greatly to the socio-economic status quo in the form of increased income, employment and other benefits that would cascade through local, regional and national levels. Therefore, the opinion of the EAP is that the proposed activity should be authorised.

It is further noted that this application will not provide the required authorisation for mining activities to be undertaken. As such, any future intention to undertake mining within the application area would require a further application, investigation and public consultation process.

mineral resources & energy
Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

DRAFT BASIC ASSESSMENT REPORT

AND

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORISATIONS 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).

PREPARED BY:

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SAMRAD Reference Number:	NW 30/5/1/1/2/13107 PR

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 (EIA) and an Environmental Management Programme report (EMPr) 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 the instruction that the prescribed reports required in respect of application 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 requested 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 order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the Applicant.

OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

1. Determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context
2. Identify the alternatives considered, including the activity, location, and technology alternatives
3. Describe the need and desirability of the proposed alternatives
4. 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 the technology alternatives on these aspects to determine:
    i. The nature, significance, consequence, extent, duration, and probability of the impacts occurring to
    ii. The degree to which these impacts-
        (aa) Can be reversed
        (ba) May cause irreplaceable loss of resources
        (ca) Can be managed, avoided or mitigated
5. 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
    iii. Identify residual risks that need to be managed and monitored

This report has been designed to meet the requirements for a Basic Assessment Report and Environmental Management Programme as stipulated in the 2014 Environmental Impact Assessment Regulations (as amended) promulgated under the National Environmental Management Act, 1998 (Act 107 of 1998).

The adjudicating authority for this application is the Department of Mineral Resource and Energy (DMRE). This report has been compiled in accordance with the applicable DMRE Guidelines and Basic Assessment Report and Environmental Management Programme Template.

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Definitions

Abbreviation	Definition
EA	Environmental Authorisation. This constitutes the approval or dismissal of a project as issued by the relevant Competent Authority.
Applicant	The person or party applying for Environmental Authorisation for a listed activity and who is responsible for ensuring the development complies with all relevant legislation whether or not they are the land owner.
BAR and EMPR	Basic Assessment Report and Environmental Management Programme. DMRE document for joint BAR and EMP related for mineral applications.
CA	Competent Authority.
DMRE	The Department of Mineral Resources and Energy. CA in South Africa for mineral right applications.
DWS	The Department of Water and Sanitation – both national offices and their various regional offices, which are divided across the country on the basis of water catchment areas.
DWAF BPG	Department of Water Affairs and Forestry Best Practice Guidelines.
EAR	Environmental Audit Report.
EAP	Environmental Assessment Practitioner.
EIA Regulations	Environmental Impact Assessment Regulations.
EIR and EMP	Environmental Impact Report and Environmental Management Programme. DMRE document for joint EIR and EMP related to mineral applications.
Environment	The Environment is defined in terms of the National Environmental Management Act (Act 107 of 1998) as the surroundings within which humans exist and that are made up of: The land, water and atmosphere of the earth: Micro-organisms, plant and animal life, any part or combination of the first three items and the inter-relationships between them the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.
Financial Provision Regulations	Regulations pertaining to the financial provision for prospecting, exploration, mining or production operations No. 1147 (effective 20 November 2015).
FRDCP	Final Rehabilitation, Decommissioning and Closure Plan.
Fauna	All living biological creatures, usually capable of motion, including insects and predominantly of protein-based consistency.
Fence	A physical barrier in the form of posts and barbed wire or any other concrete construction, ("palisade"-type fencing included), constructed with the purpose of keeping humans and animals within or out of defined boundaries.
Flora	All living plants, grasses, shrubs, trees, etc., usually incapable of easy natural motion and usually capable of photosynthesis.
GN	Government Notice.
HSE	Health, Safety and Environment.
I&AP	Interested and Affected Party.
MEC	Member of the Executive Council.
MPDRA	Minerals and Petroleum Development Act, No 28 of 2002.
NEMA	National Environmental Management Act.
NEMWA	National Environmental Management Waste Act.
NWA	National Water Act.
NHRA	National Heritage Resources Act No 25 of 1999.
OSHA	Occupational Health and Safety Act 85 of 1993.
PR	Prospecting Right in terms of the MPRDA.
SAHRA	South African Heritage and Resources Act, No25 of 1999.
SAMRAD	The web-based portal for mineral right applications and management – managed by the DMRE.
SANS	South African National Standards.

PART A:

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1. INTRODUCTION

Sunshine Mineral Reserves (Pty) Ltd (Sunshine) submitted an Environmental Authorisation application for prospecting via the Department of Mineral Resources and Energy (DMRE) online portal (SAMRAD). The online application was successful and the project was allocated the reference number NW 30/5/1/1/2/13107 PR.

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This document has been designed to meet the requirements for a BAR and EMPR as stipulated in the EIA 2014 Regulations (as amended) promulgated under the NEMA. The Competent Authority for this application is the DMRE and this report has been compiled in accordance with the applicable DMRE guidelines and BAR template.

1.1 LOCATION OF THE ACTIVITY

Table 2 indicates the property details of the application area. The area of interest occupies a total of 29 564.85 hectares and extends over 13 parent farm properties situated in the magisterial districts of Potchefstroom and Ventersdorp, in North West Province of South Africa (Table 2 and Figure 1).

Table 1: Locality details.

Application area (ha)	29 564.85 hectares
Magisterial district	Potchefstroom and Ventersdorp Magisterial Districts JB Marks Local Municipality Dr Kenneth Kaunda District Municipality
Distance and direction from nearest town	The application area is located approximately 1 km north of Potchefstroom in North West Province and extends towards the northeast for ±35 km
21 digit Surveyor General Code for each Portion	Please refer to Table 2.

Table 2: 21 digit surveyor general code for each portion.

Surveyor General Code	Farm Name	Farm Portion	Magisterial District
T0IQ00000000012600000	Turffontein 126	RE/126	Ventersdorp
T0IQ00000000012600001	Turffontein 126	1/126	Ventersdorp
T0IQ00000000012600002	Turffontein 126	2/126	Ventersdorp
T0IQ00000000012600003	Turffontein 126	3/126	Ventersdorp
T0IQ00000000013900000	Gerhardminnebron 139	RE/139	Potchefstroom
T0IQ00000000013900003	Gerhardminnebron 139	RE/3/139	Potchefstroom
T0IQ00000000013900004	Gerhardminnebron 139	4/139	Potchefstroom
T0IQ00000000013900005	Gerhardminnebron 139	5/139	Potchefstroom
T0IQ00000000013900006	Gerhardminnebron 139	RE/6/139	Potchefstroom
T0IQ00000000013900007	Gerhardminnebron 139	7/139	Potchefstroom
T0IQ00000000013900008	Gerhardminnebron 139	8/139	Potchefstroom
T0IQ00000000013900009	Gerhardminnebron 139	9/139	Potchefstroom
T0IQ00000000013900011	Gerhardminnebron 139	11/139	Potchefstroom
T0IQ00000000013900012	Gerhardminnebron 139	12/139	Potchefstroom
T0IQ00000000013900013	Gerhardminnebron 139	13/139	Potchefstroom
T0IQ00000000013900015	Gerhardminnebron 139	RE/15/139	Potchefstroom
T0IQ00000000013900017	Gerhardminnebron 139	RE/17/139	Potchefstroom
T0IQ00000000013900018	Gerhardminnebron 139	18/139	Potchefstroom
T0IQ00000000013900019	Gerhardminnebron 139	RE/19/139	Potchefstroom
T0IQ00000000013900020	Gerhardminnebron 139	20/139	Potchefstroom
T0IQ00000000013900021	Gerhardminnebron 139	21/139	Potchefstroom
T0IQ00000000013900022	Gerhardminnebron 139	22/139	Potchefstroom
T0IQ00000000013900023	Gerhardminnebron 139	23/139	Potchefstroom
T0IQ00000000013900024	Gerhardminnebron 139	24/139	Potchefstroom
T0IQ00000000013900025	Gerhardminnebron 139	25/139	Potchefstroom
T0IQ00000000013900026	Gerhardminnebron 139	26/139	Potchefstroom
T0IQ00000000013900027	Gerhardminnebron 139	RE/27/139	Potchefstroom
T0IQ00000000013900028	Gerhardminnebron 139	28/139	Potchefstroom
T0IQ00000000013900029	Gerhardminnebron 139	RE/29/139	Potchefstroom
T0IQ00000000013900030	Gerhardminnebron 139	RE/30/139	Potchefstroom

Surveyor General Code	Farm Name	Farm Portion	Magisterial District
T0IQ00000000013900031	Gerhardminnebron 139	RE/31/139	Potchefstroom
T0IQ00000000013900034	Gerhardminnebron 139	34/139	Potchefstroom
T0IQ00000000013900036	Gerhardminnebron 139	36/139	Potchefstroom
T0IQ00000000013900037	Gerhardminnebron 139	37/139	Potchefstroom
T0IQ00000000013900038	Gerhardminnebron 139	38/139	Potchefstroom
T0IQ00000000013900039	Gerhardminnebron 139	RE/39/139	Potchefstroom
T0IQ00000000013900040	Gerhardminnebron 139	40/139	Potchefstroom
T0IQ00000000013900042	Gerhardminnebron 139	42/139	Potchefstroom
T0IQ00000000013900043	Gerhardminnebron 139	43/139	Potchefstroom
T0IQ00000000013900044	Gerhardminnebron 139	44/139	Potchefstroom
T0IQ00000000013900046	Gerhardminnebron 139	46/139	Potchefstroom
T0IQ00000000013900048	Gerhardminnebron 139	48/139	Potchefstroom
T0IQ00000000013900049	Gerhardminnebron 139	49/139	Potchefstroom
T0IQ00000000013900050	Gerhardminnebron 139	50/139	Potchefstroom
T0IQ00000000013900054	Gerhardminnebron 139	RE/54/139	Potchefstroom
T0IQ00000000013900058	Gerhardminnebron 139	58/139	Potchefstroom
T0IQ00000000013900064	Gerhardminnebron 139	RE/64/139	Potchefstroom
T0IQ00000000013900068	Gerhardminnebron 139	68/139	Potchefstroom
T0IQ00000000013900069	Gerhardminnebron 139	69/139	Potchefstroom
T0IQ00000000013900072	Gerhardminnebron 139	72/139	Potchefstroom
T0IQ00000000013900074	Gerhardminnebron 139	74/139	Potchefstroom
T0IQ00000000013900075	Gerhardminnebron 139	75/139	Potchefstroom
T0IQ00000000013900076	Gerhardminnebron 139	76/139	Potchefstroom
T0IQ00000000013900077	Gerhardminnebron 139	77/139	Potchefstroom
T0IQ00000000013900078	Gerhardminnebron 139	78/139	Potchefstroom
T0IQ00000000013900079	Gerhardminnebron 139	79/139	Potchefstroom
T0IQ00000000013900080	Gerhardminnebron 139	80/139	Potchefstroom
T0IQ00000000013900081	Gerhardminnebron 139	81/139	Potchefstroom
T0IQ00000000013900082	Gerhardminnebron 139	82/139	Potchefstroom
T0IQ00000000039200012	Witkoppiesfontein 392	RE/12/392	Potchefstroom
T0IQ00000000039200013	Witkoppiesfontein 392	13/392	Potchefstroom
T0IQ00000000039200015	Witkoppiesfontein 392	15/392	Potchefstroom
T0IQ00000000039200016	Witkoppiesfontein 392	16/392	Potchefstroom
T0IQ00000000039200017	Witkoppiesfontein 392	17/392	Potchefstroom
T0IQ00000000039200020	Witkoppiesfontein 392	20/392	Potchefstroom
T0IQ00000000039200021	Witkoppiesfontein 392	RE/21/392	Potchefstroom
T0IQ00000000039200022	Witkoppiesfontein 392	22/392	Potchefstroom
T0IQ00000000041900000	Witpoort 419	RE/419	Potchefstroom
T0IQ00000000041900001	Witpoort 419	RE/1/419	Potchefstroom
T0IQ00000000041900002	Witpoort 419	RE/2/419	Potchefstroom
T0IQ00000000041900003	Witpoort 419	RE/3/419	Potchefstroom
T0IQ00000000041900004	Witpoort 419	RE/4/419	Potchefstroom
T0IQ00000000041900005	Witpoort 419	RE/5/419	Potchefstroom

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T0IQ00000000041900006	Witpoort 419	6/419	Potchefstroom
T0IQ00000000041900007	Witpoort 419	RE/7/419	Potchefstroom
T0IQ00000000041900009	Witpoort 419	9/419	Potchefstroom
T0IQ00000000041900010	Witpoort 419	10/419	Potchefstroom
T0IQ00000000041900011	Witpoort 419	RE/11/419	Potchefstroom
T0IQ00000000041900012	Witpoort 419	12/419	Potchefstroom
T0IQ00000000041900013	Witpoort 419	13/419	Potchefstroom
T0IQ00000000041900014	Witpoort 419	14/419	Potchefstroom
T0IQ00000000041900015	Witpoort 419	15/419	Potchefstroom
T0IQ00000000041900016	Witpoort 419	16/419	Potchefstroom
T0IQ00000000041900017	Witpoort 419	17/419	Potchefstroom
T0IQ00000000041900018	Witpoort 419	18/419	Potchefstroom
T0IQ00000000041900019	Witpoort 419	19/419	Potchefstroom
T0IQ00000000041900021	Witpoort 419	21/419	Potchefstroom
T0IQ00000000041900022	Witpoort 419	22/419	Potchefstroom
T0IQ00000000041900023	Witpoort 419	23/419	Potchefstroom
T0IQ00000000042500000	Witrand 425	RE/425	Potchefstroom
T0IQ00000000042500001	Witrand 425	RE/1/425	Potchefstroom
T0IQ00000000042500002	Witrand 425	2/425	Potchefstroom
T0IQ00000000042500003	Witrand 425	3/425	Potchefstroom
T0IQ00000000042700004	Rietfontein 427	RE/4/427	Potchefstroom
T0IQ00000000042700005	Rietfontein 427	RE/5/427	Potchefstroom
T0IQ00000000042700006	Rietfontein 427	RE/6/427	Potchefstroom
T0IQ00000000042700009	Rietfontein 427	RE/9/427	Potchefstroom
T0IQ00000000042700010	Rietfontein 427	RE/10/427	Potchefstroom
T0IQ00000000042700015	Rietfontein 427	RE/15/427	Potchefstroom
T0IQ00000000042700020	Rietfontein 427	20/427	Potchefstroom
T0IQ00000000042700021	Rietfontein 427	21/427	Potchefstroom
T0IQ00000000042700022	Rietfontein 427	22/427	Potchefstroom
T0IQ00000000042700023	Rietfontein 427	23/427	Potchefstroom
T0IQ00000000042700024	Rietfontein 427	24/427	Potchefstroom
T0IQ00000000042700025	Rietfontein 427	25/427	Potchefstroom
T0IQ00000000042700027	Rietfontein 427	27/427	Potchefstroom
T0IQ00000000042700028	Rietfontein 427	28/427	Potchefstroom
T0IQ00000000042700029	Rietfontein 427	29/427	Potchefstroom
T0IQ00000000042700030	Rietfontein 427	30/427	Potchefstroom
T0IQ00000000042700031	Rietfontein 427	31/427	Potchefstroom
T0IQ00000000042700032	Rietfontein 427	32/427	Potchefstroom
T0IQ00000000042700033	Rietfontein 427	33/427	Potchefstroom
T0IQ00000000042700034	Rietfontein 427	34/427	Potchefstroom
T0IQ00000000042700035	Rietfontein 427	35/427	Potchefstroom
T0IQ00000000042700036	Rietfontein 427	36/427	Potchefstroom
T0IQ00000000042700037	Rietfontein 427	37/427	Potchefstroom

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T0IQ00000000042700038	Rietfontein 427	38/427	Potchefstroom
T0IQ00000000042700039	Rietfontein 427	39/427	Potchefstroom
T0IQ00000000042700040	Rietfontein 427	40/427	Potchefstroom
T0IQ00000000042700041	Rietfontein 427	41/427	Potchefstroom
T0IQ00000000042700042	Rietfontein 427	42/427	Potchefstroom
T0IQ00000000042700043	Rietfontein 427	43/427	Potchefstroom
T0IQ00000000042700044	Rietfontein 427	44/427	Potchefstroom
T0IQ00000000042700045	Rietfontein 427	45/427	Potchefstroom
T0IQ00000000042700046	Rietfontein 427	46/427	Potchefstroom
T0IQ00000000042700047	Rietfontein 427	47/427	Potchefstroom
T0IQ00000000042700048	Rietfontein 427	48/427	Potchefstroom
T0IQ00000000042700049	Rietfontein 427	49/427	Potchefstroom
T0IQ00000000042700050	Rietfontein 427	50/427	Potchefstroom
T0IQ00000000042700051	Rietfontein 427	51/427	Potchefstroom
T0IQ00000000042700052	Rietfontein 427	52/427	Potchefstroom
T0IQ00000000042700053	Rietfontein 427	53/427	Potchefstroom
T0IQ00000000042700054	Rietfontein 427	54/427	Potchefstroom
T0IQ00000000042700055	Rietfontein 427	55/427	Potchefstroom
T0IQ00000000042700056	Rietfontein 427	56/427	Potchefstroom
T0IQ00000000042700057	Rietfontein 427	57/427	Potchefstroom
T0IQ00000000042700058	Rietfontein 427	58/427	Potchefstroom
T0IQ00000000042700059	Rietfontein 427	59/427	Potchefstroom
T0IQ00000000042700060	Rietfontein 427	60/427	Potchefstroom
T0IQ00000000042700061	Rietfontein 427	61/427	Potchefstroom
T0IQ00000000042700062	Rietfontein 427	62/427	Potchefstroom
T0IQ00000000042700063	Rietfontein 427	63/427	Potchefstroom
T0IQ00000000042700064	Rietfontein 427	64/427	Potchefstroom
T0IQ00000000042700065	Rietfontein 427	65/427	Potchefstroom
T0IQ00000000042700066	Rietfontein 427	66/427	Potchefstroom
T0IQ00000000042700067	Rietfontein 427	67/427	Potchefstroom
T0IQ00000000042700068	Rietfontein 427	68/427	Potchefstroom
T0IQ00000000042700069	Rietfontein 427	69/427	Potchefstroom
T0IQ00000000042700070	Rietfontein 427	70/427	Potchefstroom
T0IQ00000000042700071	Rietfontein 427	71/427	Potchefstroom
T0IQ00000000042700072	Rietfontein 427	72/427	Potchefstroom
T0IQ00000000042700073	Rietfontein 427	73/427	Potchefstroom
T0IQ00000000042700074	Rietfontein 427	74/427	Potchefstroom
T0IQ00000000042700075	Rietfontein 427	75/427	Potchefstroom
T0IQ00000000042700076	Rietfontein 427	76/427	Potchefstroom
T0IQ00000000042700077	Rietfontein 427	77/427	Potchefstroom
T0IQ00000000042700078	Rietfontein 427	78/427	Potchefstroom
T0IQ00000000042700079	Rietfontein 427	79/427	Potchefstroom
T0IQ00000000042700080	Rietfontein 427	80/427	Potchefstroom

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T0IQ00000000042700081	Rietfontein 427	81/427	Potchefstroom
T0IQ00000000042700082	Rietfontein 427	82/427	Potchefstroom
T0IQ00000000042700083	Rietfontein 427	83/427	Potchefstroom
T0IQ00000000042700084	Rietfontein 427	84/427	Potchefstroom
T0IQ00000000042700085	Rietfontein 427	85/427	Potchefstroom
T0IQ00000000042700086	Rietfontein 427	86/427	Potchefstroom
T0IQ00000000042700087	Rietfontein 427	87/427	Potchefstroom
T0IQ00000000042700088	Rietfontein 427	88/427	Potchefstroom
T0IQ00000000042700089	Rietfontein 427	89/427	Potchefstroom
T0IQ00000000042700090	Rietfontein 427	RE/90/427	Potchefstroom
T0IQ00000000042700091	Rietfontein 427	91/427	Potchefstroom
T0IQ00000000042700092	Rietfontein 427	92/427	Potchefstroom
T0IQ00000000042700093	Rietfontein 427	93/427	Potchefstroom
T0IQ00000000042700094	Rietfontein 427	94/427	Potchefstroom
T0IQ00000000042700095	Rietfontein 427	95/427	Potchefstroom
T0IQ00000000042700096	Rietfontein 427	96/427	Potchefstroom
T0IQ00000000042700097	Rietfontein 427	97/427	Potchefstroom
T0IQ00000000042700098	Rietfontein 427	98/427	Potchefstroom
T0IQ00000000042700099	Rietfontein 427	99/427	Potchefstroom
T0IQ00000000042700100	Rietfontein 427	100/427	Potchefstroom
T0IQ00000000042700101	Rietfontein 427	101/427	Potchefstroom
T0IQ00000000042700102	Rietfontein 427	102/427	Potchefstroom
T0IQ00000000042700103	Rietfontein 427	103/427	Potchefstroom
T0IQ00000000042700104	Rietfontein 427	104/427	Potchefstroom
T0IQ00000000042700105	Rietfontein 427	105/427	Potchefstroom
T0IQ00000000042700106	Rietfontein 427	106/427	Potchefstroom
T0IQ00000000042700107	Rietfontein 427	107/427	Potchefstroom
T0IQ00000000042700108	Rietfontein 427	108/427	Potchefstroom
T0IQ00000000042700109	Rietfontein 427	109/427	Potchefstroom
T0IQ00000000042700110	Rietfontein 427	110/427	Potchefstroom
T0IQ00000000042700111	Rietfontein 427	111/427	Potchefstroom
T0IQ00000000042700112	Rietfontein 427	112/427	Potchefstroom
T0IQ00000000042700113	Rietfontein 427	113/427	Potchefstroom
T0IQ00000000042700114	Rietfontein 427	114/427	Potchefstroom
T0IQ00000000042700115	Rietfontein 427	115/427	Potchefstroom
T0IQ00000000042700116	Rietfontein 427	116/427	Potchefstroom
T0IQ00000000042700117	Rietfontein 427	117/427	Potchefstroom
T0IQ00000000042700118	Rietfontein 427	118/427	Potchefstroom
T0IQ00000000042700119	Rietfontein 427	119/427	Potchefstroom
T0IQ00000000042700120	Rietfontein 427	120/427	Potchefstroom
T0IQ00000000042700121	Rietfontein 427	121/427	Potchefstroom
T0IQ00000000042700122	Rietfontein 427	122/427	Potchefstroom
T0IQ00000000042700123	Rietfontein 427	123/427	Potchefstroom

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T0IQ00000000042700124	Rietfontein 427	124/427	Potchefstroom
T0IQ00000000042700125	Rietfontein 427	125/427	Potchefstroom
T0IQ00000000042700128	Rietfontein 427	128/427	Potchefstroom
T0IQ00000000042700129	Rietfontein 427	129/427	Potchefstroom
T0IQ00000000042700130	Rietfontein 427	130/427	Potchefstroom
T0IQ00000000042700131	Rietfontein 427	131/427	Potchefstroom
T0IQ00000000042700132	Rietfontein 427	132/427	Potchefstroom
T0IQ00000000042700133	Rietfontein 427	133/427	Potchefstroom
T0IQ00000000042700134	Rietfontein 427	134/427	Potchefstroom
T0IQ00000000042700135	Rietfontein 427	135/427	Potchefstroom
T0IQ00000000042700136	Rietfontein 427	136/427	Potchefstroom
T0IQ00000000042700137	Rietfontein 427	137/427	Potchefstroom
T0IQ00000000042700138	Rietfontein 427	138/427	Potchefstroom
T0IQ00000000042700139	Rietfontein 427	139/427	Potchefstroom
T0IQ00000000042700140	Rietfontein 427	140/427	Potchefstroom
T0IQ00000000042700141	Rietfontein 427	141/427	Potchefstroom
T0IQ00000000042700142	Rietfontein 427	142/427	Potchefstroom
T0IQ00000000042700143	Rietfontein 427	143/427	Potchefstroom
T0IQ00000000042700144	Rietfontein 427	144/427	Potchefstroom
T0IQ00000000042700145	Rietfontein 427	145/427	Potchefstroom
T0IQ00000000042700146	Rietfontein 427	146/427	Potchefstroom
T0IQ00000000042700147	Rietfontein 427	147/427	Potchefstroom
T0IQ00000000042700148	Rietfontein 427	148/427	Potchefstroom
T0IQ00000000042700149	Rietfontein 427	149/427	Potchefstroom
T0IQ00000000042700150	Rietfontein 427	150/427	Potchefstroom
T0IQ00000000042700151	Rietfontein 427	151/427	Potchefstroom
T0IQ00000000042700152	Rietfontein 427	152/427	Potchefstroom
T0IQ00000000042700153	Rietfontein 427	153/427	Potchefstroom
T0IQ00000000042700154	Rietfontein 427	154/427	Potchefstroom
T0IQ00000000042700155	Rietfontein 427	155/427	Potchefstroom
T0IQ00000000042700156	Rietfontein 427	156/427	Potchefstroom
T0IQ00000000042700157	Rietfontein 427	157/427	Potchefstroom
T0IQ00000000042700158	Rietfontein 427	158/427	Potchefstroom
T0IQ00000000042700159	Rietfontein 427	159/427	Potchefstroom
T0IQ00000000042700160	Rietfontein 427	160/427	Potchefstroom
T0IQ00000000042700161	Rietfontein 427	161/427	Potchefstroom
T0IQ00000000042700162	Rietfontein 427	162/427	Potchefstroom
T0IQ00000000042700163	Rietfontein 427	163/427	Potchefstroom
T0IQ00000000042700166	Rietfontein 427	166/427	Potchefstroom
T0IQ00000000042800002	Vyfhoek 428	2/428	Potchefstroom
T0IQ00000000042800014	Vyfhoek 428	RE/14/428	Potchefstroom
T0IQ00000000042800063	Vyfhoek 428	63/428	Potchefstroom
T0IQ00000000042800492	Vyfhoek 428	492/428	Potchefstroom

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T0IQ00000000042800493	Vyfhoek 428	493/428	Potchefstroom
T0IQ00000000042800494	Vyfhoek 428	494/428	Potchefstroom
T0IQ00000000042800495	Vyfhoek 428	495/428	Potchefstroom
T0IQ00000000042800507	Vyfhoek 428	507/428	Potchefstroom
T0IQ00000000042800516	Vyfhoek 428	516/428	Potchefstroom
T0IQ00000000042800517	Vyfhoek 428	517/428	Potchefstroom
T0IQ00000000042800612	Vyfhoek 428	612/428	Potchefstroom
T0IQ00000000042800616	Vyfhoek 428	RE/616/428	Potchefstroom
T0IQ00000000042800681	Vyfhoek 428	681/428	Potchefstroom
T0IQ00000000042800682	Vyfhoek 428	682/428	Potchefstroom
T0IQ00000000042800683	Vyfhoek 428	683/428	Potchefstroom
T0IQ00000000042800685	Vyfhoek 428	685/428	Potchefstroom
T0IQ00000000042800686	Vyfhoek 428	686/428	Potchefstroom
T0IQ00000000042800688	Vyfhoek 428	688/428	Potchefstroom
T0IQ00000000042800690	Vyfhoek 428	690/428	Potchefstroom
T0IQ00000000042800701	Vyfhoek 428	701/428	Potchefstroom
T0IQ00000000042800702	Vyfhoek 428	702/428	Potchefstroom
T0IQ00000000042800703	Vyfhoek 428	703/428	Potchefstroom
T0IQ00000000042800704	Vyfhoek 428	704/428	Potchefstroom
T0IQ00000000042800705	Vyfhoek 428	705/428	Potchefstroom
T0IQ00000000042800706	Vyfhoek 428	706/428	Potchefstroom
T0IQ00000000042800707	Vyfhoek 428	707/428	Potchefstroom
T0IQ00000000042800708	Vyfhoek 428	708/428	Potchefstroom
T0IQ00000000042800709	Vyfhoek 428	709/428	Potchefstroom
T0IQ00000000042800710	Vyfhoek 428	710/428	Potchefstroom
T0IQ00000000042800711	Vyfhoek 428	711/428	Potchefstroom
T0IQ00000000042800712	Vyfhoek 428	712/428	Potchefstroom
T0IQ00000000042800713	Vyfhoek 428	713/428	Potchefstroom
T0IQ00000000042800714	Vyfhoek 428	714/428	Potchefstroom
T0IQ00000000042800715	Vyfhoek 428	715/428	Potchefstroom
T0IQ00000000042800716	Vyfhoek 428	716/428	Potchefstroom
T0IQ00000000042800717	Vyfhoek 428	717/428	Potchefstroom
T0IQ00000000042800718	Vyfhoek 428	718/428	Potchefstroom
T0IQ00000000042800719	Vyfhoek 428	719/428	Potchefstroom
T0IQ00000000042800720	Vyfhoek 428	720/428	Potchefstroom
T0IQ00000000042800721	Vyfhoek 428	721/428	Potchefstroom
T0IQ00000000042800722	Vyfhoek 428	722/428	Potchefstroom
T0IQ00000000042800723	Vyfhoek 428	723/428	Potchefstroom
T0IQ00000000042800724	Vyfhoek 428	724/428	Potchefstroom
T0IQ00000000042800725	Vyfhoek 428	725/428	Potchefstroom
T0IQ00000000042800824	Vyfhoek 428	RE/824/428	Potchefstroom
T0IQ00000000042800825	Vyfhoek 428	RE/825/428	Potchefstroom
T0IQ00000000042800826	Vyfhoek 428	RE/826/428	Potchefstroom

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T0IQ00000000042800827	Vyfhoek 428	RE/827/428	Potchefstroom
T0IQ00000000042800856	Vyfhoek 428	856/428	Potchefstroom
T0IQ00000000042800857	Vyfhoek 428	RE/857/428	Potchefstroom
T0IQ00000000042800864	Vyfhoek 428	864/428	Potchefstroom
T0IQ00000000042800869	Vyfhoek 428	869/428	Potchefstroom
T0IQ00000000042800892	Vyfhoek 428	892/428	Potchefstroom
T0IQ00000000042800918	Vyfhoek 428	918/428	Potchefstroom
T0IQ00000000042800929	Vyfhoek 428	929/428	Potchefstroom
T0IQ00000000042800930	Vyfhoek 428	930/428	Potchefstroom
T0IQ00000000042800962	Vyfhoek 428	RE/962/428	Potchefstroom
T0IQ00000000042800974	Vyfhoek 428	974/428	Potchefstroom
T0IQ00000000042800983	Vyfhoek 428	983/428	Potchefstroom
T0IQ00000000042801111	Vyfhoek 428	1111/428	Potchefstroom
T0IQ00000000042801113	Vyfhoek 428	1113/428	Potchefstroom
T0IQ00000000042801126	Vyfhoek 428	1126/428	Potchefstroom
T0IQ00000000042801129	Vyfhoek 428	1129/428	Potchefstroom
T0IQ00000000042801130	Vyfhoek 428	RE/1130/428	Potchefstroom
T0IQ00000000042801131	Vyfhoek 428	1131/428	Potchefstroom
T0IQ00000000042801132	Vyfhoek 428	1132/428	Potchefstroom
T0IQ00000000042801132	Vyfhoek 428	RE/1132/428	Potchefstroom
T0IQ00000000042801133	Vyfhoek 428	RE/1133/428	Potchefstroom
T0IQ00000000042801133	Vyfhoek 428	1133/428	Potchefstroom
T0IQ00000000042801134	Vyfhoek 428	RE/1134/428	Potchefstroom
T0IQ00000000042801141	Vyfhoek 428	1141/428	Potchefstroom
T0IQ00000000042801177	Vyfhoek 428	1177/428	Potchefstroom
T0IQ00000000042801179	Vyfhoek 428	RE/1179/428	Potchefstroom
T0IQ00000000042801242	Vyfhoek 428	1242/428	Potchefstroom
T0IQ00000000042801264	Vyfhoek 428	1264/428	Potchefstroom
T0IQ00000000042801265	Vyfhoek 428	1265/428	Potchefstroom
T0IQ00000000042801266	Vyfhoek 428	1266/428	Potchefstroom
T0IQ00000000042801267	Vyfhoek 428	1267/428	Potchefstroom
T0IQ00000000042801268	Vyfhoek 428	1268/428	Potchefstroom
T0IQ00000000042801269	Vyfhoek 428	1269/428	Potchefstroom
T0IQ00000000042801270	Vyfhoek 428	1270/428	Potchefstroom
T0IQ00000000042801271	Vyfhoek 428	1271/428	Potchefstroom
T0IQ00000000042801272	Vyfhoek 428	1272/428	Potchefstroom
T0IQ00000000042801273	Vyfhoek 428	1273/428	Potchefstroom
T0IQ00000000042801274	Vyfhoek 428	1274/428	Potchefstroom
T0IQ00000000042801275	Vyfhoek 428	1275/428	Potchefstroom
T0IQ00000000042801276	Vyfhoek 428	1276/428	Potchefstroom
T0IQ00000000042801277	Vyfhoek 428	1277/428	Potchefstroom
T0IQ00000000042801278	Vyfhoek 428	1278/428	Potchefstroom
T0IQ00000000042801279	Vyfhoek 428	1279/428	Potchefstroom

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T0IQ00000000042801280	Vyfhoek 428	1280/428	Potchefstroom
T0IQ00000000042801281	Vyfhoek 428	1281/428	Potchefstroom
T0IQ00000000042801282	Vyfhoek 428	1282/428	Potchefstroom
T0IQ00000000042801283	Vyfhoek 428	1283/428	Potchefstroom
T0IQ00000000042801284	Vyfhoek 428	1284/428	Potchefstroom
T0IQ00000000042801285	Vyfhoek 428	1285/428	Potchefstroom
T0IQ00000000042801286	Vyfhoek 428	1286/428	Potchefstroom
T0IQ00000000042801287	Vyfhoek 428	1287/428	Potchefstroom
T0IQ00000000042801288	Vyfhoek 428	1288/428	Potchefstroom
T0IQ00000000042801289	Vyfhoek 428	1289/428	Potchefstroom
T0IQ00000000042801290	Vyfhoek 428	1290/428	Potchefstroom
T0IQ00000000042801291	Vyfhoek 428	1291/428	Potchefstroom
T0IQ00000000042801292	Vyfhoek 428	1292/428	Potchefstroom
T0IQ00000000042801293	Vyfhoek 428	1293/428	Potchefstroom
T0IQ00000000042801294	Vyfhoek 428	1294/428	Potchefstroom
T0IQ00000000042801295	Vyfhoek 428	1295/428	Potchefstroom
T0IQ00000000042801296	Vyfhoek 428	1296/428	Potchefstroom
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T0IQ00000000042801305	Vyfhoek 428	1305/428	Potchefstroom
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T0IQ00000000042801309	Vyfhoek 428	1309/428	Potchefstroom
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T0IQ00000000042801321	Vyfhoek 428	1321/428	Potchefstroom
T0IQ00000000042801322	Vyfhoek 428	1322/428	Potchefstroom

Surveyor General Code	Farm Name	Farm Portion	Magisterial District
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T0IQ00000000042801324	Vyfhoek 428	1324/428	Potchefstroom
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T0IQ00000000042801326	Vyfhoek 428	1326/428	Potchefstroom
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T0IQ00000000042801420	Vyfhoek 428	1420/428	Potchefstroom
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T0IQ00000000042801499	Vyfhoek 428	1499/428	Potchefstroom
T0IQ00000000042801500	Vyfhoek 428	1500/428	Potchefstroom
T0IQ00000000043000000	Witstinkhoutboom 430	RE/430	Potchefstroom

Surveyor General Code	Farm Name	Farm Portion	Magisterial District
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T0IQ00000000043000026	Witstinkhoutboom 430	26/430	Potchefstroom
T0IQ00000000043000027	Witstinkhoutboom 430	27/430	Potchefstroom
T0IQ00000000043000028	Witstinkhoutboom 430	28/430	Potchefstroom
T0IQ00000000043000029	Witstinkhoutboom 430	29/430	Potchefstroom
T0IQ00000000043000030	Witstinkhoutboom 430	30/430	Potchefstroom
T0IQ00000000043000031	Witstinkhoutboom 430	31/430	Potchefstroom
T0IQ00000000043000032	Witstinkhoutboom 430	32/430	Potchefstroom
T0IQ00000000043000033	Witstinkhoutboom 430	RE/33/430	Potchefstroom
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T0IQ00000000043000037	Witstinkhoutboom 430	37/430	Potchefstroom
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T0IQ00000000062600014	Opleiding 626	14/626	Potchefstroom
T0IQ00000000062600015	Opleiding 626	15/626	Potchefstroom
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T0IQ00000000062600027	Opleiding 626	27/626	Potchefstroom
T0IQ00000000062600028	Opleiding 626	28/626	Potchefstroom
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T0IQ00000000062600031	Opleiding 626	31/626	Potchefstroom
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T0IQ00000000062600033	Opleiding 626	33/626	Potchefstroom
T0IQ00000000062600034	Opleiding 626	34/626	Potchefstroom
T0IQ00000000062600035	Opleiding 626	35/626	Potchefstroom

Surveyor General Code	Farm Name	Farm Portion	Magisterial District
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T0IQ00000000062600037	Opleiding 626	37/626	Potchefstroom
T0IQ00000000062600039	Opleiding 626	39/626	Potchefstroom
T0IQ00000000062600045	Opleiding 626	45/626	Potchefstroom
T0IQ00000000062600046	Opleiding 626	46/626	Potchefstroom
T0IQ00000000070100000	Nature`s Sanctuary 701	701	Potchefstroom
T0IQ00000000071100000	Rietfontein 711	711	Potchefstroom
T0IQ00000000012800000	Kiel 128	128	Potchefstroom

1.2 LOCALITY MAP

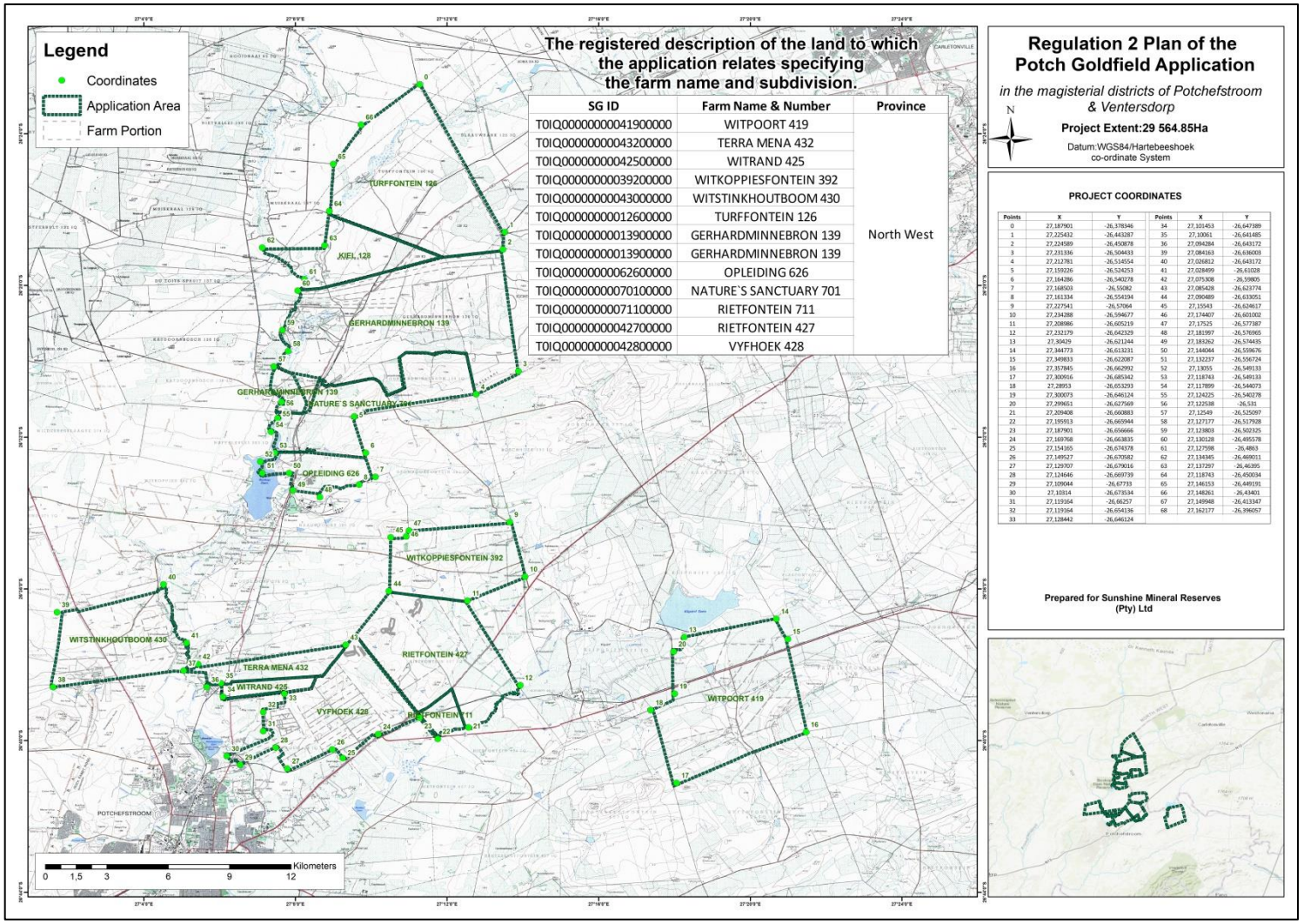


Figure 1: Locality map of the project indicating the project extent and farm portions.

1.3 DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

Imbokodo was appointed by Sunshine as the Environmental Assessment Practitioner (EAP) to compile this report. The contact details of Imbokodo's consultant who compiled this report are:

1. Name of the EAP: Imbokodo Services (Pty) Ltd
2. Contact person: Sibongiseni Siwendu
3. Tel no.: 010 141 0243
4. Fax no.: 086 454 9952
5. E-mail address: environmental@imbokodoservices.co.za

1.4 EXPERTISE OF THE EAP

1.4.1 Qualifications of the EAP

In terms of Regulation 13 of the NEMA 2017 EIA Regulations (Government Notice Regulation 326) an independent EAP must be appointed by the Applicant to manage the application. Imbokodo has been appointed by the Applicant as the EAP and is compliant with the definition of an EAP as defined in the 2014 EIA Regulations and the NEMA which includes, inter alia, the requirement that the company is:

1. Objective and independent
2. Have expertise in conducting EIA's
3. Comply with the NEMA, the Regulations and all other applicable legislation
4. Take into account all relevant factors relating to the application
5. Provide full disclosure to the Applicant and the relevant environmental authority.

1.4.2 Summary of EAP's Past Experience

Imbokodo registered as K2019127779 (South Africa) and is a private and independent environmental and geological consulting firm that was established in 2019. Imbokodo is growing steadily to become a significant player in the environmental and geological consulting industry and has in excess of ten years' professional experience. Imbokodo is a 100% black-owned company specialising in environmental and geological consulting services.

The declaration of independence of the EAP and the Curriculum Vitae (indicating the experience with environmental impact assessment and relevant application processes) of the consultant who was involved in the Basic Assessment process and the compilation of this report are attached as Appendix B.

1.4.3 Specialist Consultants

Specialist studies were not undertaken owing to the limited scope and short duration of the proposed project which will only consist of non-invasive activities.. Only desktop baseline assessments were undertaken, namely:

1. General description of the application area
2. Socio-economic
3. Biodiversity (fauna and flora)
4. Surface hydrology
5. Heritage
6. Palaeontology.

2. DESCRIPTION AND SCOPE OF THE PROPOSED ACTIVITY

Sunshine intends to conduct non-invasive activities to determine if a viable mineral deposit exists within the application area. No invasive prospecting is planned at this stage. According to the proposed Prospecting Work Programme, non- invasive activities will include a desktop study and the acquisition of the vast amount of historical data such as geological prospecting data, drilling reports, resource estimations, geological and seismic data, engineering and survey maps, laboratory results, numerous geological reports and assessments, and information in the public domain, etc., as well as any digitised data from current and historical mining operations in adjacent areas. This will be followed by manipulation of the acquired data and will enable Sunshine to develop geological models and conduct resource estimations. If the project develops to the required phase, a scoping and/or feasibility study will be conducted. A breakdown of the Prospecting Work Programme is provided in Table 3.

Table 3: Proposed Prospecting Work Programme and associated timeframes.

Activity	Duration
Year 1: Data gathering and initial data manipulation	
Data search and desktop studies	2 months
Data acquisition of reports, logs, core, etc.	4 months
QA/QC of all data and database compilation	6 months
Year 2: Geological modeling and initial resources	
Database finalisation, initial modeling and initial resource estimations	12 months
Year 3: Finalisation of modeling and resources	
Capturing of any potentially new data and updating of databases	6 months
Updating resource estimations	6 months
Year 4: Final estimates (scoping and/or (pre) feasibility studies, if required)	
Finalisation of resource estimations	6 months
Scoping and (pre-)feasibility studies (if required)	6 months
Year 5: Updating scoping and/or (pre) feasibility studies, if required	
Updating of scoping and/or (pre-)feasibility studies (if required)	12 months

No invasive exploration is planned. A great deal of information and data is readily available, such as diamond drill core, multiple reports (borehole logs, borehole reports, geological reports, laboratory reports etc.), geophysical, seismic and remote sensing data, assay results, etc. It is Sunshine's strategy to gather all available information and data, and develop the prospecting project into a major gold and/or uranium mine without invasive prospecting. This will enable Sunshine to develop its resources with less capital layout in a shorter timespan than is usually required in greenfield or brownfield exploration.

Should the proposed prospecting activities change, this will be indicated in the form of a Section 102 Amendment Application (of the MPRDA) together with the proposed revised prospecting programme.

2.1 LISTED AND SPECIFIED ACTIVITIES

The need for Environmental Authorisation for prospecting came into effect after the promulgation of the NEMA Environmental Impact Assessment Regulations (2014) on the 8th December 2014. Prior to this, Prospecting Rights were subjected to the provisions of the MPRDA (2002). Since the 8th December 2014 a Prospecting Right and Environmental Authorisation are required in terms of the MPRDA (2002) and NEMA EIA Regulations (2014), respectively. The applicable NEMA EIA listed activity anticipated to be triggered by this project is outlined in Table 4.

Table 4: Listed and specified activities.

Name Of Activity	Aerial Extent Of Activity	Listed Activity	Applicable Listing Notice
Any activity including the operation of that activity which requires a prospecting right in terms of Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), as well as any other applicable activity as contained in this Listing or in Listing 3 of 2014, required to exercise the prospecting right. The project involves the following non-invasive prospecting activities within the application area: • Desktop studies and acquisition of historical data • QA/QC of all data and database compilation • Database finalisation, initial modelling and resource estimations • Capturing of any potentially new data • Updating resource estimates • Finalisation of resource estimate • Scoping and/or (pre-)feasibility studies (if required) • Updating scoping and/or (pre-)feasibility studies (if required).	29 564.85 ha	X	Activity 20 of GNR 327 (as amended on 11 June 2021)

2.2 DESCRIPTION OF ACTIVITIES TO BE UNDERTAKEN

Table 5: Planned non-invasive activities.

	Activity	Skill(s) required	Timeframe	Outcome	Timeframe for outcome	What technical expert will sign off on the outcome?
	(what are the activities that are planned to achieve optimal prospecting)	(refers to the competent personnel that will be employed to achieve the required results)	(in months) for the activity	(What is the expected deliverable, e.g. geological report, analytical results, feasibility study, etc.)	(deadline for the expected outcome)	(e.g. geologist, mining eng, surveyor, economist, etc)
1	Data search in public domain. Locate historic data relating to previous exploration and mining	Qualified geologist	2 months	Compilation of inventory indicating detail of located data and where outstanding data resides	Month 12	Senior geologist
	Acquire historical data: surface borehole logs, drill core, reports, etc. And underground drilling and sampling (from adjacent projects and Deelkraal 3 Shaft)	Qualified geologist	4 months	Establishment of databases. Condensed report of geology, commodities and potential		
	Data QA/QC, digitisation, compilation and synthesis of databases	Qualified geologist	6 months	Detailed database based on historical exploration, mining. This will include results		
2	Database finalisation and initial modeling based on existing reports, previous code compliant estimates and historical data	Qualified geologist	6 months	Initial geological models: depositional environments, 2D maps, compiling sections, etc.	Month 24	Resource and senior geologist
	2D/3D structural models, palaeoflow and facies reconstructions, and gold and uranium resource estimates	Qualified geologist	6 months	All geological models and initial code compliant estimate		
3	Capturing of any new data acquired, like new borehole and other geological data. Upgrading and updating of all geological models	Qualified geologist	6 months	Final geological model	Month 36	Senior geologist
	Updating resource estimates for the different targets	Qualified geologist	6 months	Code compliant resource estimation		Resource and senior geologist
4	Capturing of any newly acquired data and revising all data and models. Finalisation of all geological models	Qualified geologist	3 months	Final geological models	Month 48	Senior geologist
	Finalisation of resource estimates for the different targets	Qualified geologist	3 months	Finalisation of code compliant resource estimation		Resource, senior and principal geologist
	Scoping and/or (Pre-)Feasibility studies, if required	Geologists, engineers: like mining, rock mechanics, metallurgist	6 months	Resources and/ or Reserves/ Initial Mine and Plant Layout		Principal geologist, relevant engineers (mining, rock mechanics, etc.), metallurgist
5	Updating of Scoping and/or (Pre-) Feasibility studies, if required	Geologists, engineers: like mining, rock mechanics, metallurgist	12 months	Resources and/ or Reserves/ Initial Mine and Plant Layout	Month 60	Principal geologist, relevant engineers (mining, rock mechanics, etc.), metallurgist

2.3 GEOLOGICAL FORMATION AND PROSPECTING TARGETS

The application area has been selected based predominantly on historical data available for the project area, which indicates the potential for economically viable resources to occur.

The Witwatersrand Basin is the largest known gold province in the world and the deposits have now been worked for over 130 years and are believed to have produced over 95% of South Africa's gold (over 1.5 billion ounces, or more than 45 000 tonnes), as well as very large quantities of uranium and other by-products such as silver and base metals. The metals are produced from seven goldfields within the basin, mainly from conglomerate horizons, called reefs, in the Witwatersrand Supergroup, but also from the overlying Ventersdorp and Transvaal Supergroups.

The Witwatersrand Basin is located on the Kaapvaal Craton and is oval-shaped, with the two main axes some 400 and 180 km long. The basin is composed of the lower West Rand Group covering an area of some 54 000 km^2, and the upper Central Rand Group Witwatersrand, (Figure 2) which covers an area of some 30 000 km^2, in which the major gold and uranium mines of South Africa are found. The reefs found in Sunshine's application area occur within the West Rand and Central Rand Groups, as well as at the base of the Ventersdorp Supergroup

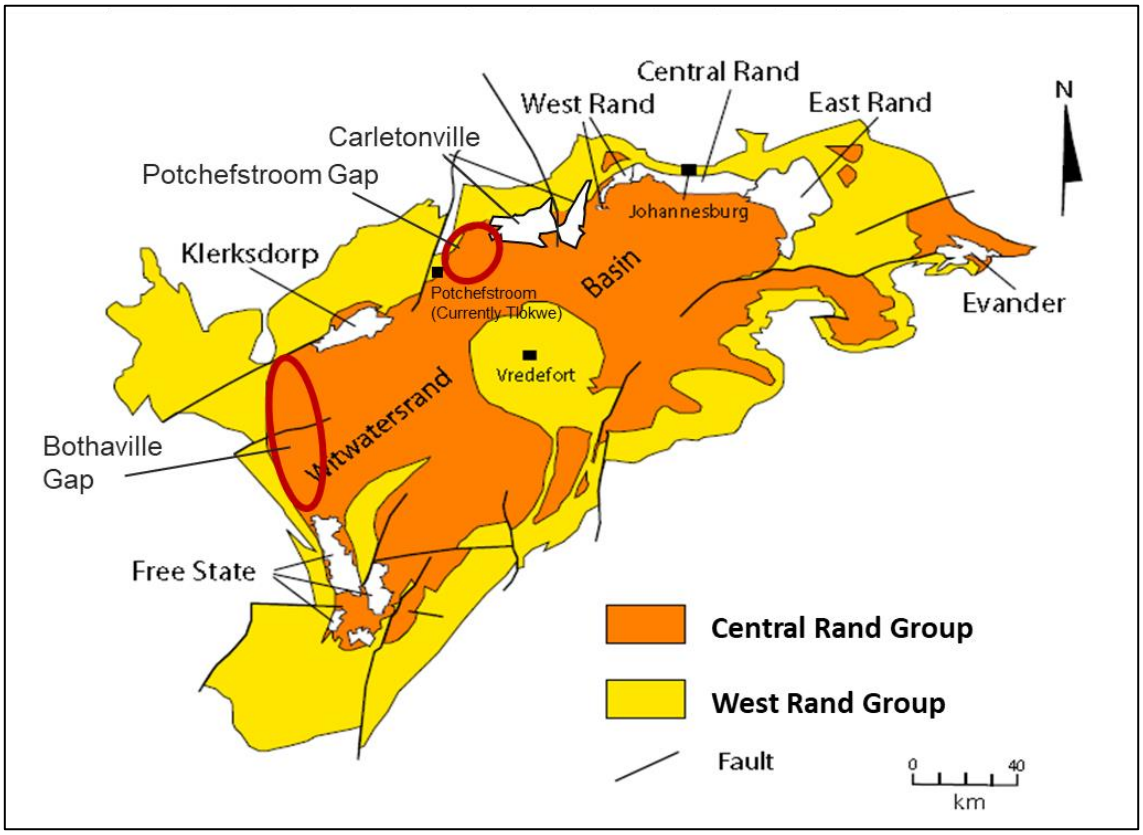


Figure 2: The Witwatersrand Supergroup, subdivided between the Central Rand and the West Rand Groups. The seven major goldfields are indicated by white. The so-called 'Potchefstroom Gap' and 'Bothaville Gap' areas refer to regions initially thought to be barren of reefs, but extensive prospecting has shown that widespread gold- and uranium-bearing reefs occur here. Image sourced from Wikipedia.

Sunshine's non-invasive exploration programme is targeting the gold- and uranium-bearing Central Rand, West Rand Group and Ventersdorp Supergroup sediments. In addition to gold and uranium, the reefs of the Witwatersrand are also known to contain silver. Base metals such as copper, lead and zinc occur in small quantities within the reefs, but considering the large tonnages that can potentially be mined, the base metal content will result in substantial quantities. The reefs are also known to contain high quantities of pyrite. The latter contains sulphur. Base metals are potentially present in the overlying Transvaal Supergroup.

The reefs are continuations of those mined in the adjacent Carletonville Goldfield (Figure 3) and are at similar depths. The many years of mining in the area have resulted in a great knowledge of the various reefs. In addition, disciplines such as rock engineering, mining engineering, surveying, mining methodologies, shaft sinking, etc. have been perfected in the area and mining of the well-known reefs in the Potchefstroom Goldfield is expected to mimic many of the methodologies that were applied in the Carletonville Goldfield. New and modern mining techniques, too, might add another new dimension to ore extraction.

The geology of the application area represents an uninterrupted and natural continuation of the reefs between the Carletonville and Potchefstroom Goldfields. The shallow- as well as the deeper-seated geological units that are present in these two goldfields, are also present in the application area.

A plan and cross section of the reefs in the Potchefstroom Goldfield are shown in Figure 3.

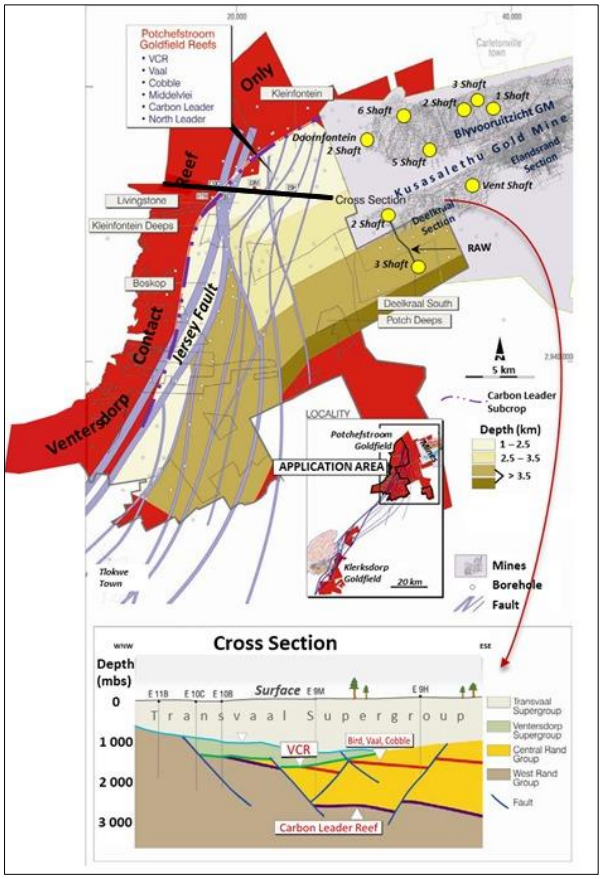


Figure 3: The geology of the application area in the Potchefstroom Goldfield. The location of some major gold mines in the Carletonville Goldfield are shown (grey).

As substantial historical data and information is available, Sunshine will only conduct non-invasive prospecting in the application area. Tens of kilometres of diamond drill core, numerous borehole logs, assay reports, survey data, summary logs, geological and geophysical reports, geological models, resource estimates for gold and uranium, etc., have been produced by historical prospecting companies. Sunshine will strive to acquire the data from these companies to produce an updated resource estimate for the application area.

3. POLICY AND LEGISLATIVE CONTEXT

The EA application for prospecting requires authorisation in terms of the following interlinked pieces of legislation:

1. The Mineral and Petroleum Resources Development Act (MPRDA, Act No. 28 of 2002)
2. The National Environmental Management Act (NEMA, Act No. 107 of 1998).

These pieces of core legislation stipulate the required studies, reports and legal processes to be conducted and the results thereof submitted to the relevant authorities for approval prior to commencement.

In addition to the above, there are various pieces of legislation which govern certain aspects of the prospecting activities and these are summarised in Table 6, together with the main legislative requirements mentioned above.

Table 6: Policy and legislative context.

Applicable Legislation And Guidelines	Reference Where Applied	How Does This Development Comply With And Respond To The Legislation And Policy Context
National Environmental Management Act (Act 107 of 1998)	This entire report is prepared as part of the Application for an Environmental Authorisation under the NEMA	In terms of the NEMA, an Application for an Environmental Authorisation subject to a Basic Assessment Process has been applied for
Minerals and Petroleum Resources Development Act (Act 28 of 2002)	This entire report is prepared as part of the Prospecting Right Application under the MPRDA	In terms of the Mineral and Petroleum Resources Development Act, a Prospecting Right Application has been applied for
National Environmental Management Waste Act (Act 26 of 2014**)**	Due to the nature of the proposed prospecting activities, a framework for the management of waste is not required for this Prospecting Right application	In terms of National Environmental Management Waste Act, no waste management License has been applied for
National Environmental Management Biodiversity Act (Act 10 of 2004)	Due to the nature of the proposed prospecting activities, a framework for the management of the environment is not required for this Prospecting Right application	In terms of the National Environmental Management Biodiversity Act, no framework for the management of alien and invasive species has been is required

Applicable Legislation And Guidelines	Reference Where Applied	How Does This Development Comply With And Respond To The Legislation And Policy Context
National Water Act (Act 36 of 1998) Section 21	Due to the nature of the proposed prospecting activities no Section 21 water uses will be triggered, therefore there is no requirement to apply for Water Use authorisation in terms of the NWA	In terms of the National Water Act, no Water Use License has been applied for
National Heritage Resources Act (Act 25 of 1999)	Due to the nature of the proposed prospecting activities, a framework for a Heritage Management Plan is not required for this report	In terms of the National Heritage Resources Act, a specialist heritage impact study has not been undertaken in support of this Prospecting Right application due to the non-invasive nature of the prospecting activities.

3.1 ENVIRONMENTAL AUTHORISATION PROCESS

3.1.1 Mineral and Petroleum Development Act

In terms of the MPRDA, 2002 (Act 28 of 2002), a Prospecting Right must be issued prior to the commencement of any prospecting activities. As per Section 79(4)(a) and (b) of the MPRDA, the Applicant is required to conduct a Basic Assessment and submit an EMPR for approval as well as to notify in writing and consult with Interested and Affected Parties (I&AP's) within 90 days of acceptance of the application. The MPRDA also requires adherence with related legislation, chief amongst them is the National Environmental Management Act (Act No. 107 of 1998, NEMA) and the National Water Act (Act No. 36 of 1998, NWA).

Several amendments have been made to the MPRDA. These include, but are not limited to, the amendment of Section 102, concerning amendment of rights, permits, programmes and plans, to requiring the written permission of the Minister for any amendment or alteration; and the section 5A(c) requirement that landowners or land occupiers receive twenty-one (21) days' written notice prior to any activities taking place on their properties. One of the most recent amendments requires all mining related activities to follow the full NEMA process as per the 2014 EIA Regulations, which came into effect on 8th December 2014.

A Prospecting Right is exclusive, transferable and valid for 5 years. It is renewable for a maximum of 3 years. Prospecting allows the holder of the right to conduct activities as per the Prospecting Work Programme to establish the presence of economically viable mineral resources. A Prospecting Right does not grant the holder the right to conduct any mining related activities.

3.1.2 National Environmental Management Act

The main aim of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) is to provide for co-operative governance by establishing decision-making principles on matters affecting the environment. In terms of the NEMA Environmental Impact Assessment (EIA) regulations, the proponent is required to appoint an environmental assessment practitioner (EAP) to undertake the EIA as well as the public participation process. In South Africa, EIA became a legal requirement in

1997 with the promulgation of regulations under the Environmental Conservation Act (ECA). Subsequently, NEMA was passed in 1998. Section 24(2) of NEMA empowers the Minister and any MEC, with the concurrence of the Minister, to identify activities which must be considered, investigated, assessed and reported on to the competent authority responsible for granting the relevant environmental authorisation. On 21st April 2006, the Minister of Environmental Affairs and Tourism promulgated regulations in terms of Chapter 5 of the NEMA.

The objective of the Regulations is to establish the procedures that must be followed in the consideration, investigation, assessment and reporting of the activities that have been identified. The purpose of these procedures is to provide the competent authority with adequate information to make decisions which ensure that activities which may impact negatively on the environment to an unacceptable degree are not authorised, and that activities which are authorised are undertaken in such a manner that the environmental impacts are managed to acceptable levels.

The aim of the EIA process is to identify and assess the potential impacts associated with the proposed project and to develop measures through which potential negative biophysical and socio-economic impacts can be mitigated and positive benefits can be enhanced. The EIA will ensure that all issues are integrated into the lifecycle of the mining operation and its infrastructure. This will occur during the planning, construction, operation and decommissioning and site closure phases.

The Basic Assessment Report and the associated EMPR will indicate how the identified impacts will be avoided, mitigated and/or managed by setting environmental objectives and goals. The EMPR will further outline the implementation programme for the environmental objectives and goals. The EMPR is a legal requirement of the MPRDA and all mines, existing or new, are required to possess an approved EMPR prior to initiating any prospecting operations. The EMPR is legally binding and the proponent is required to meet the requirements specified in the document.

3.1.3 National Environmental Management: Waste Amendment Act

On the 2nd June 2014 the National Environmental Management: Waste Amendment Act, 2014 (Act 26 of 2014) came into force. Waste is accordingly no longer governed by the MPRDA, but is subject to all the provisions of the National Environmental Management: Waste Act, 2008 (NEMWA). Section 16 of the NEMWA must also be considered which states as follows:

“A holder of waste must, within the holder’s power, take all reasonable measures to:

1. avoid the generation of waste and where such generation cannot be avoided, to minimise the toxicity and amounts of waste that are generated
2. reduce, re-use, recycle and recover waste
3. where waste must be disposed of, ensure that the waste is treated and disposed of in an environmentally sound manner
4. manage the waste in such a manner that it does not endanger health or the environment or cause a nuisance through noise, odour, or visual impacts
5. prevent any employee or any person under his or her supervision from contravening the Act
6. prevent the waste from being used for unauthorised purposes.

Due to the non-invasive nature of the proposed prospecting activities, these general principles of responsible waste management are not incorporated into the requirements of the EMPR to be implemented for this project.

3.1.4 The National Environmental Management: Biodiversity Act

The National Environmental Management: Biodiversity Act, 2002 (Act 10 of 2004) (NEMBA), "provides for: the management and conservation of South Africa's biodiversity within the framework of the NEMA; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources; the establishment and functions of a South African National Biodiversity Institute (SANBI); and for matters conducted therewith".

In terms of the Biodiversity Act, the applicant has a responsibility for: The conservation of endangered ecosystems and restriction of activities according to categorization of the area (not just by listed activity as specified in the EIA regulations)

1. Promote the application of appropriate environmental management tools in order to ensure integrated environmental management of activities thereby ensuring that all developments within the area are in line with ecological sustainable development and protection of biodiversity
2. Limit further loss of biodiversity and conserve endangered ecosystems.

Regulations published under the NEMBA also provide a list of protected species, according to the Act (GNR 151 dated 23rd February 2007, as amended in GNR 1187 dated 14th December 2007). Section 57 of NEMBA identifies restricted activities involving threatened or protected species. Restricted activities include the gathering, collecting, cutting, uprooting, damaging or destroy a listed species.

3.1.5 The National Environmental Management: Protected Areas Act

The National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003) (NEMPAA) serves to: "provide for the protection and conservation of ecologically viable areas representative of South Africa's biological biodiversity and its natural landscapes and seascape; for the establishment of a national register of all national, provincial and local protected areas; for the management of those areas in accordance with national norms and standards; for intergovernmental co-operation and public consultation in matters concerning protected areas; for the continued existence, governance and functions of South African National Parks; and for matters in connection therewith.

The objectives of this Act are to:

1. Provide, within the framework of the national legislation, including the National Environmental Management Act, for the declaration and management of protected areas
2. Provide for co-operation governance in the declaration and management of protected areas
3. Effect a national system of protected areas in South Africa as part of a strategy to manage and conserve its biodiversity
4. Provide for a diverse and representative network of protected areas on state land, private land, communal land and marine water

5. Promote sustainable utilisation of protected areas for the benefit of people, in a manner that would preserve the ecological character of such areas
6. Promote participation of local communities in the management of protected areas, when appropriate
7. Provide for the continued existence of South African National Parks.

3.1.6 National Water Act

The National Water Act, 1998 (Act 36 of 1998) (NWA) makes provision for two types of application for water use licences, namely individual applications and compulsory applications. The NWA also provides that the responsible authority may require an assessment by the Applicant of the likely effect of the proposed licence on the resource quality, and that such assessment be subject to the EIA regulations. A person may use water, if the use is:

1. Permissible as a continuation of an existing lawful water use (ELWU)
2. Permissible in terms of a general authorisation (GA)
3. Permissible under Schedule 1
4. Authorised by a licence.

Water use may only be undertaken if authorised. Water users are required to register certain water uses that actually took place on the date of registration, irrespective of whether the use was lawful or not.

Section 21 of the National Water Act 1998 lists the following 11 water uses which can only be legally undertaken through the water use authorisation issued by the Department of Water and Sanitation (DWS):

1. Taking water from a water resource
2. Storing water
3. Impeding or diverting the flow of water in a watercourse
4. Engaging in a stream flow reduction activity contemplated in section 36
5. Engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1)
6. Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduits
7. Disposing of waste in a manner which may detrimentally impact on a water resource
8. Disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process
9. Altering the bed, banks, course or characteristics of a watercourse
10. Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people
11. Using water for recreational purposes.

In terms of the National Water Act, no Water Use Licence has been applied for relating to this project.

3.1.7 National Heritage Resources Act

The National Heritage Resources Act, 1999 (Act 25 of 1999) (NHRA) stipulates that cultural heritage resources may not be disturbed without authorisation from the relevant heritage authority. Section 34(1) of the NHRA states that, "no person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority…" The NHRA is utilised as the basis for the identification, evaluation and management of heritage resources and in the case of CRM those resources specifically impacted on by development as stipulated in Section 38 of NHRA, and those developments administered through NEMA, MPRDA and the DFA legislation. In the latter cases the feedback from the relevant heritage resources authority is required by the State and Provincial Departments managing these Acts before any authorisations are granted for development. The last few years have seen a significant change towards the inclusion of heritage assessments as a major component of Environmental Impacts Processes required by NEMA and MPRDA. This change requires us to evaluate the Section of these Acts relevant to heritage:

The NEMA 23(2)(b) states that an integrated environmental management plan should, "…identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage".

A study of subsections (23)(2)(d), (29)(1)(d), (32)(2)(d) and (34)(b) and their requirements reveals the compulsory inclusion of the identification of cultural resources, the evaluation of the impacts of the proposed activity on these resources, the identification of alternatives and the management procedures for such cultural resources for each of the documents noted in the Environmental Regulations. A further important aspect to be taken account of in the Regulations under NEMA is the Specialist Report requirements laid down in Section 33 (Fourie, 2008b).

MPRDA defines 'environment' as it is in the NEMA and therefore acknowledges cultural resources as part of the environment. Section 39(3)(b) of this Act specifically refers to the evaluation, assessment and identification of impacts on all heritage resources as identified in Section 3(2) of the National Heritage Resources Act that are to be impacted on by activities governed by the MPRDA. Section 40 of the same Act requires the consultation with any State Department administering any law that has relevance on such an application through Section 39 of the MPRDA. This implies the evaluation of Heritage Assessment Reports in Environmental Management Plans or Programmes by the relevant heritage authorities.

4. NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

Prospecting activities do not offer many tangible benefits as it is the initial phase of mining. Prospecting precedes mining. However, it is during the prospecting phase that the prospecting results determine if there are economically viable mineral resources for mining to be established.

The mining industry in South Africa is of national and international importance. It contributes significantly to the gross domestic product (GDP) of the country. According to President Cyril Ramaphosa's 2022 speech at the Mining Indaba in Cape Town on the 9th May 2022, mining remains

a critical pillar of the South African economy, after more than 150 years. Mining is a significant contributor to export earnings, it is an important source of foreign direct investment, and directly employs nearly half a million people. At the fourth South Africa Investment Conference earlier this year, investments valued at around R46.5 billion were pledged towards mining and mineral beneficiation (Mining Indaba, 2022).

There are nearly 300 active mines in the North West Province and the sector contributes 31,3% of the region's GDP. A large number of families rely on the income earned on mines, with about 18% of total employment in the province coming from mining.

The North West Province is aligned with the Western Limb of the Bushveld Igneous Complex, a remarkably rich mineral formation. Mines in the province produce 50% of the platinum procured in the world, and 65% of South Africa's platinum group metals. Chromite is the other major mineral mined throughout the province, and there are several ferrochrome smelters and other processing plants. Gold and uranium are found along the border of the province with Gauteng and Free State and is mined extensively at Klerksdorp. Diamonds are mined in the province. Other minerals found in the North West include fluorspar, vanadium, rhodium, uranium, copper, limestone, slate, phosphate, manganese, coal and nickel. There are also significant stone and granite operations.

The minerals relating to this application are gold, silver, uranium, pyrite, sulphur (in pyrite) and base metals (aluminium, copper, lead, zinc, nickel ore, tin). If the application is granted, Sunshine will be enabled to determine if there are economically viable resources and reserves available in the area. These minerals are of significant value and the mining thereof has the potential to contribute considerably to the South African economy.

Sunshine's proposed non-invasive prospecting activities described above are needed in order to determine the exact position, extent, grade and quality of the minerals applied for. The geological characteristics of the preferred location meet the prerequisites for concentration of these minerals. The non-invasive prospecting techniques will have no impacts on any locations.

In a nutshell, should prospecting prove successful and mineral resources and reserves be quantified, it would indicate a potential viable economic activity in the form of mining. That is likely to contribute greatly to the socio-economic status quo in the form of increased income, employment and other benefits that would cascade through local, regional and national levels.

5. MOTIVATION FOR THE OVERALL PREFERRED DEVELOPMENT FOOTPRINT

The application area was elected by Sunshine's geological team owing to extensive experience and knowledge of the Witwatersrand Basin. Sunshine will source all the historical data, which consist of regional and local geological maps, numerous reports, drilling records, assay reports, and hundreds of kilometres of borehole cores. Sunshine will conduct desktop studies (database compilation, geomodelling, etc.), develop ore depositional models and determine the metal resource and reserve contents of the area under investigation. The project area is underlain by the Witwatersrand and

Ventersdorp Supergroups which are known for their various gold- and uranium-bearing reefs. Apart from these two minerals, the reefs are known to host silver, base metals (aluminium, copper, lead, zinc, nickel ore, tin), pyrite and sulphur (in pyrite). Base metals are also present in the dolomites of the Transvaal Supergroup.

The applicant is also committed to utilise the best technologies currently available and has designed the preliminary layout plan in such a manner that negative impacts are minimised and positive impacts are maximised.

There will be no development footprint due to the fact that only non-invasive prospecting will be undertaken.

The geology is the primary driver in determining the location of prospecting and mining.The geology of this area has been previously explored extensively; thus, historical data will be utilised to determine the potential resources without the need of invasive techniques. As such, no assessment of alternative development scenarios was conducted.

6. FULL DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED ALTERNATIVES WITHIN THE SITE

6.1 DETAILS OF DEVELOPMENT FOOTPRINT ALTERNATIVES

6.1.1 Property

The application area has been selected based predominantly on available historical data for the region, which indicates the potential for potentially economically viable resources to occur.

Existing land uses within the application area, which range from natural vegetation, agricultural and mining activities as well as urban built areas, indicate that the land has been largely transformed from its natural state. Due to the geological features (in terms of mineralisation) present within the proposed application area and the low sensitivity of the receiving socio-economic and biophysical environment, no property alternatives are suggested.

6.1.2 Type of Activity

Due to the nature of data collection and the extensive historical borehole and other geological datasets, invasive prospecting, such as drilling, is perceived to be unnecessary during prospecting. This is due to the availability of previously drilled borehole cores, borehole reports, assay reports, in-house competent person reports and mineral assessments, seismic and geophysical surveys within the project area, as well as widespread underground mining close to it in the Carletonville Goldfield. Sunshine will therefore fast-track the resource estimation process by utilising the historical data and information, as well as historical and current underground data, instead of conducting invasive prospecting.

6.1.3 Design or Layout

No invasive activities are planned for this prospecting project. As such, there are no designs or layout alternatives to consider.

6.1.4 Technology Alternatives

The technologies listed in the Prospecting Work Programme have been proven effective in the determination of resource viability within the proposed prospecting area. The techniques employed in the non-invasive prospecting will include (i) acquisition of historical data and desktop studies, (ii) data inventory and capturing, (iii) data synthesis and database creation, (iv) generation of geological models (structural, depositional, etc.), (v) geostatistical analyses, (vi) resource/reserve estimations and (vii) scoping and/or (pre-)feasibility studies, if required. These technologies have been selected due to their non-invasive nature and ability to provide information at the level required, to determine and estimate potential gold and uranium resources. As such, no further technological alternatives are considered.

6.1.5 Operational Aspects

No invasive activities are planned for this prospecting project. As such, there are no operational aspect alternatives to consider.

6.1.6 Option of Not Implementing

If the application is not granted, the potential to identify viable mineral resources could be lost. Mining activities are taking place, and have been taking place in the past, close to the application area and as such the proposed prospecting activities would represent a continuation of historical land use. Additionally, it allows for marginal land impacted by historical prospecting and mining activities to be re-introduced into the economy.

7. DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED

7.1 Public Participation Methodology

The Public Participation Process (PPP) is a requirement of several pieces of South African Legislation and aims to ensure that all relevant I&AP's are consulted, involved and their opinions taken into account. A record thereof will be included in the reports submitted to the Authorities. The process ensures that all stakeholders are provided this opportunity as part of a transparent process which allows for a robust and comprehensive environmental study.

A database and I&AP-register was compiled. The list includes various stakeholders, authorities, landowners and land occupiers. Notification documents were distributed on the 20th May 2022. I&AP's have been provided a period of 30 days to register and comment on the proposed activity and application.

7.1.1 Identification of I&AP's

An initial I&AP-list was compiled using WinDeed searches to determine the registered landowner/s of the project affected land parcels. The I&AP-database contains the following categories of stakeholders:

1. National government
2. Provincial government
3. Local government
4. Agricultural sector
5. Organised business
6. Host and adjacent communities
7. Land claimants
8. Other organisations, clubs, communities, and unions
9. Various non-government organisations.

7.1.2 List of Authorities Identified and Notified

The following authorities have been identified and notified of the application:

1. National Department of Mineral Resources and Energy
2. National Department of Agriculture, Forestry and Fisheries
3. National Department of Rural Development and Land Reform
4. South African National Roads Agency Ltd (SANRAL)
5. South African Heritage Resources Agency (SAHRA) – National
6. North West Department of Mineral Resources and Energy
7. North West Department of Agriculture And Rural Development
8. North West Department of Traditional Affairs, Human Settlements
9. North West Department of Roads and Transport
10. North West Department of Water and Sanitation
11. JB Marks City Local Municipality
12. Dr Kenneth Kaunda District Local Municipality
13. Eskom
14. Transnet.

7.1.3 List of Key Stakeholders Identified and Notified

The following key stakeholders have been identified and notified of the application:

1. The Council for Scientific and Industrial Research
2. Wildlife and Environment Society of South Africa (WESSA)
3. Agri South Africa
4. South African National Parks (SANParks)
5. Birdlife South Africa
6. Agricultural Research Council
7. Centre for Environmental Rights
8. Endangered Wildlife Trust.

7.1.4 List of Surface Rights/Landowners Identified and Notified

The following surface right/landowners have been notified of the application:

1. Muiskraal LewendeTrust
2. Republic of South Africa
3. Transnet Ltd
4. Hendrik Johannes Jansen van Rensburg
5. Daleen Kruger Trust
6. Hempel Neville Herman
7. Andre Barnard
8. Urongo Inv 4 Pty Ltd
9. Maarten Benecke Familie Trust
10. Hempel Neville Herman
11. Maarten Benecke Familie Trust
12. Daleen Kruger Trust
13. Willem Johannes Oosthuizen
14. J J Wasserman Familie Trust
15. Van Rooyen Trading Pty Ltd
16. Jan Daniel van der Walt
17. Rene Lowings
18. Phillipus Johannes Anthonie Meiring
19. Johannes Jacobus Jansen Van Rensburg
20. Graspan Trust
21. Thaba-Jah Trust
22. J J Wasserman Familie Trust
23. Phillipus Johannes Anthonie Meiring
24. Willem Johannes Oosthuizen
25. Jacobus Izak Hooghiemstra
26. Losprop Cc
27. J P Jacobs Trust
28. Alves Elias Franco Dos Santos
29. Witkoppiesfontein Farm Pty Ltd
30. Hentiq 1783 Pty Ltd
31. J P Jacobs Trust
32. Same Day Boerdery Cc
33. Taggart Group Pty Ltd
34. Witkoppiesfontein Farm Pty Ltd
35. Guilder Inv 25 Pty Ltd
36. Morne Badenhorst Trust
37. Kroonvaal 1-Stop Cc
38. Klipdrift-Nedersettingsbestuursraad
39. Casparus Hendrik Badenhorst
40. Gert Johannes Du Plessis
41. Badenhorst Casparus Hendrik Trustees
42. Guilder Inv 25 Pty Ltd
43. Wilhelmina Christina Badenhorst
44. Wilhelmina Christina Badenhorst
45. Badenhorst Casparus Hendrik Trustees
46. Badenhorst Casparus Hendrik Trustees
47. Morne Badenhorst Trust
48. Badenhorst Casparus Hendrik Trustees
49. Serfontein Trust
50. Linda Serfontein Trust
51. Herondale Wildlife Eco Estate Pty Ltd
52. Strydom Boerdery Trust
53. M-Way Trading Enterprise Cc
54. Liebenberg Gerhardus Frederik
55. H I J Beleggings Pty Ltd
56. Tiradeprops 140 Pty Ltd
57. Sanral Pty Ltd
58. Nikconette Nienaber Trust
59. Anita Leonie Stander
60. Morne Weyers Trust
61. Izak Jacobus Bredenkamp
62. Mma Inforworx Pty Ltd
63. Amori Tappan
64. Adriaan Willem Rohlandt
65. A L S Mining Pty Ltd
66. Johann Carl Jerling
67. Wayne Erald Schmidt
68. Petrafield Pty Ltd
69. Theuns Janson Familie Trust
70. Hanlie Cornelia Pienaar
71. Willem Coetzee Trust
72. Willem & Isabel Henning Familie Trust
73. Johan Jacobus Viljoen
74. Adriana Dreyer
75. Johannes Hendrik Willemse
76. Arnold Rademeyer

77. Petrus Johannes Serfontein
78. Jacole Trust
79. Cornelius Wilhelm Muller
80. Johannes Jacobus Steenkamp
81. Rudolf Johannes Schoeman
82. Swart Jacobus Albertus
83. Wilgeboom Trust
84. Vyfhoek-Noord Bestuursraad
85. Hamilton Trust
86. George Lyon Steyn
87. Federico Martino Bechaz
88. Jacobus Hendrikus van Wyk
89. Leone Donovan van Rooyen
90. Purple Plum Prop 119 Pty Ltd
91. Vorster Familie Trust
92. Hemelboom Beleggings (Rf) Pty Ltd
93. Witwatersrand Consolidated Gold Resources Ltd
94. John Mcgregor
95. Dewald De Jagerbeleggings Trust
96. Linda Serfontein Trust
97. Velvet Moon Prop 23 Pty Ltd
98. Helderzicht Eco Estate Pty Ltd
99. J P R Trust
100. Chubby Chick Wholesale 3 Pty Ltd
101. Helderzicht Eco Estate Pty Ltd
102. D E Land Estate Pty Ltd
103. Von Strij Estate Pty Ltd
104. Ellis Johanna Elizabeth Alida
105. Johannes Jacobus Van Der Walt
106. Grainvest Prop Pty Ltd
107. Ripple Effect 41 Pty Ltd
108. Cordier Catharina Magdalena
109. Cairyn van Dyk
110. Beukes Morne George
111. Dawid Daniel Jacobus Malan
112. Hennie Ungerer Trust
113. Louis Robert Viljoen
114. Petrus Andreas Swanepoel
115. Emil Rademeyer
116. Lekwena Wildlife Estate Pty Ltd
117. A L S Rentals Vaal Triangle Assets Pty Ltd
118. Dirk Cornelius Rautenbach
119. Dawid Daniel Jacobus Malan
120. David Johannes van der Ryst
121. Staats Familie Trust Pieter Kruger
122. Hercules David Nieuwoudt
123. Philip Ayres
124. Magdalena Johanna Du Plessis
125. Chris Philip Storm
126. Fazila Hassim
127. Francois van der Walt
128. Jacobus Geldenhuys
129. Ian Robert Johnson
130. Abrie Viljoen Familie Trust
131. Almarie Hermine Beukes
132. Jomar Trust
133. Adri Josien Kemp
134. Jacques Prins
135. Marthinus Melck-Brandt Coetzer
136. Ankebe Kruger
137. Gideon Griebenow
138. G J M Familie Trust
139. Tappan's Electrical Pty Ltd
140. Gordon Rhodes Crundwell
141. Maryna Madelein Bodemer
142. Jacobus Johannes Stephanus van Niekerk
143. Pietro Drijfhout
144. Albertus Brand
145. Delicado Besigheids Trust
146. Arthur Hendrik Jacobus Vivier
147. Jennifer van der Merwe
148. Willem Johannes Stephanus Viljoen
149. Beyond Limits Potchefstroom Prop Pty Ltd
150. J P R Trust
151. Rene Van Zyl Trust
152. Theo Van Niekerk Trust
153. Juan Adriaan Oosthuizen

154. Roelsan Trust
155. Paulus Stefanus van Rooyen
156. Daly Prop Trust
157. Gabriel Johannes Du Plessis
158. High Point Trading 204 Cc
159. Vera Venter
160. Elizabeth Louisa van Dalen
161. Simon van der Stel Stigting
162. Wilgerprag Eiendomme Pty Ltd
163. Serfontein Trust
164. Wild Footprint Safaris Pty Ltd
165. Hamilton Construction Pty Ltd
166. Dewald van Breda
167. Elite Bouine Beleggings Pty Ltd.

7.1.5 List of Adjacent Landowners Notified

Notification to adjacent landowners was hand-delivered and sent via registered letters, fax and e-mail.

7.1.6 List of Registered I&APs Notified

The following I&AP's requested to be registered as I&AP's for the project:

1. Ms Ntombi Rikhotso
2. Mr Michael Booyens
3. Mr Lieb Venter.

7.2 Notification of I&AP's

This section provides details on the notification that was distributed as part of the BA process to date.

7.2.1 Initial notification

The PPP commenced on the 20th May 2022, with an initial notification and call to register for the period ending on the 30th June 2022. Initial notification was given in the following manner:

7.2.1.1 Registered Letters, Faxes and E-mails

Notification letters, faxes and e-mails were distributed to all pre-identified I&AP's including affected and adjacent surface landowners, government organisations, NGO's, relevant municipalities, ward councillors and other organisations that might be affected. The notification letters included the following information:

1. List of anticipated activities to be authorised
2. Scale and extent of activities to be authorised
3. Sufficient detail of the intended operation (to enable I&AP's to assess/surmise what impact the activities will have on them or on the use of their land)
4. The purpose of the proposed project
5. Details of the affected properties (including a locality map)
6. Details of the MPRDA and NEMA Regulations that must be adhered to
7. Date by which any request to register as an I&AP must be forwarded through to Imbokodo
8. Contact details of the EAP.

In addition, a questionnaire was included in the registered letters, e-mails and facsimiles sent which requested the following information from I&AP's:

1. Information on any potential impacts from the proposed project
2. Suggestions on potential mitigation measures for their anticipated impacts
3. Information on current land uses and their location within the area
4. Information on the location of any environmental features of note within and in the vicinity of the study area
5. Details of the landowner and information (contact details) of lawful property occupiers, if any
6. Details of any other I&AP's that should be notified
7. Details on any land developments proposed in the near future
8. Any specific comments or concerns regarding the application.

7.2.1.2 Background Information Document (BID)

A Background Information Document (BID) was prepared. The BID includes the following information:

1. Project name
2. Applicant name
3. Project location
4. Map of affected project area
5. Description of the application process
6. Information on document review
7. EAP contact person for the project.

7.2.1.3 Newspaper Advertisement

A newspaper advertisement describing the proposed project and BA process was placed in a regional newspaper with adequate circulation in the area. The advertisement was placed in the Potchefstroom Herald, a bilingual weekly newspaper, on the 20th May 2022. The newspaper advert included the following information:

1. Project name
2. Applicant name
3. Project location
4. Nature of the activity
5. EAP contact person for the project.

7.2.1.4 Site Notice Placement

Twenty A2 correx site notices were placed along and within the perimeter of the proposed project area on the 20th and 21st May 2022. The on-site notices included the following information:

1. Project name
2. Applicant name
3. Project location
4. Map of proposed project area
5. Project description

6. Legislative requirements
7. EAP contact person for the project.

7.2.1.5 Poster Placement

A3 posters were placed at local public gathering places. The notices and written notifications afforded all pre-identified I&AP's the opportunity to register for the project as well as to submit their issues, queries or concerns and indicate the contact details of any other potential I&AP's that should be contacted. The contact details of the EAP were clearly stated on the notification. Comments/concerns and queries were encouraged to be submitted in either of the following manners:

1. Electronically (fax, e-mail)
2. Telephonically
3. Written letters.

7.2.2 Availability of Draft BAR and EMPR Notification

The draft BAR and EMPR will be made available for public review and comment for a period of 30 days, from the 30th May 2022 to the 30th June 2022. All pre-identified I&AP's were notified of the availability of the BAR and EMPR and where to locate it. I&AP's have also been informed to provide comment to Imbokodo, either in writing or telephonically, by no later than the 30th June 2022.

Notification regarding the availability of the draft BAR and EMPR was given in the following manner:

1. Registered letters, faxes and e-mails
2. Newspaper Advertisement
3. Site notices and posters.

Furthermore, the draft BAR and EMPR have been uploaded online (www.imbokodo.co.za/public-documents/) for download. Table 7 summarises the PPP.

Table 7: Opportunities provided for public participation.

Public Participation Phase			
Action	**Description**	**Publication/Place**	**Date**
Initial public notification (announcement of project) and Announcement for public review of draft BAR and EMPR	Newspaper advertisement	Potchefstroom Herald	20 May 2022
	Notification of landowners and key I&AP's	I&AP's were notified via e-mail, fax, and/or post	20 May 2022
	Placement of site notices	A2 site notices within and around the site area (16 locations)	20 and 21 May 2022
	Placement of posters	A3 posters were placed at key public places within the site area	20 and 21 May 2022

7.2.3 Public Meeting/Open Day

Due to the non-invasive nature of the prospecting activities, a public meeting was not deemed necessary during the BAR process.

7.3 Issues and responses

The Public Participation Process was initiated on 20th May 2022. I&AP's are given until the 30th June 2022 to register for this project. The draft BAR and EMPR will be made available from the 30th May 2022 until the 30th June 2022 and I&AP's have been provided with the opportunity to comment on the draft BAR and EMPR. All comments or issues received from I&AP's will be included in the final report.

7.3.1 How Issues Raised Will be Addressed

Comments raised will be addressed in a transparent manner and will be included in the final BAR and EMPR in the following way:

1. Issues raised will be used quantitatively to calculate the significance of impacts both real and perceived
2. Issues raised will be used to provide further suggestions and recommendations with regard to technical management options for impacts.

7.3.2 Summary of comments and concerns raised by I&AP's

The Public Participation Process was initiated on the 20th May 2022. I&AP's are given a period of 30 days to register and comment on the application. All comments or issues received from I&AP's will be included in Table 8.

Table 8: Summary of issues raised by I&AP's.

I&AP	Consulted	Date	Comment Received	Response Issued
Key Stakeholders				
Landowner/s				
Muiskraal LewendeTrust	X		No comment received to date.	
Republic of South Africa	X		No comment received to date.	
Transnet Ltd	X		No comment received to date.	
Hendrik Johannes Jansen van Rensburg	X		No comment received to date.	
Daleen Kruger Trust	X		No comment received to date.	
Hempel Neville Herman	X		No comment received to date.	
Andre Barnard	X		No comment received to date.	
Urongo Inv 4 Pty Ltd	X		No comment received to date.	
Maarten Benecke Familie Trust	X		No comment received to date.	
Hempel Neville Herman	X		No comment received to date.	
Maarten Benecke Familie Trust	X		No comment received to date.	
Daleen Kruger Trust	X		No comment received to date.	
Willem Johannes	X		No comment received to date.	

I&AP	Consulted	Date	Comment Received	Response Issued
Oosthuizen				
J J Wasserman Familie Trust	X		No comment received to date.	
Van Rooyen Trading Pty Ltd	X		No comment received to date.	
Jan Daniel van der Walt	X		No comment received to date.	
Rene Lowings	X		No comment received to date.	
Phillipus Johannes Anthonie Meiring	X		No comment received to date.	
Johannes Jacobus Jansen Van Rensburg	X		No comment received to date.	
Graspan Trust	X		No comment received to date.	
Thaba-Jah Trust	X		No comment received to date.	
J J Wasserman Familie Trust	X		No comment received to date.	
Phillipus Johannes Anthonie Meiring	X		No comment received to date.	
Willem Johannes Oosthuizen	X		No comment received to date.	
Jacobus Izak Hooghiemstra	X		No comment received to date.	

I&AP	Consulted	Date	Comment Received	Response Issued
Losprop Cc	X		No comment received to date.	
J P Jacobs Trust	X		No comment received to date.	
Alves Elias Franco Dos Santos	X		No comment received to date.	
Witkoppiesfontein Farm Pty Ltd	X		No comment received to date.	
Hentiq 1783 Pty Ltd	X		No comment received to date.	
J P Jacobs Trust	X		No comment received to date.	
Same Day Boerdery Cc	X		No comment received to date.	
Taggart Group Pty Ltd	X		No comment received to date.	
Witkoppiesfontein Farm Pty Ltd	X		No comment received to date.	
Guilder Inv 25 Pty Ltd	X		No comment received to date.	
Morne Badenhorst Trust	X		No comment received to date.	
Kroonvaal 1-Stop Cc	X		No comment received to date.	
Klipdrift-Nedersettingsbestuursraad	X		No comment received to date.	
Casparus Hendrik Badenhorst	X		No comment received to date.	
Gert Johannes Du Plessis	X		No comment received to date.	

I&AP	Consulted	Date	Comment Received	Response Issued
Badenhorst Casparus Hendrik Trustees	X		No comment received to date.	
Guilder Inv 25 Pty Ltd	X		No comment received to date.	
Wilhelmina Christina Badenhorst	X		No comment received to date.	
Wilhelmina Christina Badenhorst	X		No comment received to date.	
Badenhorst Casparus Hendrik Trustees	X		No comment received to date.	
Badenhorst Casparus Hendrik Trustees	X		No comment received to date.	
Morne Badenhorst Trust	X		No comment received to date.	
Badenhorst Casparus Hendrik Trustees	X		No comment received to date.	
Serfontein Trust	X		No comment received to date.	
Linda Serfontein Trust	X		No comment received to date.	
Herondale Wildlife Eco Estate Pty Ltd	X		No comment received to date.	
Strydom Boerdery Trust	X		No comment received to date.	
M-Way Trading Enterprise Cc	X		No comment received to date.	

I&AP	Consulted	Date	Comment Received	Response Issued
Liebenberg Gerhardus Frederik	X		No comment received to date.	
H I J Beleggings Pty Ltd	X		No comment received to date.	
Tiradeprops 140 Pty Ltd	X		No comment received to date.	
Sanral Pty Ltd	X		No comment received to date.	
Nikconette Nienaber Trust	X		No comment received to date.	
Anita Leonie Stander	X		No comment received to date.	
Morne Weyers Trust	X		No comment received to date.	
Izak Jacobus Bredenkamp	X		No comment received to date.	
Mma Inforworx Pty Ltd	X		No comment received to date.	
Amori Tappan	X		No comment received to date.	
Adriaan Willem Rohlandt	X		No comment received to date.	
A L S Mining Pty Ltd	X		No comment received to date.	
Johann Carl Jerling	X		No comment received to date.	
Wayne Erald Schmidt	X		No comment received to date.	
Petrafield Pty Ltd	X		No comment received to date.	
Theuns Janson Familie Trust	X		No comment received to date.	

I&AP	Consulted	Date	Comment Received	Response Issued
Hanlie Cornelia Pienaar	X		No comment received to date.	
Willem Coetzee Trust	X		No comment received to date.	
Willem & Isabel Henning Familie Trust	X		No comment received to date.	
Johan Jacobus Viljoen	X		No comment received to date.	
Adriana Dreyer	X		No comment received to date.	
Johannes Hendrik Willemse	X		No comment received to date.	
Arnold Rademeyer	X		No comment received to date.	
Petrus Johannes Serfontein	X		No comment received to date.	
Jacole Trust	X		No comment received to date.	
Cornelius Wilhelm Muller	X		No comment received to date.	
Johannes Jacobus Steenkamp	X		No comment received to date.	
Rudolf Johannes Schoeman	X		No comment received to date.	
Swart Jacobus Albertus	X		No comment received to date.	
Wilgeboom Trust	X		No comment received to date.	
Vyfhoek-Noord	X		No comment received to date.	

I&AP	Consulted	Date	Comment Received	Response Issued
Bestuursraad				
Hamilton Trust	X		No comment received to date.	
George Lyon Steyn	X		No comment received to date.	
Federico Martino Bechaz	X		No comment received to date.	
Jacobus Hendrikus van Wyk	X		No comment received to date.	
Leone Donovan van Rooyen	X		No comment received to date.	
Purple Plum Prop 119 Pty Ltd	X		No comment received to date.	
Vorster Familie Trust	X		No comment received to date.	
Hemelboom Beleggings (Rf) Pty Ltd	X		No comment received to date.	
Witwatersrand Consolidated Gold Resources Ltd	X		No comment received to date.	
John Mcgregor	X		No comment received to date.	
Dewald De Jagerbeleggings Trust	X		No comment received to date.	
Linda Serfontein Trust	X		No comment received to date.	
Velvet Moon Prop 23 Pty	X		No comment received to date.	

I&AP	Consulted	Date	Comment Received	Response Issued
Ltd				
Helderzicht Eco Estate Pty Ltd	X		No comment received to date.	
J P R Trust	X		No comment received to date.	
Chubby Chick Wholesale 3 Pty Ltd	X		No comment received to date.	
Helderzicht Eco Estate Pty Ltd	X		No comment received to date.	
D E Land Estate Pty Ltd	X		No comment received to date.	
Von Strij Estate Pty Ltd	X		No comment received to date.	
Ellis Johanna Elizabeth Alida	X		No comment received to date.	
Johannes Jacobus Van Der Walt	X		No comment received to date.	
Grainvest Prop Pty Ltd	X		No comment received to date.	
Ripple Effect 41 Pty Ltd	X		No comment received to date.	
Cordier Catharina Magdalena	X		No comment received to date.	
Cairyn van Dyk	X		No comment received to date.	
Beukes Morne George	X		No comment received to date.	

I&AP	Consulted	Date	Comment Received	Response Issued
Dawid Daniel Jacobus Malan	X		No comment received to date.	
Hennie Ungerer Trust	X		No comment received to date.	
Louis Robert Viljoen	X		No comment received to date.	
Petrus Andreas Swanepoel	X		No comment received to date.	
Emil Rademeyer	X		No comment received to date.	
Lekwena Wildlife Estate Pty Ltd	X		No comment received to date.	
A L S Rentals Vaal Triangle Assets Pty Ltd	X		No comment received to date.	
Dirk Cornelius Rautenbach	X		No comment received to date.	
Dawid Daniel Jacobus Malan	X		No comment received to date.	
David Johannes van der Ryst	X		No comment received to date.	
Staats Familie Trust	X		No comment received to date.	
Pieter Kruger	X		No comment received to date.	
Hercules David Nieuwoudt	X		No comment received to date.	
Philip Ayres	X		No comment received to date.	
Magdalena Johanna Du	X		No comment received to date.	

I&AP	Consulted	Date	Comment Received	Response Issued
Plessis				
Chris Philip Storm	X		No comment received to date.	
Fazila Hassim	X		No comment received to date.	
Francois van der Walt	X		No comment received to date.	
Jacobus Geldenhuys	X		No comment received to date.	
Ian Robert Johnson	X		No comment received to date.	
Abrie Viljoen Familie Trust	X		No comment received to date.	
Almarie Hermine Beukes	X		No comment received to date.	
Jomar Trust	X		No comment received to date.	
Adri Josien Kemp	X		No comment received to date.	
Jacques Prins	X		No comment received to date.	
Marthinus Melck-Brandt Coetzer	X		No comment received to date.	
Ankebe Kruger	X		No comment received to date.	
Gideon Griebenow	X		No comment received to date.	
G J M Familie Trust	X		No comment received to date.	
Tappan's Electrical Pty Ltd	X		No comment received to date.	
Gordon Rhodes Crundwell	X		No comment received to date.	

I&AP	Consulted	Date	Comment Received	Response Issued
Maryna Madelein Bodemer	X		No comment received to date.	
Jacobus Johannes Stephanus van Niekerk	X		No comment received to date.	
Pietro Drijfhout	X		No comment received to date.	
Albertus Brand	X		No comment received to date.	
Delicado Besigheids Trust	X		No comment received to date.	
Arthur Hendrik Jacobus Vivier	X		No comment received to date.	
Jennifer van der Merwe	X		No comment received to date.	
Willem Johannes Stephanus Viljoen	X		No comment received to date.	
Beyond Limits Potchefstroom Prop Pty Ltd	X		No comment received to date.	
J P R Trust	X		No comment received to date.	
Rene Van Zyl Trust	X		No comment received to date.	
Theo Van Niekerk Trust	X		No comment received to date.	
Juan Adriaan Oosthuizen	X		No comment received to date.	
Roelsan Trust	X		No comment received to date.	
Paulus Stefanus van Rooyen	X		No comment received to date.	

I&AP	Consulted	Date	Comment Received	Response Issued
Daly Prop Trust	X		No comment received to date.	
Gabriel Johannes Du Plessis	X		No comment received to date.	
High Point Trading 204 Cc	X		No comment received to date.	
Vera Venter	X		No comment received to date.	
Elizabeth Louisa van Dalen	X		No comment received to date.	
Simon van der Stel Stigting	X		No comment received to date.	
Wilgerprag Eiendomme Pty Ltd	X		No comment received to date.	
Serfontein Trust	X		No comment received to date.	
Wild Footprint Safaris Pty Ltd	X		No comment received to date.	
Hamilton Construction Pty Ltd	X		No comment received to date.	
Dewald van Breda	X		No comment received to date.	
Elite Bouine Beleggings Pty Ltd	X		No comment received to date.	
Lawful Occupier/s				
NA				
Adjacent Landowners				

I&AP	Consulted	Date	Comment Received	Response Issued
NA			.	
Local Municipality – JB Marks City Local Municipality				
Executive Mayor	X		No comment received to date.	
Municipal Manager	X		No comment received to date.	
Head of Communication	X		No comment received to date.	
Executive Director: Economic Development, Planning and Environmental Management	X		No comment received to date.	
Ward 2 Councillor	X		No comment received to date.	
Ward 3 Councillor	X		No comment received to date.	
Ward 28 Councillor	X		No comment received to date.	
District Municipality – Kenneth Kaunda District Municipality				
Executive Mayor	X		No comment received to date.	
Municipal Manager	X		No comment received to date.	
Communities				
N/A	X		No comment received to date.	
Traditional Leaders				

I&AP	Consulted	Date	Comment Received	Response Issued
N/A	X		No comment received to date.	
Organs of State				
National Department of Mineral Resources and Energy	X		No comment received to date.	
National Department of Agriculture, Forestry and Fisheries	X		No comment received to date.	
National Department of Rural Development and Land Reform	X		No comment received to date.	
South African National Roads Agency Ltd (SANRAL)	X		No comment received to date.	
South African Heritage Resources Agency (SAHRA) – National	X		No comment received to date.	
North West Department of Mineral Resources and Energy	X		No comment received to date.	
North West Department of Agriculture and Rural Development	X		No comment received to date.	

I&AP	Consulted	Date	Comment Received	Response Issued
North West Department of Traditional Affairs, Human Settlements	X		No comment received to date.	
North West Department of Roads and Transport	X		No comment received to date.	
North West Department of Water and Sanitation	X		No comment received to date.	
Eskom	X		No comment received to date.	
Transnet	X		No comment received to date.	
Other Affected Parties				
The Council for Scientific and Industrial Research	X		No comment received to date.	
Wildlife and Environment Society of South Africa (WESSA)	X		No comment received to date.	
Agri South Africa	X		No comment received to date.	
South African National Parks (SANParks)	X		No comment received to date.	
Birdlife South Africa	X		No comment received to date.	
Agricultural Research Council	X		No comment received to date.	
Centre for Environmental	X		No comment received to date.	

I&AP	Consulted	Date	Comment Received	Response Issued
Rights				
Endangered Wildlife Trust (EWT)	X	23/5/2022	To whom it may concern Please in future use eia@ewt.org.za Regards Constant Hoogstad Senior Manager: Industry partnerships Endangered Wildlife Trust	This was noted and the e-mail address was added to the project Database.
Registered I&AP's				
Ntombi Rikhotso	X	5/23/2022	Dear Sir/Madam, I would like to be registered as Interested and affected Party for this application. Name: Ntombi Rikhotso Position: Environmental Officer- JB Marks Local Municipality. Contact Numbers: 018 299 5254 & 073 334 1840	Dear Ntombi, Thank you for your e-mail. As requested, you have been registered as an Interested and Affected Party (I&AP) for this application using the contact information provided. As a registered I&AP, you will be kept informed of this application as it progresses. Keep well and have a wonderful day.
Michael Booyens	X	5/23/2022	Good day, I would like to be registered as IAP as advertised in the local newspaper "Herald" on 19 May 2022, for the following project: Client: Sunshine Mineral Resources Project: NW Potch Goldfield DMRE Ref number: NW 30/5/1/1/2/13107 PR Please advise where I can obtain digital copies of the BAR and EMPR. Alternatively, please email directly to me at above email	Dear Michael, Thank you very much for your e-mail. As requested, you have been registered as an Interested and Affected Part (I&AP) for the project. As a registered I&AP, you will be kept informed of the project as it progresses. Kindly note that the Draft BAR+EMPR will be available from the 30th May 2022, for download on the Imbokodo Services website (www.imbokodoservices.co.za/public-

I&AP	Consulted	Date	Comment Received	Response Issued
			address. Thank you	documents/) Should you have any questions, please do not hesitate to contact me.
Lieb Venter	X	5/25/2022	Good afternoon The North West University is a land owner in the area allocated for the prospection for gold. Can you please send us the information urgently regarding the scope of the survey and the EIA procedures so that we can register as a Interested and effected party. Mr Lieb Venter Snr Laboratory Manager School for Biological Sciences Faculty of Natural & Agricultural Sciences Office no: (018) 299 2369 Sel no: 082 4555 229 http://www/nwu.ac.za	Dear Lieb, Thank you very much your e-mail. As requested, you have been registered as an I&AP for this project. As a registered I&AP, you will be kept informed of the project as it progresses. Please find attached the initial project notification. Kindly note that the planned prospecting activities will be non-invasive (i.e. no drilling, trenching or bulk sampling will be performed in the application area). The Draft Basic Assessment and Environmental Management Report will be made available for comment on the Imbokodo Services website (www.imbokodoservices.co.za/public-documents/) from the 30th May 2022. Should you have any further questions, please don't hesitate to contact me. Keep well and have a wonderful day.

8. THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES

8.1 The Baseline Receiving Environment

This section describes the baseline receiving environment of the prospecting area. Information in this section is based on desktop studies by the EAP, input from the public through the I&AP questionnaire and a site visit undertaken in support of this application. As such, the descriptions below of environmental features represent a consolidation of relevant information to the application area.

8.1.1 General Description of the Application Area

The application area is generally flat to gently undulating, with a few elevated rises and hills. It is characterised by natural vegetation, agricultural activities (cultivated fields), tourist attraction areas, woodland and watercourses. Figure 4 presents a Google Earth aerial view of the prospecting area.

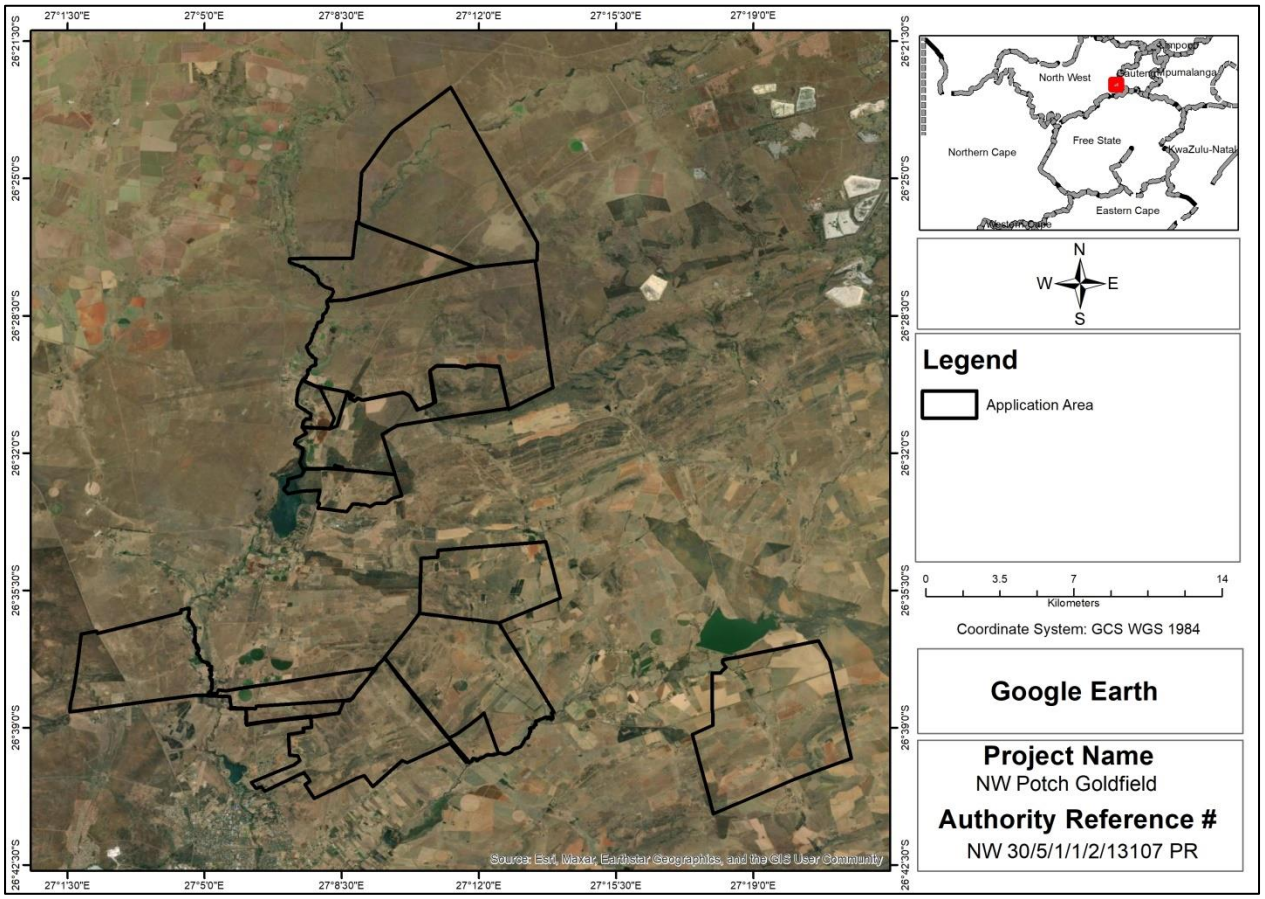


Figure 4: Google Earth aerial view of the prospecting area (refer to Appendix D for an enlarged map).

8.1.2 Socio-Economic Context

The application area is located in the North West Province, close to the town of Carletonville. The application area can be found in wards 2, 3 and 28 of the JB Marks Local Municipality within the Dr Kenneth Kaunda District Municipality in the North West Province (Figure 5).

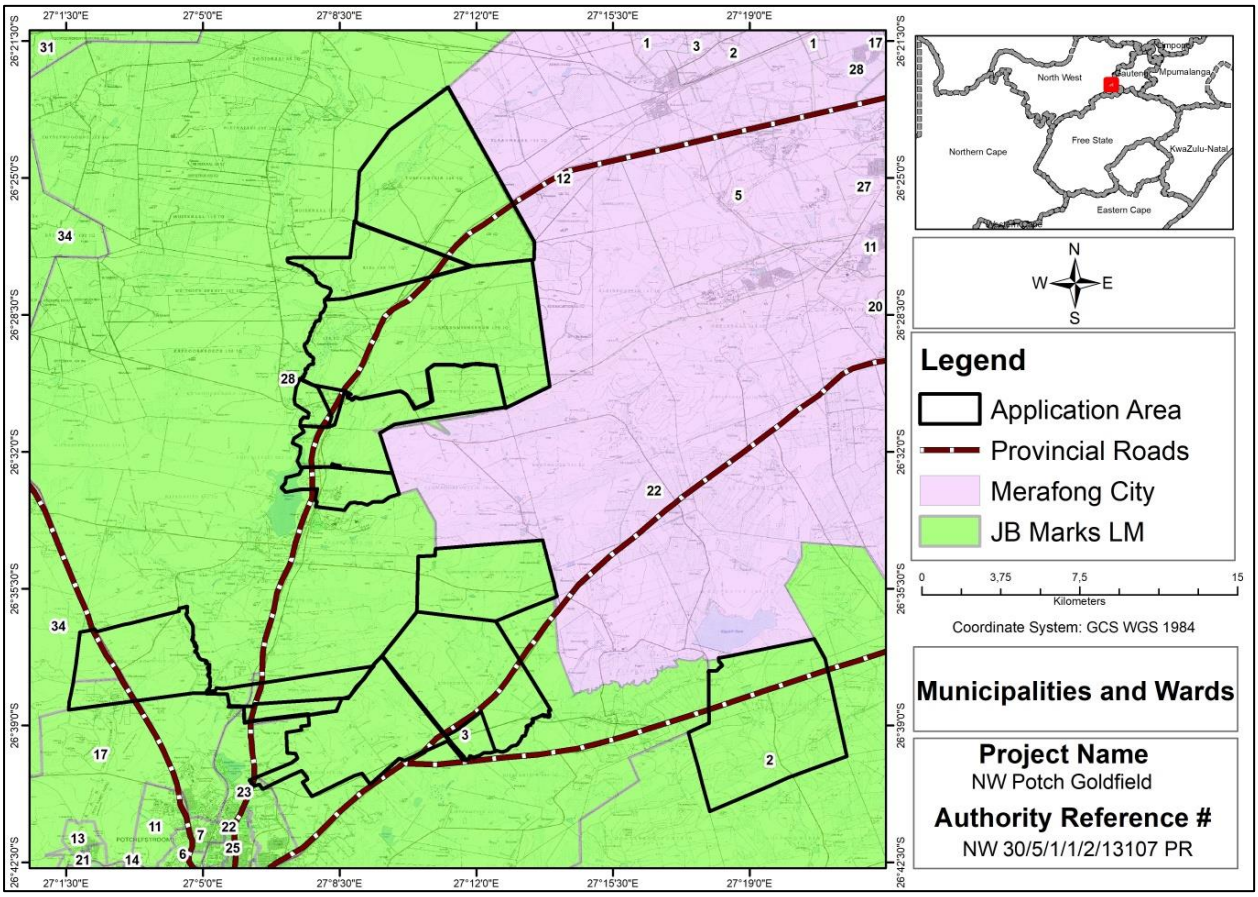


Figure 5: The affected local and district municipality.

The JB Marks Local Municipality is a Category B municipality situated within the Dr Kenneth Kaunda District in the North West Province. It is the largest municipality of three in the district. It was established by the amalgamation of the Ventersdorp and Tlokwe City Council Local Municipalities in August 2016.

The N12 route that connects Johannesburg and Cape Town via the city of Kimberley runs through the municipality. The main railway route from Gauteng to the Northern and Western Cape also runs through one of the municipality's main cities, Potchefstroom. The City is 145 km southeast of OR Tambo International Airport but has its own airfield, which can accommodate bigger aircraft and was formerly a military air base.

According to the 2016 census data, the JB Marks Local Municipality has a population of 243 527. Gold mining is the dominant economic activity in the district, with Potchefstroom and Ventersdorp being the only exceptions. While Ventersdorp to the north-west of Potchefstroom focuses on agricultural activity, Potchefstroom's economic activity is driven by services and manufacturing. The main economic sectors

in JB Marks Local Municipality are agriculture, community services, manufacturing, trade, finance, transport and mining.

8.1.3 Climate

The North West Province experiences a continental climate, characterised by mild to hot summer temperatures in excess of 30°C and cold temperatures during winter months. The annual average temperature is 27°C and the monthly averaged temperature ranges from 10°C during the winter months to 23°C during the summer months.

8.1.4 Topography

The natural topography of the landscape is flat to gently undulating, with a few elevated rises and hills. Elevations in the local area range from 1 350 to 1 550 metres above mean sea level (mamsl).

8.1.5 Land Use

The surrounding land use is characterised by natural vegetation, agriculture (cultivated field) and wetlands (Figure 6). The predominant land uses within the application area are:

1. Grassland
2. Agriculture (cultivated fields)
3. Woodland/Open bush
4. Watercourses.

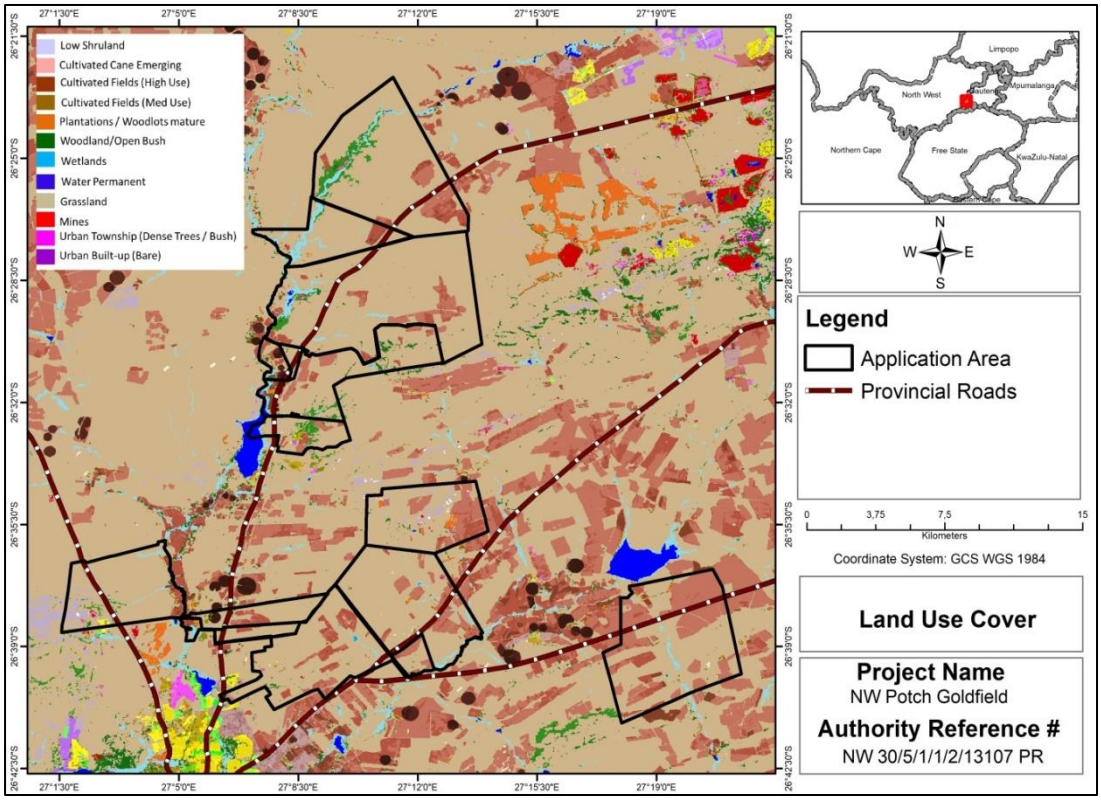


Figure 6: Current land uses.

8.1.6 Geology

The Witwatersrand Basin (or 'basin') is the largest known gold province in the world. Its metal-bearing layers have been worked for over 130 years and have produced over 95% of South Africa's gold (over 1.5 billion ounces, or more than 45 000 tonnes), as well as very large quantities of uranium.

The basin is composed of the West Rand Group (also known as the 'Lower Witwatersrand') covering an area of some 54 000 km^2, and the Central Rand Group, or 'Upper Witwatersrand', consisting of gold- and uranium-rich terranes over an area of some 30 000 km^2. The vast majority of the gold-producing mines of South Africa are found in the Central Rand Group. The reefs found in Sunshine's application area occur within the West and Central Rand Groups (Figure 7), as well as the Ventersdorp Supergroup.

In addition to gold and uranium, the reefs of the Witwatersrand and Ventersdorp Supergroups are also known to contain silver. Base metals such as copper, lead and zinc also occur in small quantities within the reefs, but considering the large tonnages that can potentially be mined, the base metal content will be significant. The reefs are also known to contain high quantities of pyrite. The latter contains sulphur. Base metals are potentially present in dolomites of the Transvaal Supergroup. These commodities could contribute to the viability of the future mining processes and are included in the application.

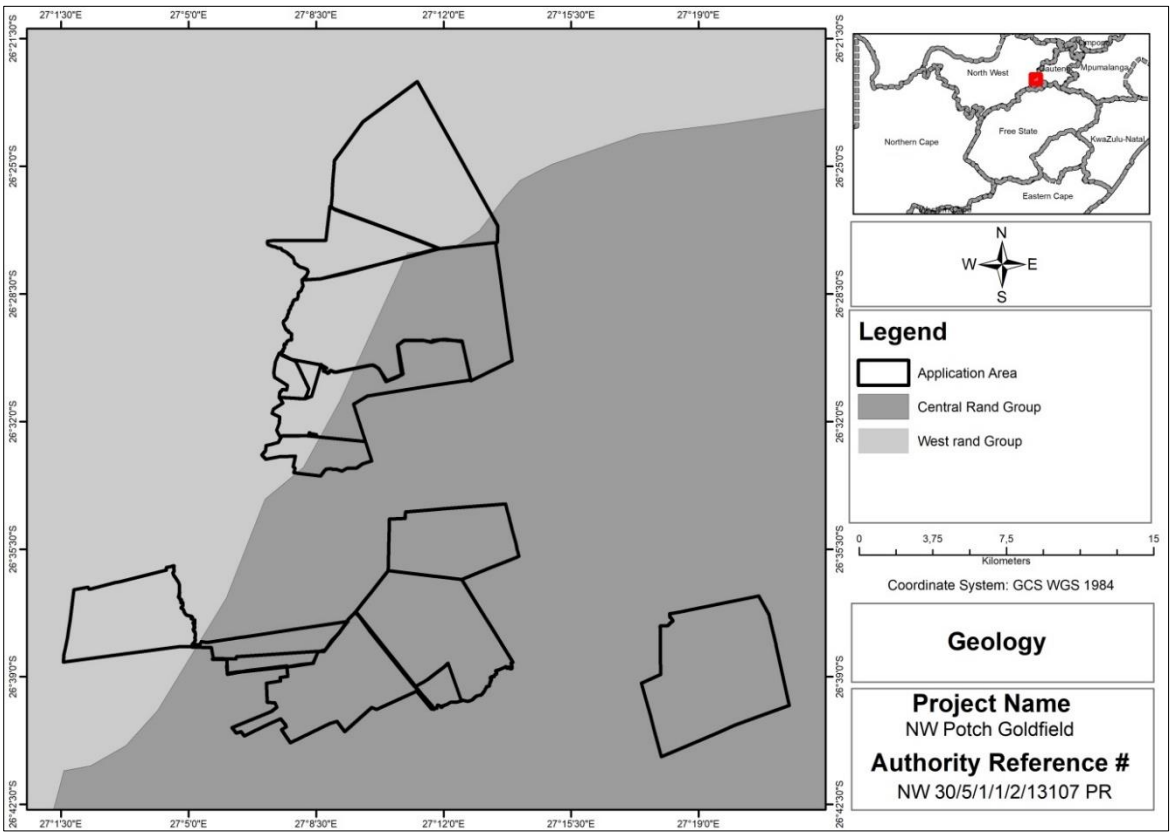


Figure 7: Geology of the Transvaal Supergroup in the application area.

8.1.7 Habitat Types

Habitat types within the application area include both grassland and woodland. These display varying degrees of anthropogenic disturbance, from relatively undisturbed to moderately modified.

8.1.8 Flora

The application area falls within the Carletonville Dolomite Grassland (Gh 15), Rand Highveld Grassland (Gm 11), Gauteng Shale Mountain Bushveld (SVcb 10), Andesite Mountain Bushveld (SVcb 11) and Eastern Temperate Freshwater Wetlands (ZAf 3). The Carletonville Dolomite Grassland is found on the northern section of the application area, Gauteng Shale Mountain Bushveld occurs on the north-west and western side of the application area, Rand Highveld Grassland occupies the central and south parts of the application area and Eastern Temperate Freshwater Wetlands covers two small sections on the north and north east side of the application area. Andesite Mountain Bushveld occupies small pockets of land on the southern sections of the application area. The distribution of the vegetation types that occur in the application area are represented in Figure 8.

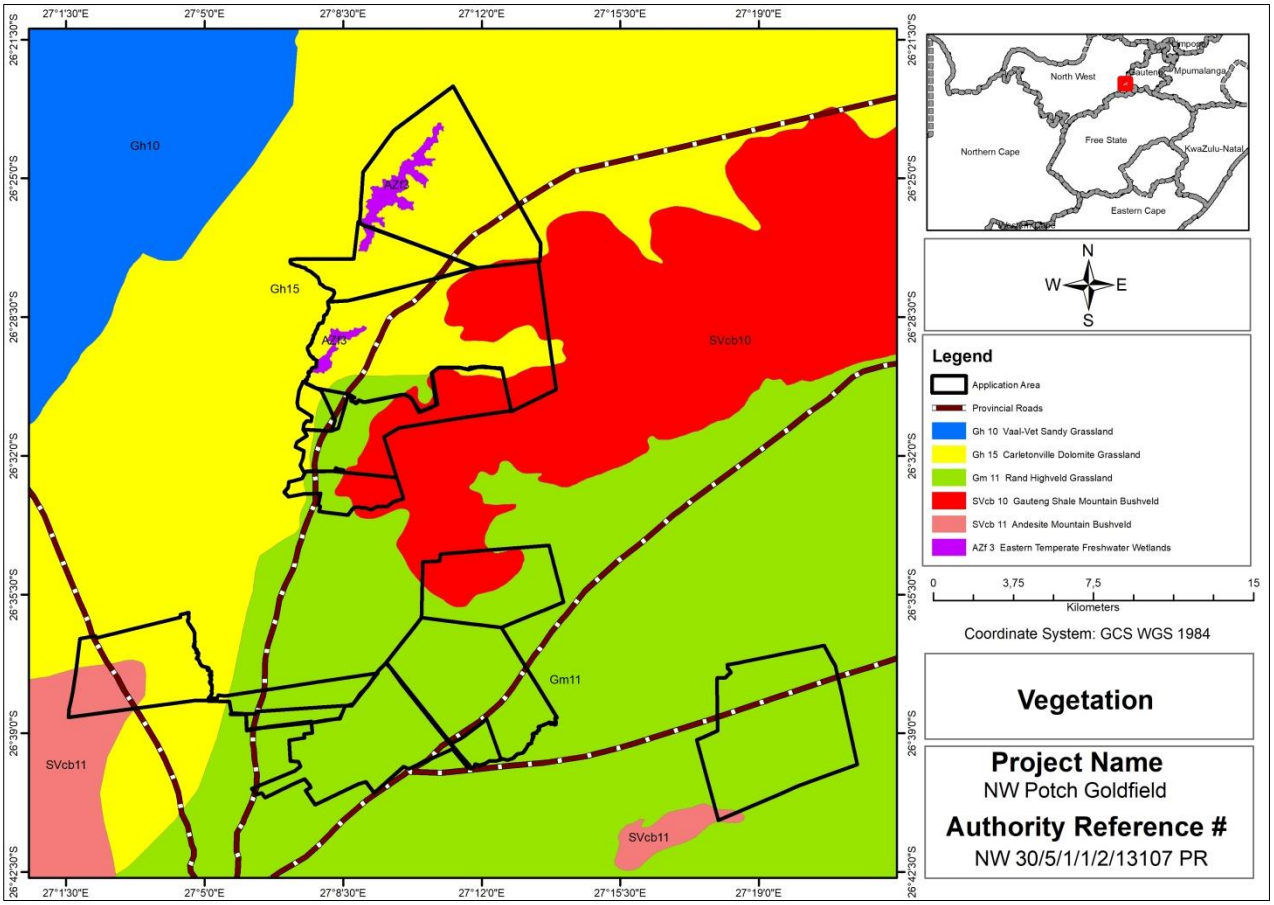


Figure 8: Vegetation of the application area.

The vegetation types are discussed in more detail below.

8.1.8.1 Carletonville Dolomite Grassland (Gh 15)

According to Mucina and Rutherford (2006), the Carletonville Dolomite Grassland can mainly be found in the North West and Gauteng Provinces, but marginally in the Free State Province. It is particularly located in the region of Potchefstroom, Ventersdorp and Carletonville, extending westwards to the vicinity of Ottoshoop, but also occurring as far east as Centurion and Bapsfontein in Gauteng Province. The vegetation type can be found at an altitude of 1 360 - 1 620 mamsl, but largely 1 500 - 1 560 mamsl.

Landscape features are characterised by slightly undulating plains dissected by prominent rocky chert ridges. Figure 9 represents the Carletonville Dolomite Grassland vegetation type.

Figure 9: Gh 15 Carletonville Dolomite Grassland.

The following species are important in the Carletonville Dolomite Grassland vegetation type:

- Graminoids: *Aristida congesta (d), Brachiaria serrata (d), Cynodon dactylon (d), Digitaria tricholaenoides (d), Diheteropogon amplectens (d), Eragrostis chloromelas (d), E. racemosa (d), Heteropogon contortus (d), Loudetia simplex (d), Schizachyrium sanguineum (d), Setaria sphacelata (d), Themeda triandra (d), Alloteropsis semialata subsp. eckloniana, Andropogon schirensis, Aristida canescens, A. diffusa, Bewsia biflora, Bulbostylis burchellii, Cymbopogon*

caesius, C. pospischilii, Elionurus muticus, Eragrostis curvula, E. gummiflua, E. plana, Eustachys paspaloides, Hyparrhenia hirta, Melinis nerviglumis, M. repens subsp. repens, Monocymbium ceresiiforme, Panicum coloratum, Pogonarthria squarrosa, Trichoneura grandiglumis, Triraphis andropogonoides, Tristachya leucothrix, T. rehmannii

- Herbs: *Acalypha angustata, Barleria macrostegia, Chamaecrista mimosoides, Chamaesyce inaequilatera, Crabbea angustifolia, Dianthus mooiensis, Dicoma anomala, Helichrysum caespititium, H. miconiifolium, H. nudifolium var. nudifolium, Ipomoea ommaneyi, Justicia anagalloides, Kohautia amatymbica, Kyphocarpa angustifolia, Ophrestia oblongifolia, Pollichia campestris, Senecio coronatus, Vernonia oligocephala*
- Geophytic Herbs: *Boophone disticha, Habenaria mossii*
- Low Shrubs: *Anthospermum rigidum subsp. pumilum, Indigofera comosa, Pygmaeothamnus zeyheri var. rogersii, Rhus magalismontana, Tylosema esculentum, Ziziphus zeyheriana*
- Geoxylic Suffrutices: *Elephantorrhiza elephantina, Parinari capensis subsp. capensis*
- *Endemic Taxon:*
    - *Succulent Shrub: Delosperma davyi.*

The Carletonville Dolomite Grassland is considered *Vulnerable*. The national target for conservation protection for this vegetation type is 24%, but only a small extent is conserved in statutory areas such as Sterkfontein Caves (part of the Cradle of Humankind World Heritage Site), Oog van Malmani, Abe Bailey Nature Reserve, Boskop Dam, Schoonspruit, Krugersdorp, Olifantsvlei, Groenkloof, and in at least six private conservation areas. Almost a quarter of this vegetation type is already transformed for cultivation by urban sprawl or by mining activity as well as the building of the Boskop and Klerkskraal Dams. Erosion is very low (84%) and low (15%).

8.1.8.2 Gauteng Shale Mountain Bushveld (SVcb 10)

Gauteng Shale Mountain Bushveld is found in the Gauteng and North West Provinces at an altitude of 1 300 - 1 750 mamsl. It occurs in a narrow band along a series of ridges from Carletonville to Westonaria to Lenasia. It also occurs as a narrow band along the ridge that runs from a point between Tarlton and Magaliesberg in the west, through Sterkfontein, Pelindaba, Atteridgeville to Klapperkop and southeastern Pretoria.

The landscape is characterised by low, broken ridges varying in steepness and with high surface rock cover. Vegetation is a short (3 - 6 m tall), semi-open thicket dominated by a variety of woody species. Figure 10 represents the Gauteng Shale Mountain Bushveld vegetation type.

Figure 10: SVcb 10 Gauteng Shale Mountain Bushveld.

The following species are important in the Gauteng Shale Mountain Bushveld vegetation type:

- Small Trees: *Acacia caffra (d), Dombeya rotundifolia (d), Acacia karroo, Celtis africana, Combretum molle, Cussonia spicata, Englerophytum magalismontanum, Protea caffra, Rhus leptodictya, Vangueria infausta, Zanthoxylum capense, Ziziphus mucronata*
- Tall Shrubs: *Asparagus laricinus, Canthium gilfillanii, Chrysanthemoides monilifera, Dichrostachys cinerea, Diospyros austro-africana, D. lycioides subsp. lycioides, Ehretia rigida subsp. rigida, Euclea crispa subsp. crispa, Grewia occidentalis, Gymnosporia polyacantha, Olea europaea subsp. africana, Tephrosia capensis, T. longipes*
- Low Shrubs: *Acalypha angustata, Asparagus suaveolens, Athrixia elata, Felicia muricata, Indigofera comosa, Rhus magalismontana subsp. magalismontana*
- Geoxylic Suffrutex: *Elephantorrhiza elephantina*
- Succulent Shrub: *Kalanchoe rotundifolia*
- Woody Climber: *Ancylobotrys capensis. Graminoids: Hyparrhenia dregeana (d), Cymbopogon caesius, C. pospischilii, Digitaria eriantha subsp. eriantha, Eragrostis curvula*
- Herbs: *Dicoma zeyheri, Helichrysum nudifolium, H. rugulosum, Hermannia lancifolia, Hibiscus pusillus, Selaginella dregei, Senecio venosus, Vernonia natalensis, V. oligocephala*
- Geophytic Herbs: *Cheilanthes hirta, Pellaea calomelanos, Scadoxus puniceus.*

According to Mucina and Rutherford (2006), the Gauteng Shale Mountain Bushveld vegetation type is classified as *Vulnerable*. Of the 24% national target for conservation protection for this vegetation type,

less than 1% is statutory conserved in the Skanskop and Hartbeesthoek Nature Reserves, Magaliesberg Nature Area and Groenkloof National Park. Additionally, over 1% is conserved in other reserves including the John Nash Nature Reserve, Cheetah Park and Hartbeesthoek Radio Astronomy Observatory. About 21% of this vegetation type is transformed mainly by urban and built-up areas, mines and quarries, cultivation and plantations. Wattles are a common invasive plant in places. Erosion is very low to low.

8.1.8.3 Rand Highveld Grassland (Gm 11)

Rand Highveld Grassland vegetation is found in the Gauteng, North West, Free State and Mpumalanga Provinces, in areas between rocky ridges from Pretoria to Witbank, extending onto ridges in the Stoffberg and Roossenekal regions as well as west of Krugersdorp centred in the vicinity of Derby and Potchefstroom. Rand Highveld Grassland is found at an altitude of between 1 300 and 1 635 mamsl, and reaches 1 760 mamsl in places.

The landscape is highly variable with extensive sloping plains and a series of ridges slightly elevated over undulating surrounding plains. The vegetation is species-rich, wiry, sour grassland alternating with low, sour shrubland on rocky outcrops and steeper slopes. Figure 15 represents the Rand Highveld Grassland vegetation type. The most common grasses on the plains belong to the genera *Themeda.* Figure 11 represents the Rand Highveld Grassland.

Figure 11: Gm 11 Rand Highveld Grassland.

The following species are important in the Rand Highveld Grassland vegetation type:

- Graminoids: *Ctenium concinnum (d), Cynodon dactylon (d), Digitaria monodactyla (d), Diheteropogon amplectens (d), Eragrostis chloromelas (d), Heteropogon contortus (d), Loudetia simplex (d), Monocymbium ceresiiforme (d), Panicum natalense (d), Schizachyrium sanguineum (d), Setaria sphacelata (d), Themeda triandra (d), Trachypogon spicatus (d), Tristachya biseriata (d), T. rehmannii (d), Andropogon schirensis, Aristida aequiglumis, A. congesta, A. junciformis subsp. galpinii, Bewsia biflora, Brachiaria nigropedata, B. serrata, Bulbostylis burchellii, Cymbopogon caesius, Digitaria tricholaenoides, Elionurus muticus, Eragrostis capensis, E. curvula, E. gummiflua, E. plana E. racemosa, Hyparrhenia hirta, Melinis nerviglumis, M. repens subsp. repens, Microchloa caffra, Setaria nigrirostris, Sporobolus pectinatus, Trichoneura grandiglumis, Urelytrum agropyroides*
- Herbs: *Acanthospermum australe (d), Justicia anagalloides (d), Pollichia campestris (d), Acalypha angustata, Chamaecristamimosoides, Dicoma anomala, Helichrysum caespititium, H. nudifolium var. nudifolium, H. rugulosum, Ipomoea crassipes, Kohautia amatymbica, Lactuca inermis, Macledium zeyheri subsp. argyrophylum, Nidorella hottentotica, Oldenlandia herbacea, Rotheca hirsuta, Selago densiflora, Senecio coronatus, Sonchus dregeanus, Vernonia oligocephala, Xerophyta retinervis*
- Geophytic Herbs: *Boophone disticha, Cheilanthes hirta, Haemanthus humilis subsp. humilis, Hypoxis rigidula var. pilosissima, Ledebouria ovatifolia, Oxalis corniculata*
- Succulent Herb: *Aloe greatheadii var. davyana*
- Low Shrubs: *Anthospermum rigidum subsp. pumilum, Indigofera comosa, Rhus magalismontana, Stoebe plumosa*
- Succulent Shrub: *Lopholaena coriifolia (d)*
- Geoxylic Suffrutex: *Elephantorrhiza elephantina*
- Biogeographically Important Taxa: *(all Northern sourveld endemics) Geophytic Herbs: Agapanthus inapertus subsp. pendulus, Eucomis vandermerwei. Succulent Herb: Huernia insigniflora*
    - Low Shrub: *Melhania randii*
- Endemic Taxa:
    - Herbs: Melanospermum rudolfii, Polygala spicata
    - Succulent Herbs: Anacampseros subnuda subsp. lubbersii, Frithia humilis
    - Succulent Shrubs: Crassula arborescens subsp. undulatifolia, Delosperma purpureum
    - Small Trees: Encephalartos lanatus, E. middelburgensis.

According to Mucina and Rutherford (2006), the Rand Highveld Grassland vegetation type is classified as Endangered. Of the 24% national target for conservation protection for this vegetation type, only 1% is statutory conserved in small patches protected in statutory reserves (Kwaggavoetpad, Van Riebeeck Park, Bronkhorstspruit, Boskop Dam Nature Reserves) and in private conservation areas (e.g.

Doornkop, Zemvelo, Rhenosterpoort and Mpopomeni). Almost half has been transformed mostly by cultivation, plantations, urbanisation or dam-building. Cultivation may also have had an impact on an additional portion of the surface area of the unit where old lands are currently classified as grasslands in land-cover classifications and poor land management has led to degradation of significant portions of the remainder of this unit (D.B. Hoare, personal observation). Scattered aliens (most prominently Acacia mearnsii) occur in about 7% of this unit. Only about 7% has been subjected to moderate to high erosion levels.

8.1.8.4 Andesite Mountain Bushveld (SVcb 11)

Andesite Mountain Bushveld vegetation is found in the Gauteng, North West, Mpumalanga and Free State Provinces at an altitude of between 1 350 and 1 800 mamsl. The landscape is dense, medium-tall thorny bushveld with a well-developed grass layer on hill slopes and valleys with undulating landscape. Figure 12 represents the Andesite Mountain Bushveld vegetation type.

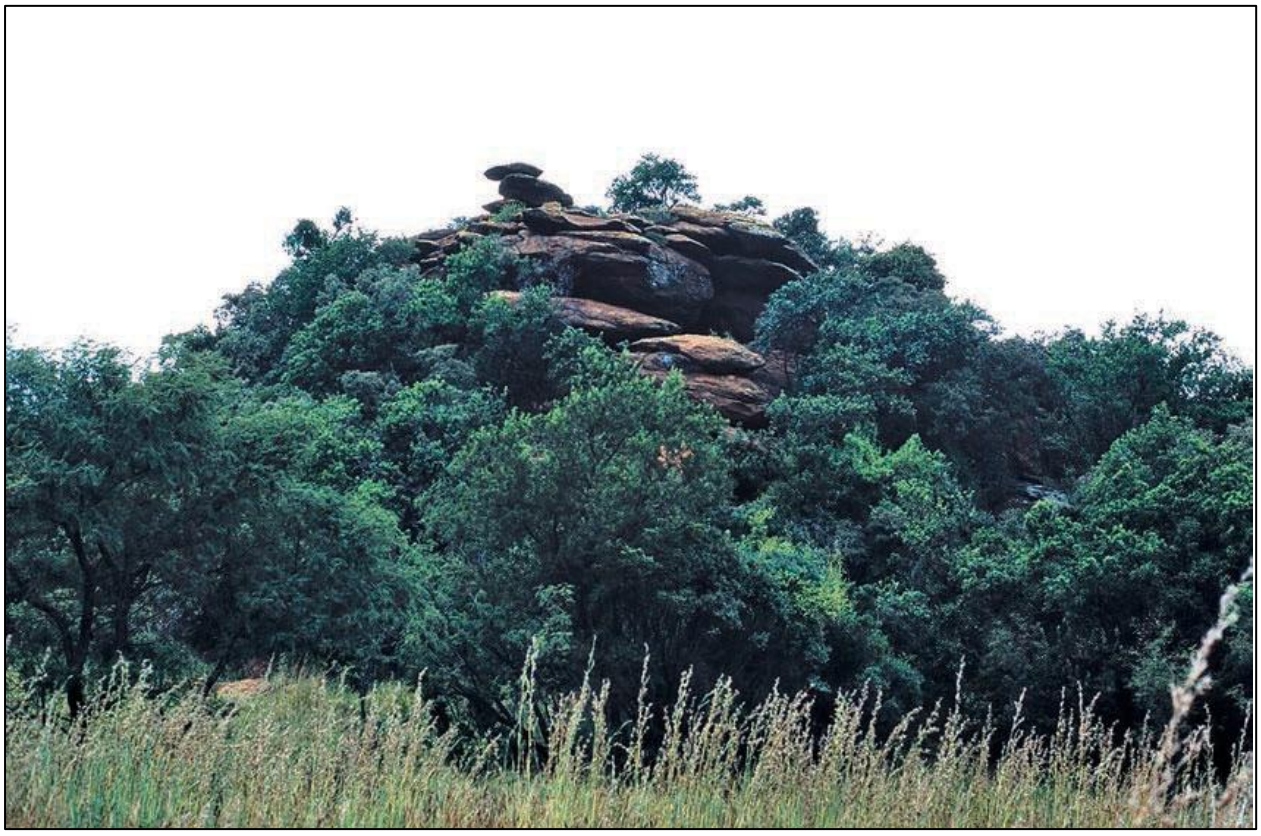


Figure 12: SVcb 11 Andesite Mountain Bushveld.

The following species are important in the Andesite Mountain Bushveld vegetation type:

- Small Trees: *Acacia caffra (d), A. karroo (d), Celtis africana, Protea caffra, Zanthoxylum capense, Ziziphus mucronat*

- Tall Shrubs: *Asparagus laricinus (d), Euclea crispa subsp. crispa (d), Rhus pyroides var. pyroides (d), Diospyros lycioides subsp. lycioides, Gymnosporia polyacantha, Lippia javanica, Rhamnus prinoides*
- Low Shrubs: *Asparagus suaveolens (d), Rhus rigida var. margaretae, Teucrium trifidum.*
- Soft Shrub: *Isoglossa grantii.*
- Woody Climber: *Rhoicissus tridentata*
- *Succulent Shrub*: *Lopholaena coriifolia (d)*
- Gaminoids: *Eragrostis curvula* (d), *Hyparrhenia hirta* (d), *Setaria sphacelata* (d), *Themeda triandra* (d), *Cymbopogon pospischilii*, *Digitaria eriantha* subsp. *eriantha*, *Elionurus muticus*, *Eragrostis racemosa*, *E. superba*, *Panicum maximum*. *Elephantorrhiza elephantine*
- Herbs: *Commelina africana*, *Vernonia galpinii*, *V. oligocephala*. Succulent
- Herb: *Aloe greatheadii* var. *davyana*

According to Mucina and Rutherford (2006), the Andesite Mountain Bushveld vegetation type is classified as Least Threatened. Of the 24% national target for conservation protection for this vegetation type, about 7% is statutory conserved mainly in the Suikerbosrand Nature Reserve and Magaliesberg Nature Area. Some 15% is transformed, mainly due to cultivated and some urban and built-up areas. Some of the unit fringes on major urban areas. Erosion is generally very low.

8.1.8.5 Eastern Temperate Freshwater Wetlands (ZAf 3)

According to Mucina and Rutherford (2006), the Eastern Temperate Freshwater Wetlands can mainly be found in the Northern Cape, Eastern Cape, Free State, North West, Gauteng, Mpumalanga and KwaZulu-Natal Provinces as well as in neighbouring Lesotho and Swaziland around water bodies with stagnant water (lakes, pans, periodically flooded vleis, edges of calmly flowing rivers). It is embedded within the Grassland Biome. The Eastern Temperate Freshwater Wetlands vegetation types can be found at an altitude ranging from 750‑2 000 mamsl.

Landscapes features are flat and are characterised by shallow depressions filled with (temporary) water bodies supporting zoned systems of aquatic and hygrophilous vegetation of temporarily flooded grasslands and ephemeral herblands. Figure 13 represents the Eastern Temperate Freshwater Wetlands vegetation type.

Figure 13: AZf 3 Eastern Temperate Freshwater Wetlands.

The following species are important in the Carletonville Dolomite Grassland vegetation type:

- Marshes Megagraminoid: *Cyperus congestus (d). Graminoids: Agrostis lachnantha (d), Carex acutiformis (d), Eleocharis palustris (d), Eragrostis plana (d), E. planiculmis (d), Fuirena pubescens (d), Helictotrichon turgidulum (d), Hemarthria altissima (d), Imperata cylindrica (d), Leersia hexandra (d), Paspalum dilatatum (d), P. urvillei (d), Pennisetum thunbergii (d), Schoenoplectus decipiens (d), Scleria dieterlenii (d), Setaria sphacelata (d), Andropogon appendiculatus, A. eucomus, Aristida aequiglumis, Ascolepis capensis, Carex austro-africana, C. schlechteri, Cyperus cyperoides, C. distans, C. longus, C. marginatus, Echinochloa holubii, Eragrostis micrantha, Ficinia acuminata, Fimbristylis complanata, F. ferruginea, Hyparrhenia dregeana, H. quarrei, Ischaemum fasciculatum, Kyllinga erecta, Panicum schinzii, Pennisetum sphacelatum, Pycreus macranthus, P. nitidus, Setaria pallide-fusca, Xyris gerrardii.*
- Herbs: *Centella asiatica (d), Ranunculus multifidus (d), Berkheya radula, B. speciosa, Berula erecta subsp. thunbergii, Centella coriacea, Chironia palustris, Equisetum ramosissimum, Falckia oblong, Haplocarpha lyrata, Helichrysum difficile, H. dregeanum, H. mundtii, Hydrocotyle sibthorpioides, H. verticillata, Lindernia conferta, Lobelia angolensis, L. flaccida, Mentha aquatica, Monopsis decipiens, Pulicaria scabra, Pycnostachys reticulata, Rorippa fluviatilis var. fluviatilis, Rumex lanceolatus, Senecio inornatus, S. microglossus, Sium repandum, Thelypteris confluens, Wahlenbergia banksiana.*

- Geophytic Herbs*: Cordylogyne globosa, Crinum bulbispermum, Gladiolus papilio, Kniphofia ensifolia, K. fluviatilis, K. linearifolia, Neobolusia tysonii, Nerine gibsonii (only in Eastern Cape), Satyrium hallackii subsp. hallackii. Reed & sedge beds*
- Megagraminoids: *Phragmites australis (d), Schoenoplectus corymbosus (d), Typha capensis (d), Cyperus immensus. Graminoid: Carex cernua.*
- Water bodies Aquatic Herbs: *Aponogeton junceus, Ceratophyllum demersum, Lagarosiphon major, L. muscoides, Marsilea capensis, Myriophyllum spicatum, Nymphaea lotus, N. nouchali var. caerulea, Nymphoides thunbergiana, Potamogeton thunbergii.*
- Carnivorous Herb: *Utricularia inflexa. Herb: Marsilea farinosa subsp. farinosa*

The Eastern Temperate Freshwater Wetlands is considered *Vulnerable*. Of the 24% national target for conservation protection for this vegetation, only 5% is conserved in statutory areas such as Blesbokspruit (a Ramsar site), Hogsback, Marievale, Olifantsvlei, Seekoeivlei (a Ramsar site), Wakkerstroom Wetland, Umgeni Vlei, Umvoti Vlei and Pamula Park Nature Reserves. It is also protected in private nature reserves such as the Korsman Bird Sanctuary and Langfontein. Some 15% has been transformed to cultivated land, urban areas or plantations. In places intensive grazing and use of lakes and freshwater pans as drinking pools for cattle or sheep cause major damage to the wetland vegetation.

8.1.9 Fauna

The application area is disturbed by anthropogenic activities and this has caused significant habitat disturbances and fragmentation. It is considered probable that faunal abundance and diversity in the area is low.

A baseline assessment was conducted to establish whether any potentially sensitive faunal species might occur on site. The South African National Biodiversity Institute's (SANBI) online biodiversity tool was utilised to query a species list for the 2627CA quarter degree square grid cell and the Virtual Museum and Animal Demography Unit (ADU) was used to compile species lists based on the data gathering from SANBI.

Table 9 summarises the diversity of fauna that is expected to occur in the prospecting area.

Table 9: Animal groups possibly occurring within or near the project area.

Animal Group	Total Species	Species of Conservation Concern
Avifauna	130	3
Mammals	80	5
Reptiles	26	1
Amphibians	13	0

8.1.9.1 Avifauna

Based on the South African Bird Atlas Project, Version 2 (SABAP2) database, 130 bird species are expected to occur in the vicinity of the application area comprising a range of both terrestrial and aquatic species. Of these expected bird species, 3 bird species recorded in the pentad are of conservation concern. These are listed in Table 10.

Table 10: Birds of conservation concern potentially occurring in the study area.

Family	Scientific Name	Common Name	Conservation Status		Probability of Occurrence
			Red List (2016)	Draft NEMA TOPS List (2013)	
Anatidae	*Oxyura maccoa*	Maccoa Duck	NT	-	Unlikely
Laridae	*Sterna caspia*	Caspian Tern	VUN	Protected	Possible
Phoenicopteridae	*Phoenicopterus ruber*	Greater Flamingo	NT	-	Unlikely

8.1.9.2 Important Bird Areas

Important Bird Areas (IBA's) are the sites of international significance for the conservation of the world's birds and other conservation significant species as identified by BirdLife International. These sites are also all Key Biodiversity Areas; sites that contribute significantly to the global persistence of biodiversity (BirdLife, 2017).The selection of Important Bird and Biodiversity Areas (IBA's) is achieved through the application of quantitative ornithological criteria, grounded in up-to-date knowledge of the sizes and trends of bird populations. The criteria ensure that the sites selected as IBA's have true significance for the international conservation of bird populations and provide a common currency that all IBA's adhere to, thus creating consistency among, and enabling comparability between, sites at national, continental and global levels.

The nearest IBA's to the application area is the Boskop Dam Nature Reserve (Figure 14).

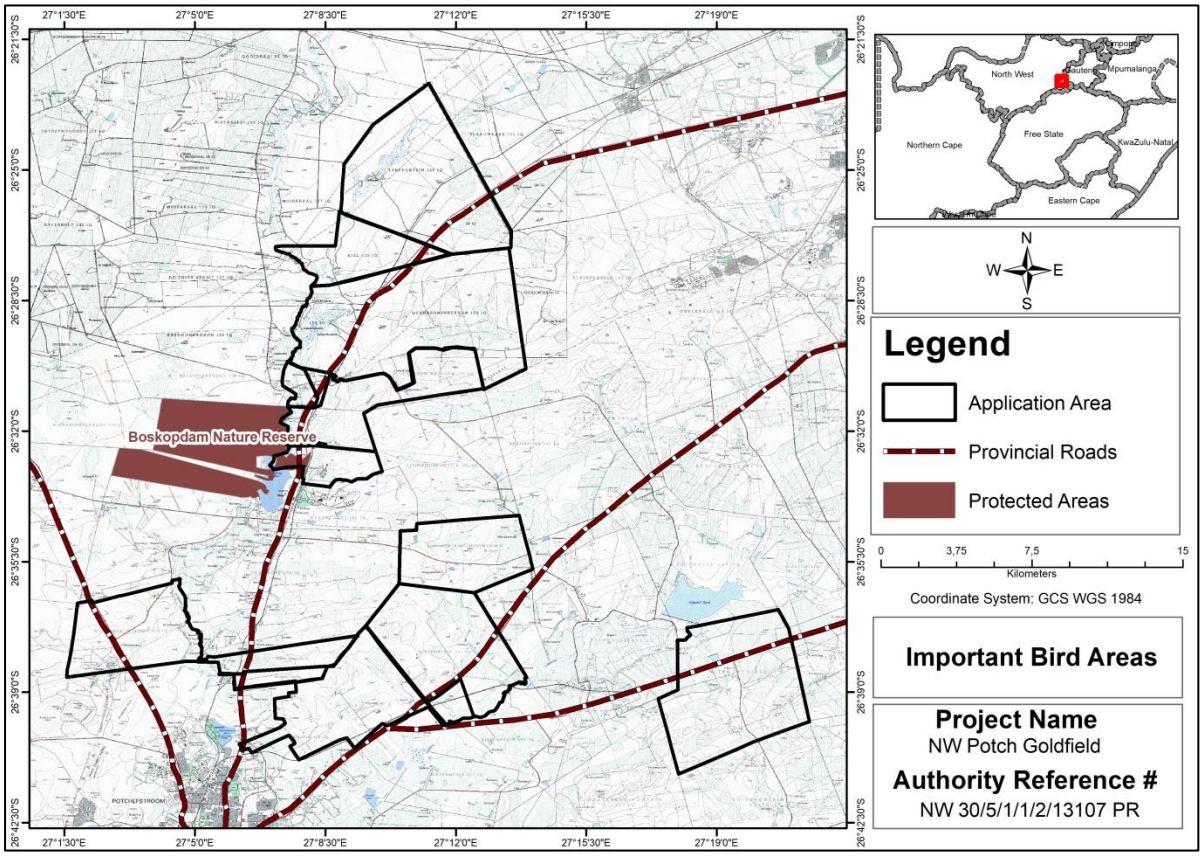


Figure 14: Nearest IBA's to the project area.

8.1.9.3 Mammals

The International Union for Conservation of Nature (IUCN) Red List Spatial Data (IUCN, 2017) lists 80 mammal species that could be expected to occur within the vicinity of the application area. Of these species, 6 taxa are of conservation concern. These are listed in Table 11.

Table 11: Mammals of conservation concern potentially occurring in the study area.

Family	Scientific Name	Common Name	Conservation Status
			Red List (2016)
Felidae	*Leptailurus serval*	Serval	Near Threatened (2016)
Hyaenidae	*Hyaena brunnea*	Brown Hyena	Near Threatened (2015)
Muridae	*Otomys auratus*	Southern African Vlei Rat (Grassland type)	Near Threatened (2016)
Mustelidae	*Aonyx capensis*	African Clawless Otter	Near Threatened (2016)
Nesomyidae	*Mystromys albicaudatus*	African White-tailed Rat	Vulnerable (2016)
Soricidae	*Corcidura mariquensis*	Swamp Musk Shrew	Near Threatened (2016)

8.1.9.4 Reptiles

Based on the IUCN Red List Spatial Data (IUCN, 2017) and the ReptileMAP database provided by the Animal Demography Unit (ADU, 2017), 26 reptile species are expected to occur within the vicinity of the application area. These are listed in Table 12. Of these, only the Cape Sand Snake (*Psammophis leightoni*) is of conservation concern.

Table 12: Reptiles of conservation concern potentially occurring in the study area.

Family	Scientific Name	Common Name	Conservation Status
Lamprophiidae	*Psammophis leightoni*	Cape Sand Snake	Vulnerable (SARCA 2014)

8.1.9.5 Amphibians

Based on the IUCN Red List Spatial Data (IUCN, 2017) and the AmphibianMAP database provided by the Animal Demography Unit (ADU, 2017), 13 amphibian species are expected to occur within the vicinity of the application area as detailed in Table 13.

Table 13: Amphibians of conservation concern potentially occurring in the study area.

Family	Scientific Name	Common Name	Conservation Status
Brevicepitidae	*Breviceps adspersus*	Bushveld Rain Frog	Least Concern
Bufonidae	*Schismaderma carens*	Red Toad	Least Concern
Bufonidae	*Sclerophrys capensis*	Raucous Toad	Least Concern
Bufonidae	*Sclerophrys garmani*	Olive Toad	Least Concern (IUCN, 2016)
Bufonidae	*Sclerophrys gutturalis*	Guttural Toad	Least Concern (IUCN, 2016)
Bufonidae	*Sclerophrys poweri*	Power's Toad	Least Concern
Hyperoliidae	*Kassina senegalensis*	Bubbling Kassina	Least Concern
Phrynobatrachidae	*Phrynobatrachus natalensis*	Snoring Puddle Frog	Least Concern (IUCN, 2013)
Pipidae	*Xenopus laevis*	Common Platanna	Least Concern
Pyxicephalidae	*Amietia delalandii*	Delalande's River Frog	Least Concern (2017)
Pyxicephalidae	*Cacosternum boettgeri*	Common Caco	Least Concern (2013)
Pyxicephalidae	*Strongylopus fasciatus*	Striped Stream Frog	Least Concern
Pyxicephalidae	*Tomopterna cryptotis*	Tremelo Sand Frog	Least Concern

8.1.9.6 Anthropods

There is limited arthropod data available on the Virtual Museum database of the FitzPatrick Institute of African Ornithology (2019) for the 2627CA QDS. No records exist on spider and scorpion diversity. However, ButterflyMAP indicates that 131 butterfly species have been recorded, including the *Lepidochrysops praeterita* (Highveld Giant Cupid) which is listed as *Endangered (*SABCA 2013*)*. This species favours rocky ridges.

Hackled Band Mesh Web Weavers (Family *Theraphosidae*) and Flower Crab Spiders (Family *Thomisidae*) are considered of conservation value and are listed in the Red List Category of 2016.

8.1.10 Surface Hydrology

The application area falls within the Vaal Water Management Area (WMA 5) (Figure 15), which includes rivers such the Mooi River. The Mooi River rises near Koster and flows southwards. During its course it flows into the Klerkskraal Dam, Boskop Dam and the Potchefstroom Dam. After crossing the town of Potchefstroom it bends southwestwards, shortly bending westwards before it empties into the Vaal River near the border with the Free State, about 15 km east of Stilfontein. Its main tributaries are Wonderfonteinspruit (Mooirivierloop) and the Loopspruit (Figure 16).

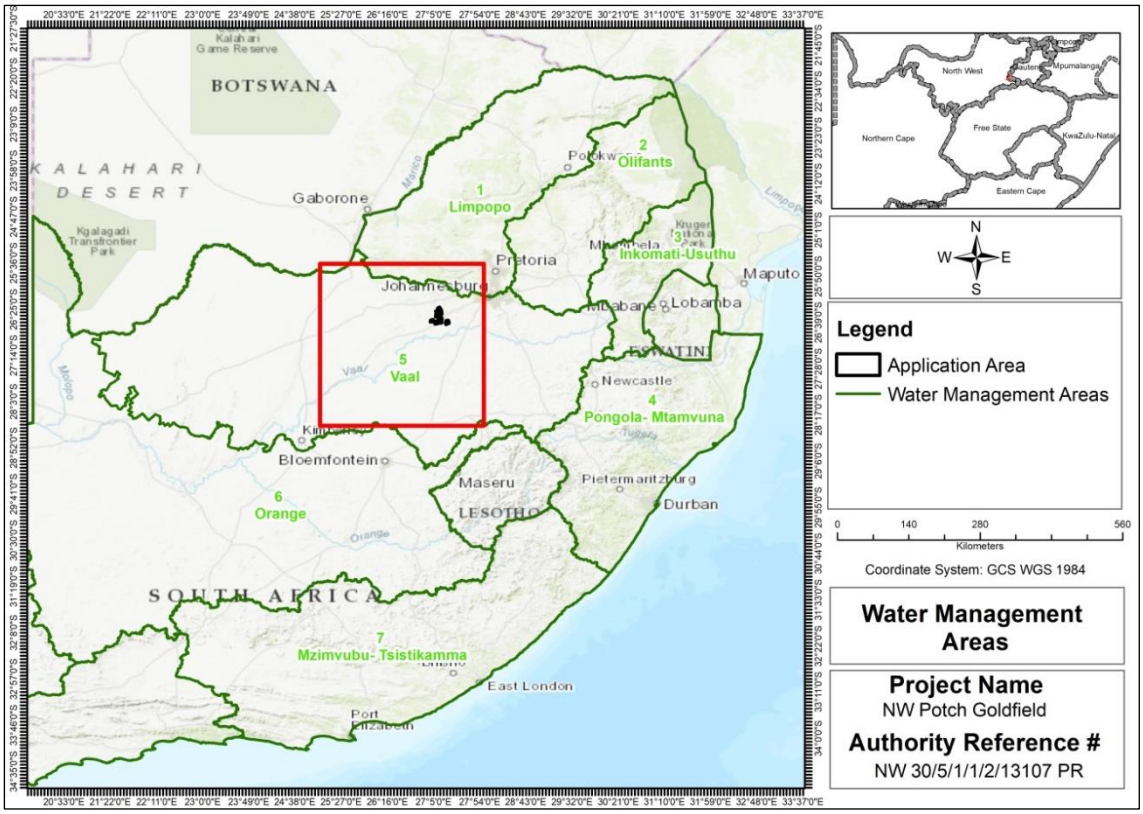


Figure 15: Water Management Areas of South Africa.

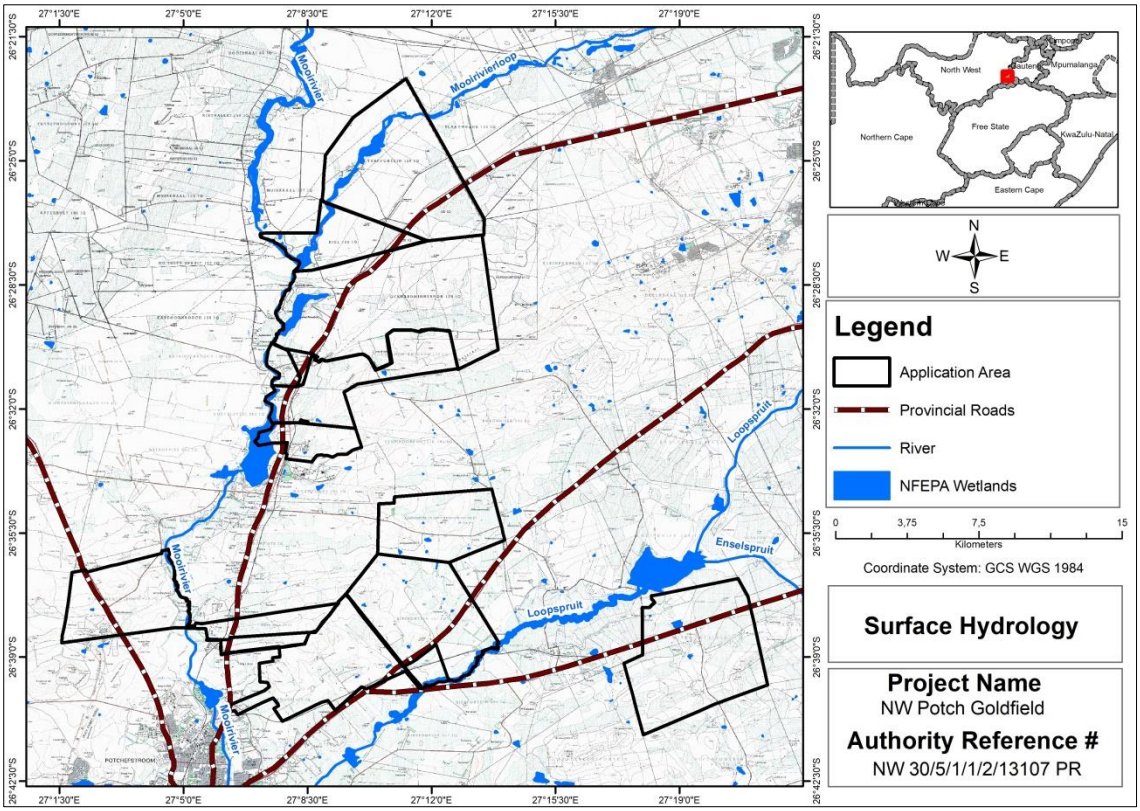


Figure 16: Surface hydrology of the application area.

The Vaal Water Management comprises of 12 tertiary catchment areas. The application area is situated in the C drainage region of the Vaal River Catchment and specifically the C23G, C23H and C23K quaternary catchment areas (Figure 17). According to the South African Mine Water Atlas (SAMWA, 2018), these catchment areas are of moderate ecological sensitivity.

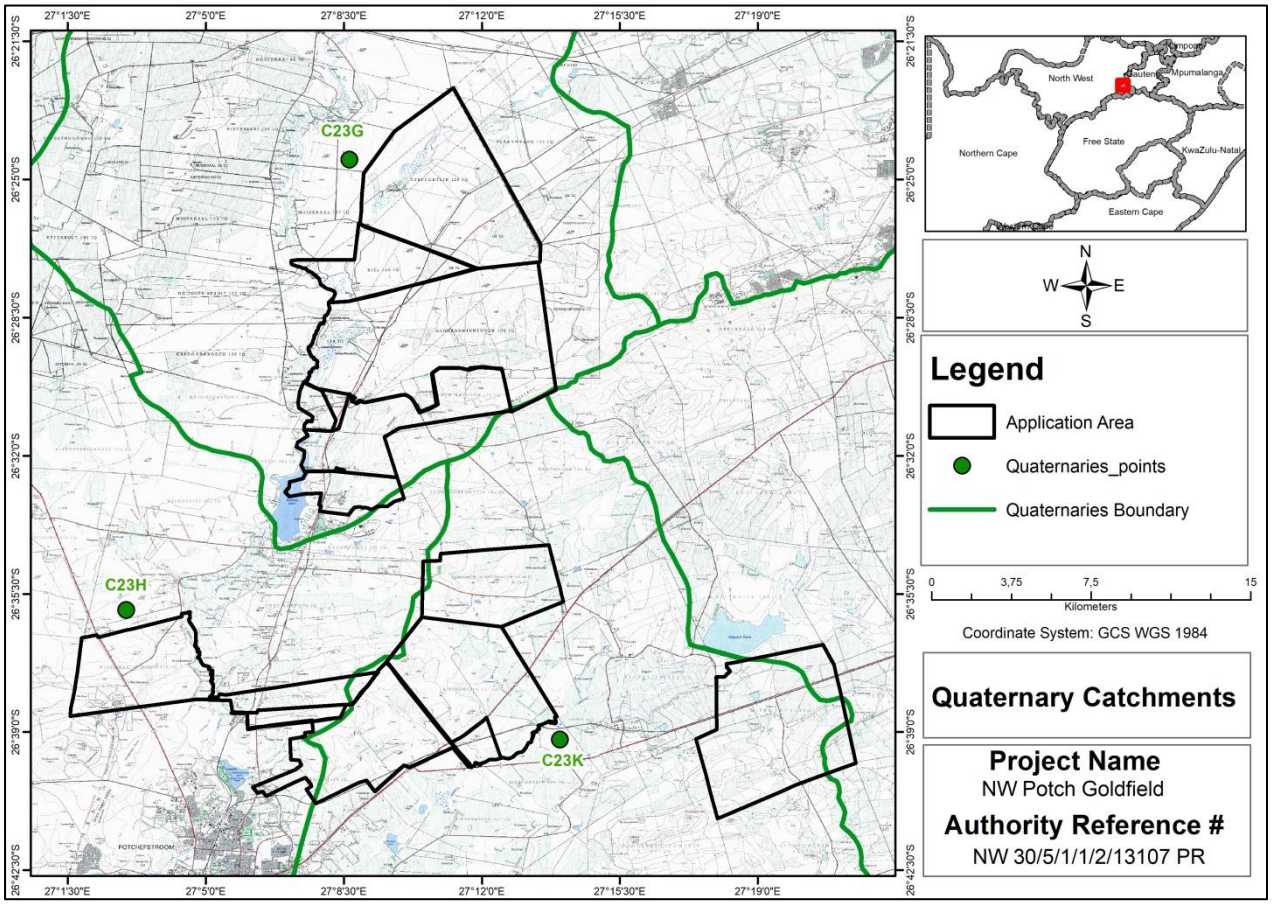


Figure 17: Quaternary catchment area of the application.

8.1.10.1 Freshwater Ecosystem Priority Area (NFEPA) Status

In an attempt to better conserve aquatic ecosystems, South Africa has recently categorised its river systems according to set ecological criteria (i.e. ecosystem representation, water yield, connectivity, unique features, and threatened taxa) to identify Freshwater Ecosystem Priority Areas (FEPA's) (Driver et al., 2011). The FEPAs are intended to be conservation support tools and envisioned to guide the effective implementation of measures to achieve the National Environment Management: Biodiversity Act, 2005 (Act 10 of 2004) (NEM:BA) biodiversity goals (Nel et al. 2011).

According to Driver et al. (2011), the present ecological state of the Mooirivierloop is in a largely modified condition (class D) (Figure 18). The modified river conditions are due to extensive modification as per the DWS Reserve Determination from anthropogenic activities. The ecological importance and sensitivity are thus considered as low.

According to the water quality data of Mooirivierloop that was obtained from DWS, the waters of the Mooi River and its reservoirs are polluted with heavy metals due to the large gold and uranium mining operations in the basin.

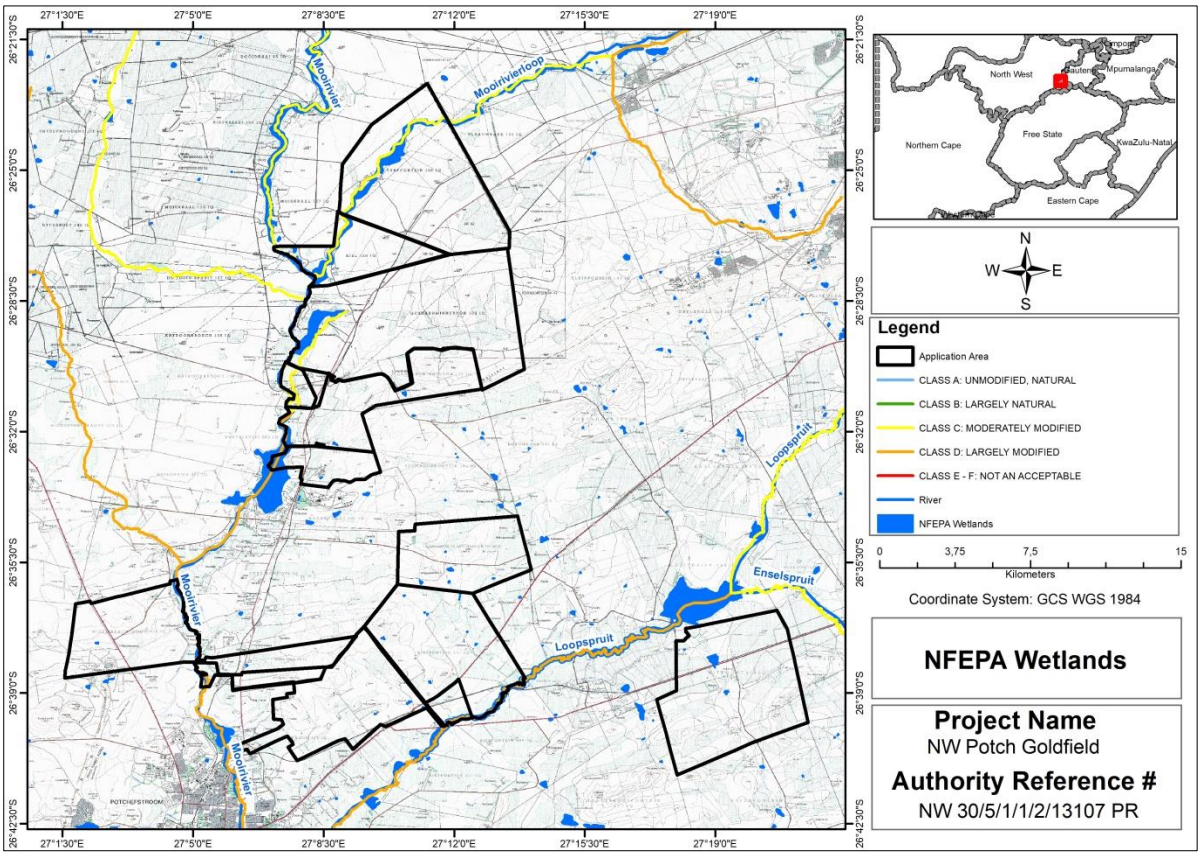


Figure 18: NFEPA wetlands present in the application area.

8.1.11 Sensitivity and Conservation Status of Local Ecosystems

There are features on site that need to be taken into account in order to evaluate sensitivity of the site and its surroundings. These include the following:

1. Wetland areas: There are a variety of wetland habitat on site, including rivers, streams and pans (Figure 19). The wetlands are protected according to the National Water Act (Act 36 of 1998) and also constitute important ecological areas in terms of hydrological process and as refugia for species
2. Natural vegetation: Rand Highveld Grassland which is listed as *Endangered* in the scientific literature and according to the National List of Ecosystems that is Threatened and needs protected (GN10002 of 2011), published under the NEMA: Biodiversity Act (Act 10 of 2004) (Figure 20).

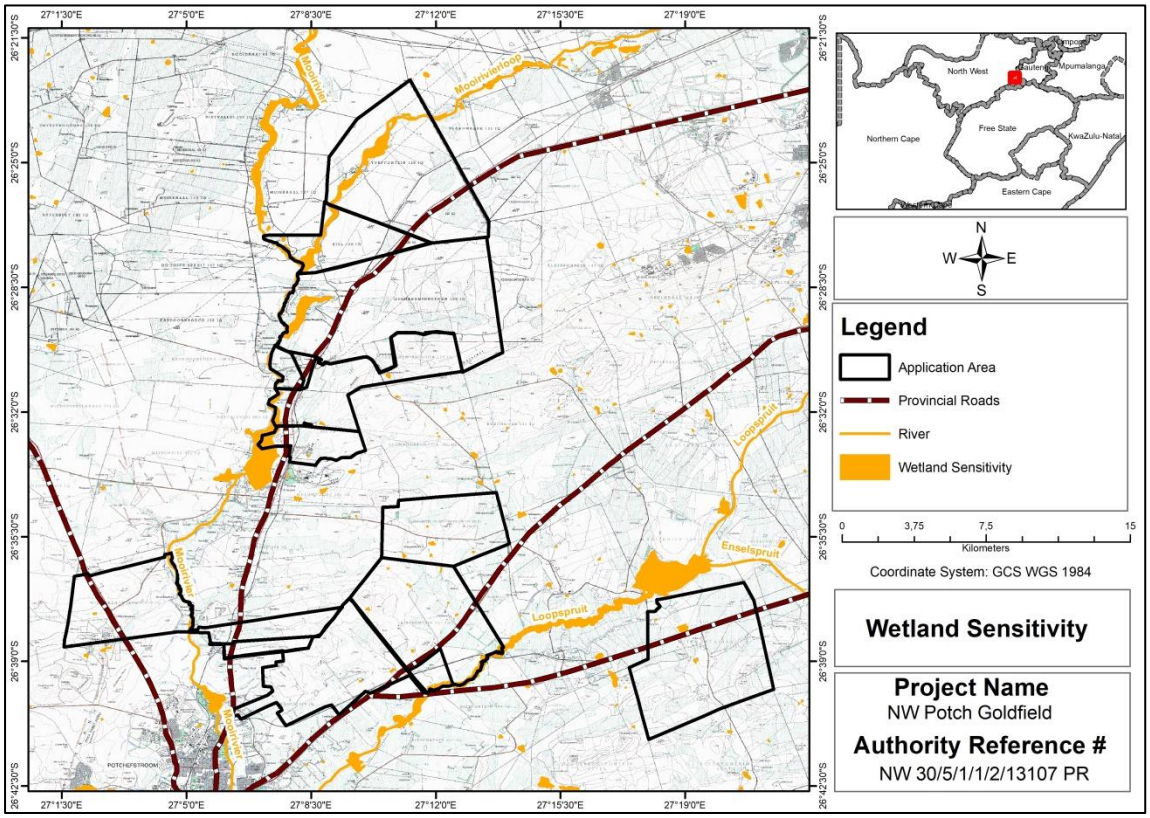


Figure 19: Wetland sensitivity of the application area and surrounding areas.

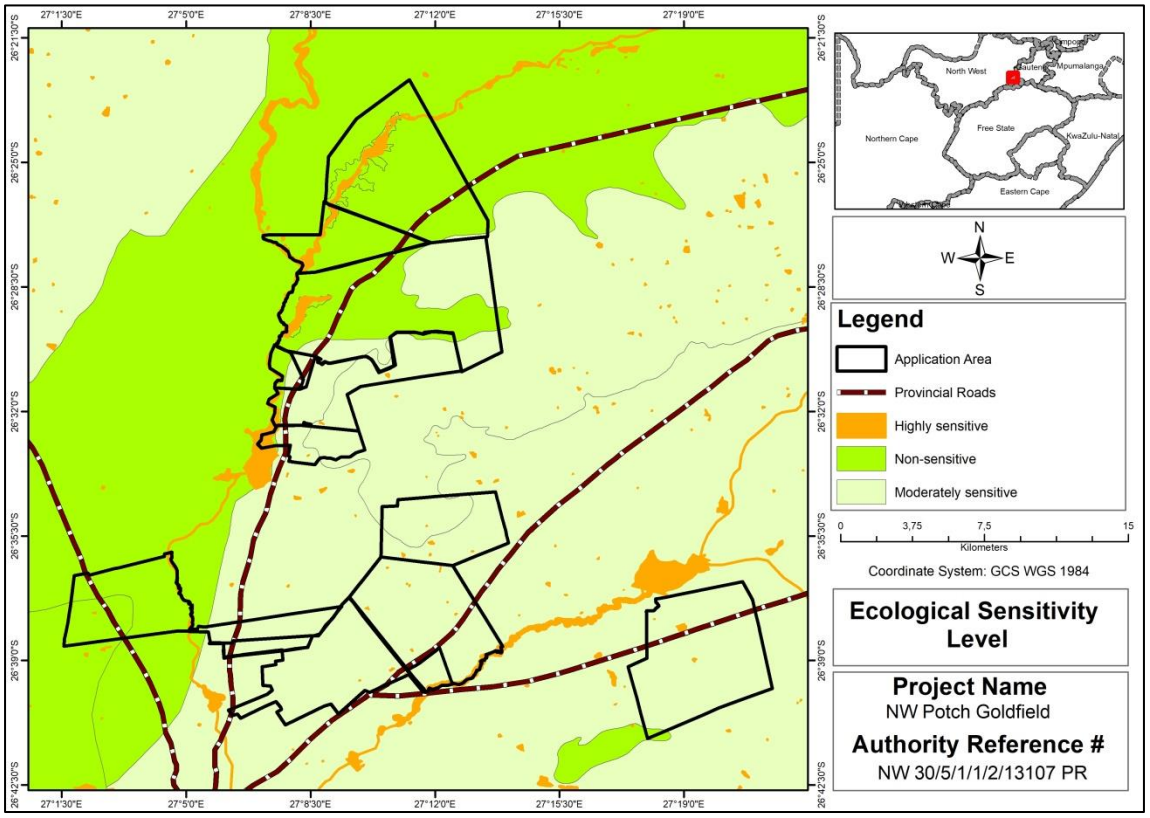


Figure 20: Ecosystem conservation status of the application area and surrounding areas.

The Rand Highveld Grassland has high conservation value. However, according to the National Biodiversity Assessment (2011), the Terrestrial Ecosystem Protection Level for this vegetation type is Hardly Protected (Figure 21).

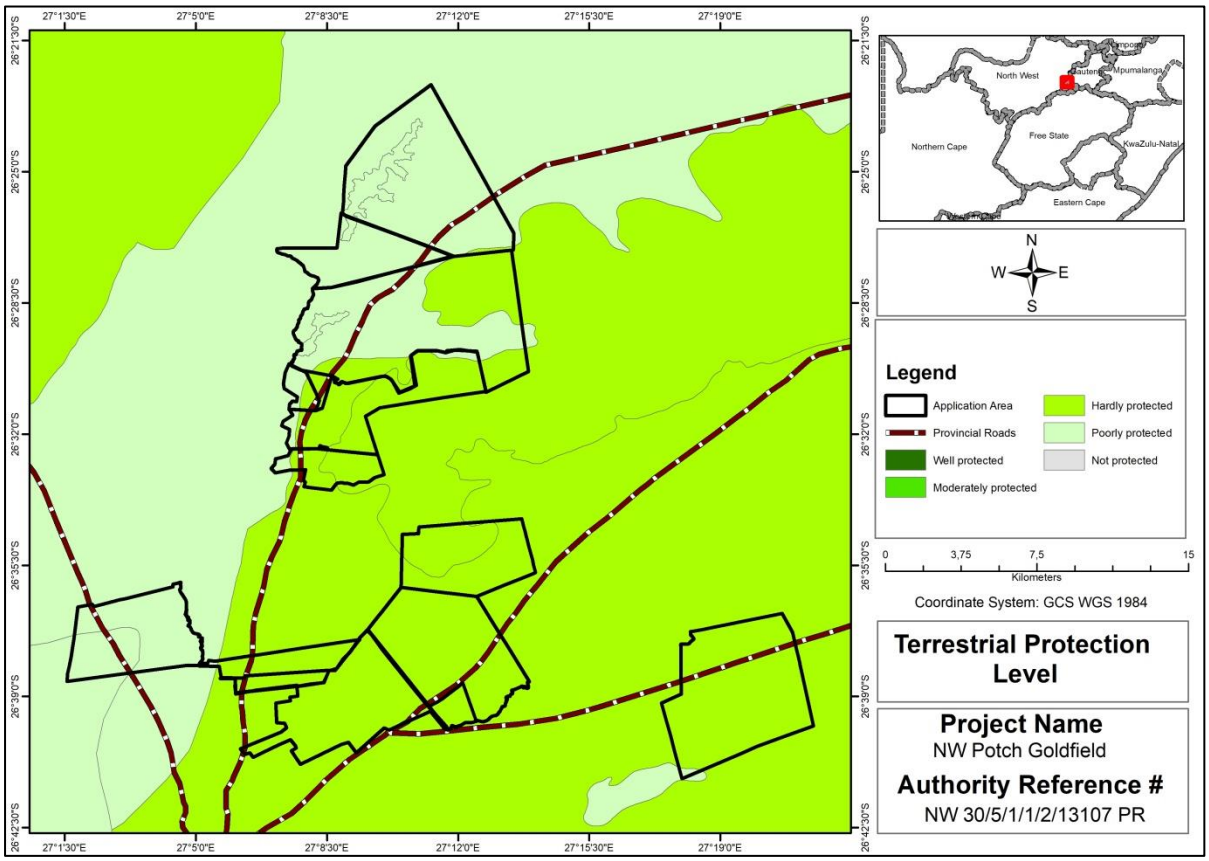


Figure 21: Conservation status of ecosystems in the application area.

8.1.12 Critical Biodiversity

Sensitive environmental features on site have been mapped and are presented in Figure 22. Sections within the application area are identified as *Critical Biodiversity Areas* (CBA 1 and 2), *Ecologically Sensitive Areas* (ESA 1 and 2) according to the North West Biodiversity Sector Plan (2015). The plan is a compilation of sensitive ecological elements considered to be a high priority in terms of protection and conservation.

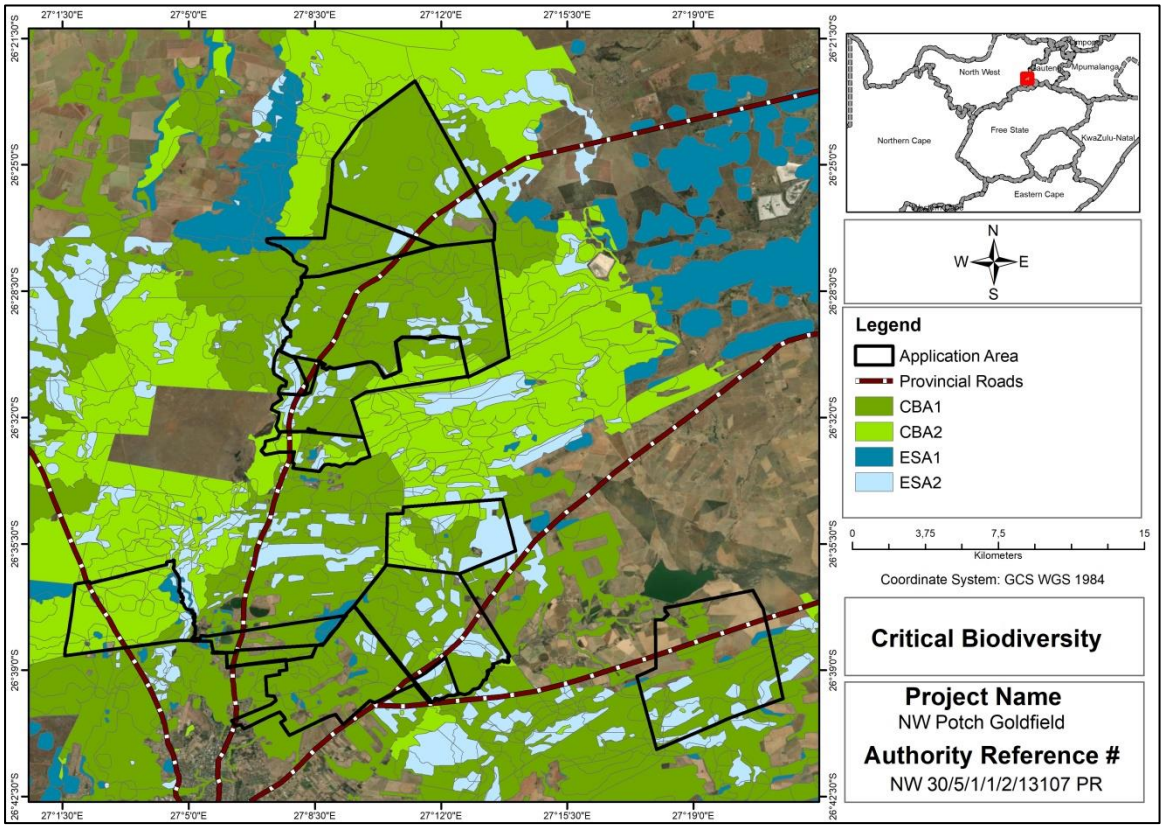


Figure 22: Ecological sensitive areas.

Table 14 summarises the conservation categories present within and around the application area.

Table 14: Summary of conservation categories.

Category	Description
Protected Areas	Areas that are managed mainly for biodiversity conservation and contribute to meeting biodiversity targets for those biodiversity features that fall within their boundaries.
Critical Biodiversity Areas	Terrestrial and aquatic areas of the landscape that need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. In other words, if these areas are not maintained in a natural or near-natural state then biodiversity targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity compatible land uses and resource uses.
Ecological Support Areas	Terrestrial and aquatic areas that are not essential for meeting biodiversity representation targets (thresholds), but which nevertheless play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration. The degree or extent of restriction on land use and resource use in these areas may be lower than that recommended for CBAs.

Proposed non-invasive prospecting activities will be undertaken off-site, thus resulting in no impact on critical biodiversity and ecological sensitivity areas within the application area.

8.1.13 Protected and Conservation Areas

The Department of Environmental Affairs maintains a spatial database on Protected Areas and Conservation Areas. Protected Areas and Conservation Areas (PACA) Database scheme that used for classifying protected areas (South Africa Protected Areas Database, SAPAD) and conservation areas (South Africa Conservation Areas Database, SACAD) into types and sub-types in South Africa.

The definition of protected areas used in these documents follows the definition of a protected area as defined in the National Environmental Management: Protected Areas Act (Act 57 of 2003). Chapter 2 of the National Environmental Management: Protected Areas Act, 2003 sets out the "System of Protected Areas", which consists of the following kinds of protected areas:

1. Special nature reserves
2. National parks
3. Nature reserves
4. Protected environments (1 - 4 declared in terms of the National Environmental Management: Protected Areas Act, 2003)
5. World heritage sites declared in terms of the World Heritage Convention Act
6. Marine protected areas declared in terms of the Marine Living Resources Act
7. Specially protected forest areas, forest nature reserves, and forest wilderness areas declared in terms of the National Forests Act, 1998 (Act No. 84 of 1998)
8. Mountain catchment areas declared in terms of the Mountain Catchment Areas Act, 1970 (Act No. 63 of 1970).

The types of conservation areas that are currently included in the database are the following:

1. Biosphere reserves
2. Ramsar sites
3. Stewardship agreements (other than nature reserves and protected environments)
4. Botanical gardens
5. Transfrontier conservation areas
6. Transfrontier parks
7. Military conservation areas
8. Conservancies.

Boskop Dam Nature Reserve within the application area is a formally protected area (Figure 23).

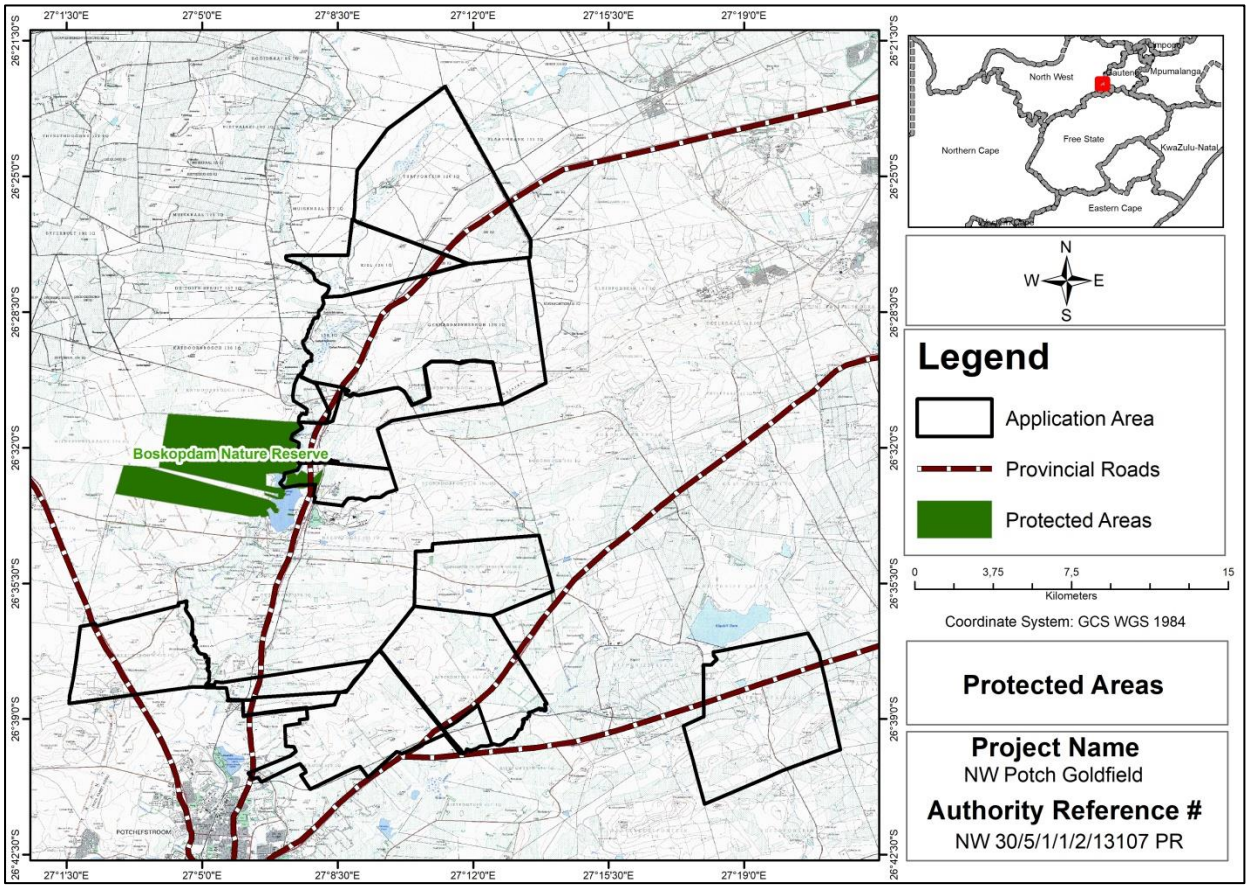


Figure 23: The project area in relation to the nearby protected area.

8.1.14 Areas National Protected Area Expansion Strategy

The National Protected Area Expansion Strategy 2010 (NPAES) was identified through a systematic biodiversity planning process. These areas present the best opportunities for meeting the ecosystem-specific protected area targets, and were designed with strong emphasis on climate change resilience and requirements for protecting freshwater ecosystems. These areas should not be seen as future boundaries of protected areas, as in many cases only a portion of a particular focus area would be required to meet the protected area targets set in the NPAES. They are also not a replacement for fine scale planning which may identify a range of different priority sites based on local requirements, constraints and opportunities (NPAES, 2010).

Based on the SANBI 2016 NPAES, the centre of the application area partly overlaps with the NPAES (Figure 24).

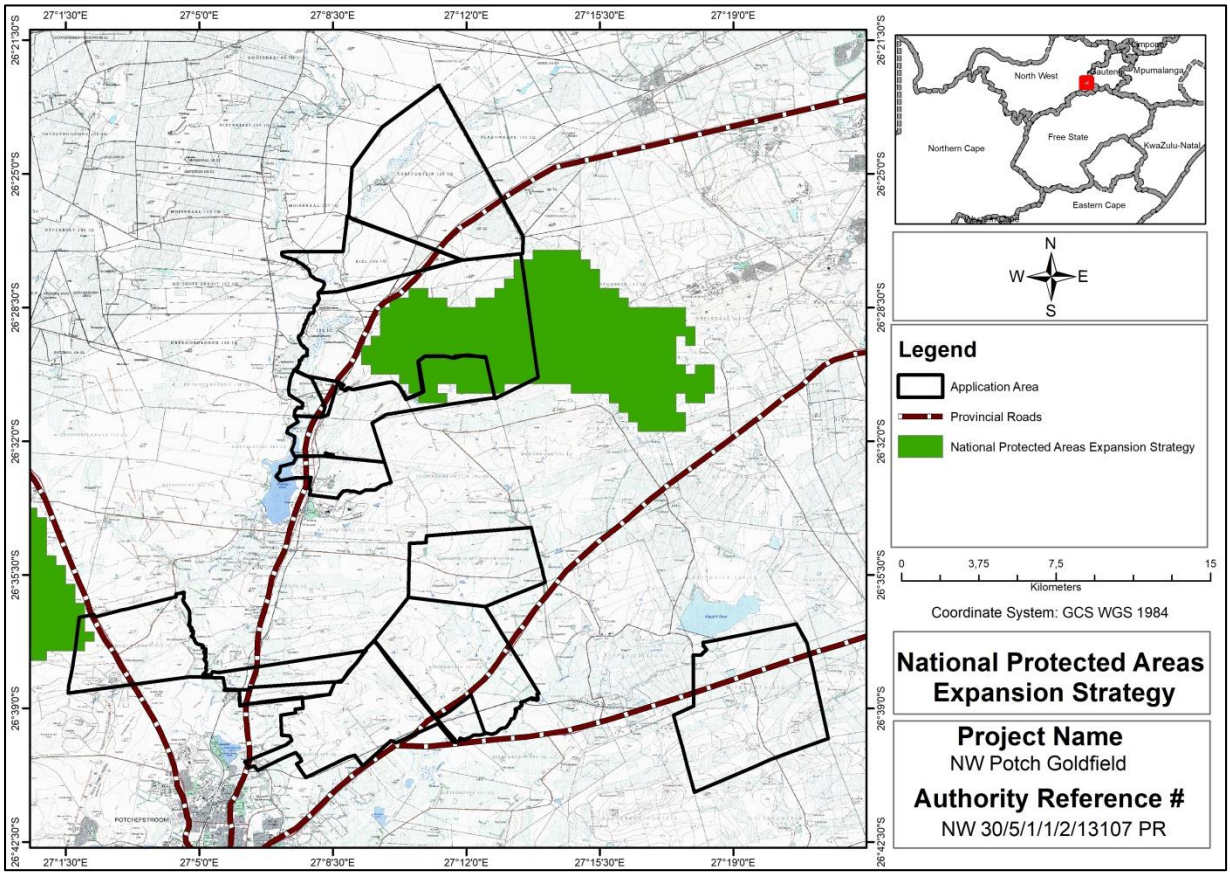


Figure 24: The application area in relation to the National Protected Area Expansion Strategy.

8.1.15 Heritage

Heritage resources such as Stone Age sites, rock paintings and engravings, stone tools, small, inconspicuous stone walled sites from the Late Iron Age farming communities, formal and informal graveyards, may occur in the study area.

8.1.15.1 Culture/Heritage Resources

No physical survey took place as part of this study. Only desktop studies were conducted on the application area. No heritage environments were identified by the desktop studies as well as the on-site inspection undertaken during the site visit. However, it is possible that heritage resources may exist.

No invasive work will be conducted on the application area. Therefore, no heritage resources will be affected.

Notification has been sent to the South African Heritage Resources Agency (SAHRA) notifying them of the proposed Prospecting Right application. Furthermore, the notification documents have been uploaded on the South African Heritage Information System (SAHRIS). Any comments received from SAHRA during this Basic Assessment process will be included in the Comments and Responses Report accompanying the Basic Assessment Report and Environmental Management Programme.

8.1.16 Palaeontology

Lithologies associated with the Witwatersrand, Ventersdorp and Transvaal Supergroups underlie the regional study area and surrounds (Figure 25). These lithologies represent the Mesoarchean through the Palaeozoic Eras, which range from approximately 2 800 million years ago (mya) to 266 mya (Johnson et al., 2006).

The Witwatersrand Supergroup is the greatest source of gold on earth. These layers were deposited between 2 800 and 2 650 mya. Within the Witwatersrand Supergroup, the Central Rand Group is the most relevant to the application area. These formations comprise quartzite, shale and minor or subordinate conglomerates (Johnson et al., 2006). The Ventersdorp Contact Reef, at the base of the Ventersdorp Supergroup is also a major gold- and uranium-bearing horizon.

In the application area, the Ventersdorp Supergroup overlies the Witwatersrand Supergroup (Johnson et al., 2006), which is in its turn, overlain by the Transvaal Supergroup. The Transvaal Basin dates between 2 650 to 290 mya. Within the Transvaal Supergroup are the Chuniespoort and Pretoria Groups. The Chuniespoort includes the Malmani Subgroup, a layer of dolomitic bedrock. The subgroup includes stromatolites and has a high potential for karst topography. The upper Pretoria Group is approximately 6 to 7 km thick. The formation comprises predominantly mudrock, alternating with quartzitic sandstone, significant interbedded lavas and subordinate conglomerate, diamictite and carbonate rocks. These layers have all been subject to low-grade metamorphism.

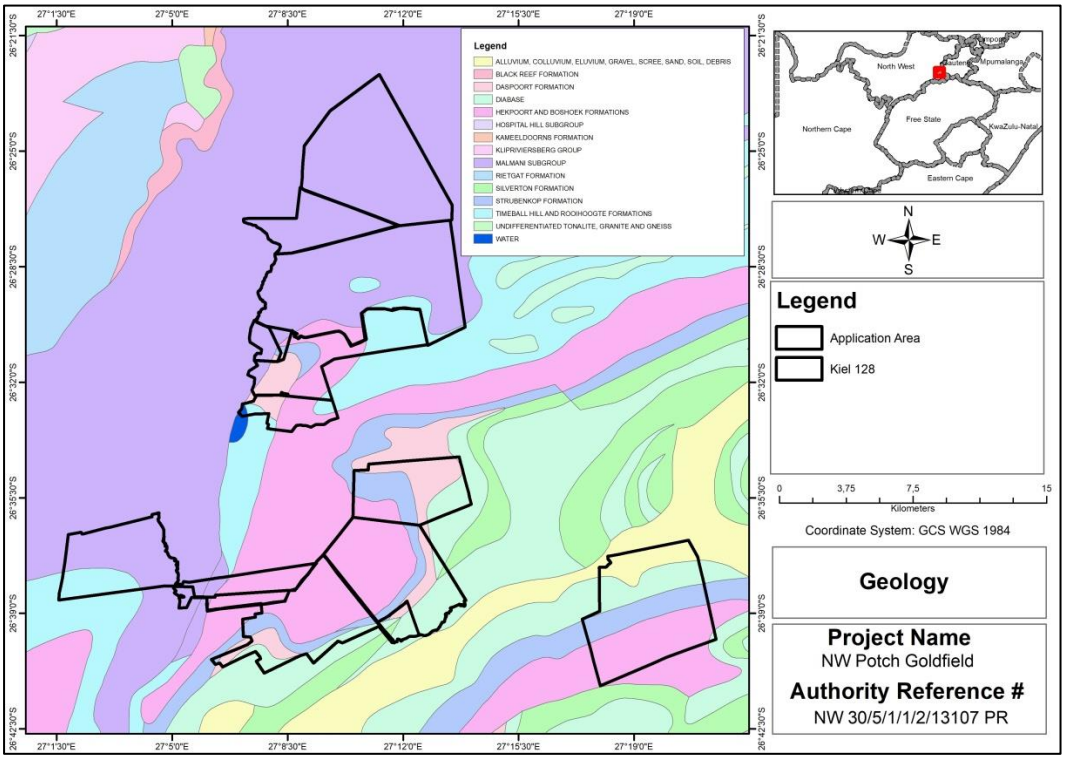


Figure 25: Lithologies associated with the Transvaal Supergroup. Witwatersrand and Ventersdorp rocks do not crop out in the Project area.

Palaeontologically-sensitive layers consist of the Chuniespoort Group (including the Malmani Subgroup) of the Pretoria Group (SAHRIS, 2013). The Witwatersrand and Ventersdorp Supergroups do not crop out in the Project area Both are of negligible or zero palaeontological sensitivity and are not considered further.

8.1.16.1 Palaeosensitivity

According to the palaeosensitivity map developed by the South African Heritage Resources Agency (SAHRA), the application area is situated in areas classified as very high, high to moderate sensitivity (Figure 26).

Notice of the proposed Prospecting Right Application has been uploaded onto the South African Heritage Resources Agency (SAHRA) website, South African Heritage Information System (SAHRIS).

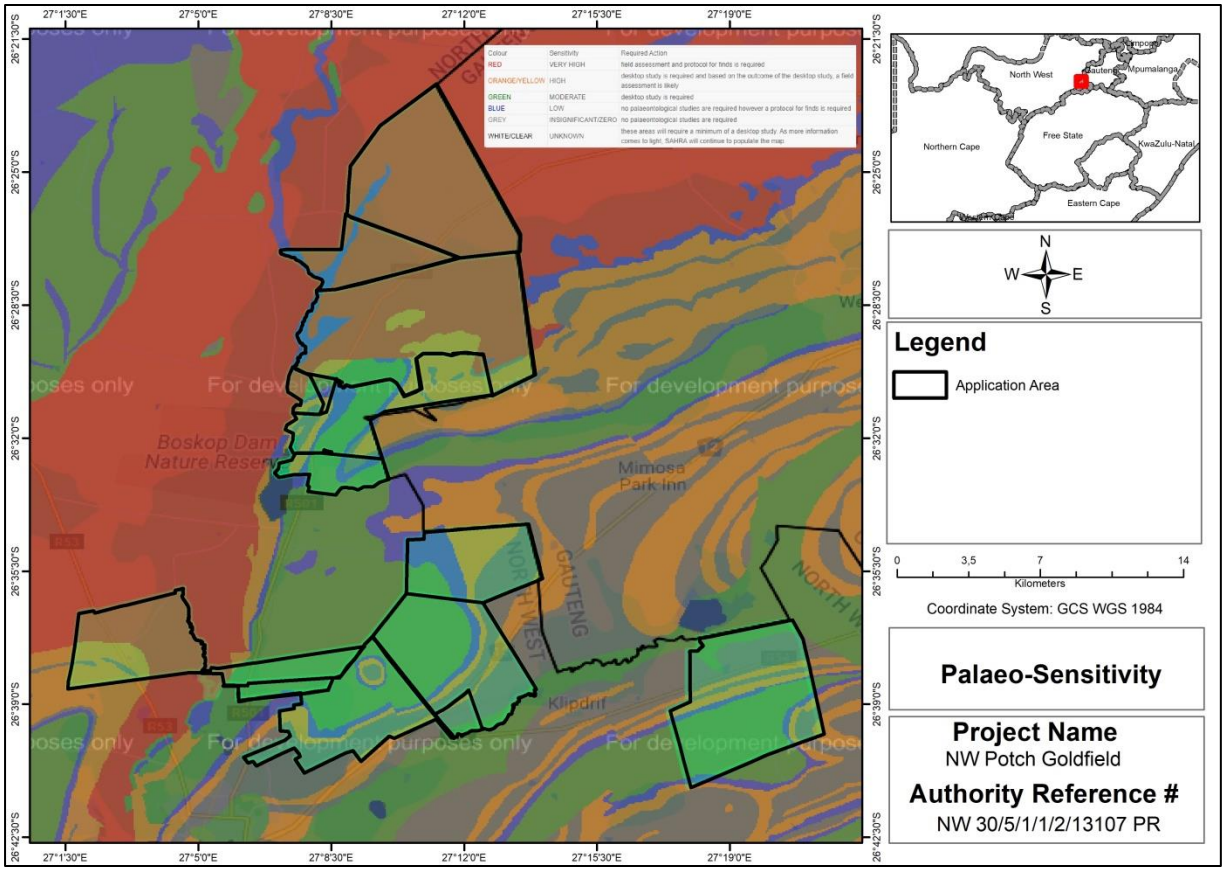


Figure 26: Palaeosensitivity of the application area.

8.1.17 Biodiversity and Mining

The Mining and Biodiversity Guidelines (2013) were developed by the DMRE, the Minerals Council, the SANBI and the South African Mining and Biodiversity Forum, with the intention to find a balance between economic growth and environmental sustainability. The Guideline is envisioned as a tool to "foster a strong relationship between biodiversity and mining" which will eventually translate into best

practice within the mining sector. In identifying biodiversity priority areas which have different levels of risk against mining, the Guideline categorises biodiversity priority areas into four categories of biodiversity priority areas in relation to their importance from a biodiversity and ecosystem service point of view as well as the implications for mining in these areas:

1. Legally protected areas, where mining is prohibited.
2. Areas of highest biodiversity importance, which are at the highest risk for mining.
3. Areas of high biodiversity importance, which are at a high risk for mining.
4. Areas of moderate biodiversity importance, which are at a moderate risk for mining.

According to the guidelines, the application area largely falls within areas that are classified as high risk to mining with some small areas falling within ranges classified as highest and moderate risk to mining (Figure 27).

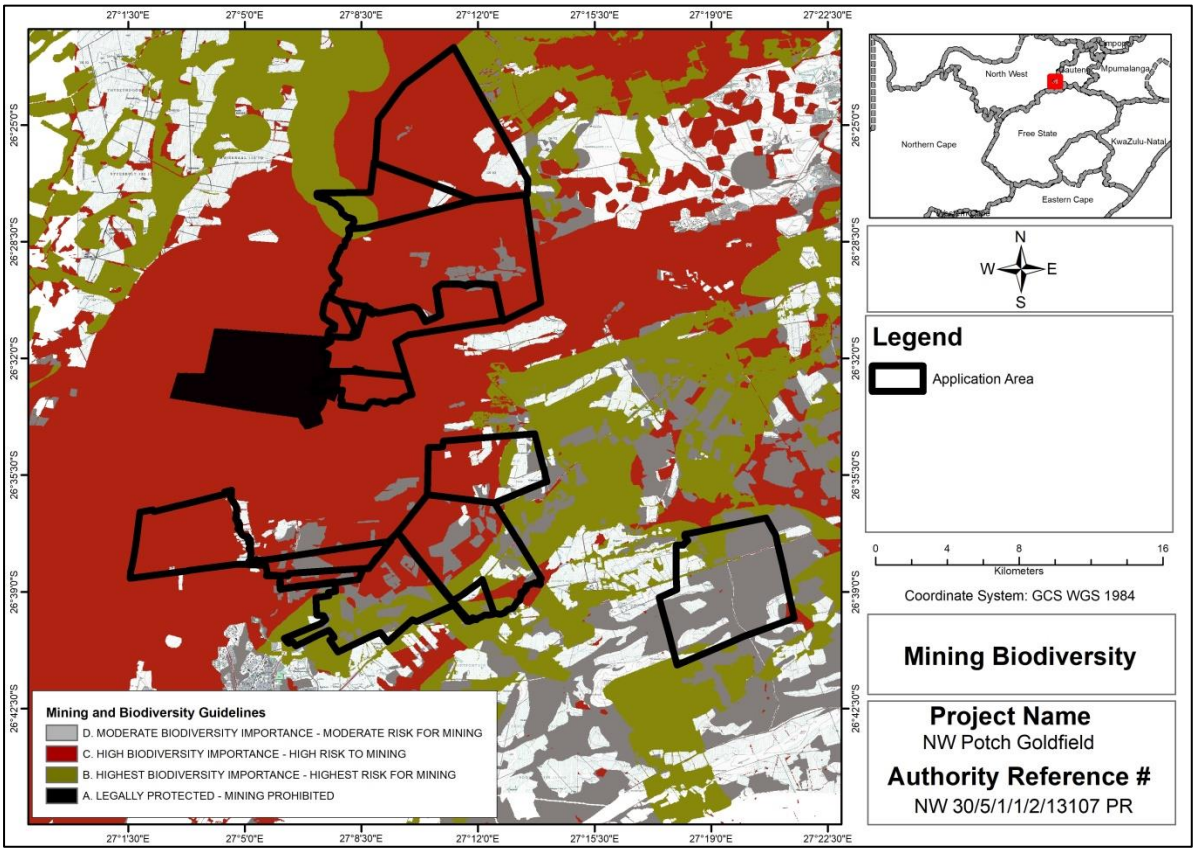


Figure 27: Mining and biodiversity guidelines in relation to the application area.

8.1.18 Environmental Aspects Which May Require Protection and/or Remediation

Due to the non-invasive nature of the proposed prospecting activities, there are no features on-site that may require protection and/or remediation. Should Sunshine determine a need to conduct invasive prospecting within the tenement area, there would be features on-site which require appropriate

protection and/or remediation. A Section 102 amendment process, which would include an update to the EMPR, would take place and the necessary mitigation measures would be implemented.

9. IMPACTS AND RISKS IDENTIFIED

Impacts and risks were identified based on the proposed prospecting activities to take place on-site. As such, Table 15 lists the potential impacts related to each of the significant activities related to the prospecting operation.

Table 15: List of potential impacts per activity.

Aspect	Potential Impacts
Planning and Preparation	
Social	Perceptions and expectations
Operation: Field Mapping	
Social	Safety and security risks to landowners and lawful occupiers
	Interference with existing land-uses
	Sense of place
	Perceptions and expectations
Economic	Discovery of Economically Viable Mineral Resources

Each of the identified risks and impacts for these phases was assessed using the assessment methodology described in Section 9.1. The assessment criteria include the nature, extent, duration, magnitude/intensity, reversibility, probability, public response, cumulative impact and irreplaceable loss of resources. The full scoring of each impact is provided in the impact assessment table provided in Appendix F.

A summary of the impacts and their significance before and after mitigation is provided in Section 9.2 of this report.

In order to calculate the significance of an impact, probability, duration, extent and magnitude will be used. The pre and post mitigation scores will provide an indication of the extent to which an impact can be mitigated.

9.1 THE IMPACT ASSESSMENT METHODOLOGY

The subsections below present the approach to assessing the identified potential environmental impact with the aim of determining the relevant environmental significance.

9.1.1 Method of Assessing Impacts

The impact assessment methodology is guided by the requirements of the NEMA EIA Regulations (2014). The broad approach to the significance rating methodology is to determine the environmental risk (ER) by considering the consequence (C) of each impact (comprising Nature, Extent, Duration, Magnitude, and Reversibility) and relate this to the probability/likelihood (P) of the impact occurring. This determines the environmental risk. In addition, other factors, including cumulative impacts, public concern, and potential for irreplaceable loss of resources, are used to determine a prioritisation factor (PF) which is applied to the ER to determine the overall significance (S).

9.1.2 Determination of Environmental Risk

The significance (S) of an impact is determined by applying a prioritisation factor (PF) to the environmental risk (ER).

The environmental risk is dependent on the consequence (C) of the particular impact and the probability (P) of the impact occurring. Consequence is determined through the consideration of the Nature (N), Extent (E), Duration (D), Magnitude (M), and reversibility (R) applicable to the specific impact.

For the purpose of this methodology the consequence of the impact is represented by:

$$C = \frac{(E+D+M+R) \times N}{4}$$

Each individual aspect in the determination of the consequence is represented by a rating scale as defined in Table 16.

Table 16: Criteria for determination of impact consequence.

Aspect	Score	Definition
Nature	- 1	Likely to result in a negative/ detrimental impact
	+1	Likely to result in a positive/ beneficial impact
Extent	1	Activity (i.e. limited to the area applicable to the specific activity)
	2	Site (i.e. within the development property boundary),
	3	Local (i.e. the area within 5 km of the site),
	4	Regional (i.e. extends between 5 and 50 km from the site
	5	Provincial / National (i.e. extends beyond 50 km from the site)
Duration	1	Immediate (<1 year)
	2	Short term (1-5 years)
	3	Medium term (6-15 years)
	4	Long term (the impact will cease after the operational life span of the project),
	5	Permanent (no mitigation measure of natural process will reduce the impact after construction).

Aspect	Score	Definition
Magnitude/ Intensity	1	Minor (where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected)
	2	Low (where the impact affects the environment in such a way that natural, cultural and social functions and processes are slightly affected)
	3	Moderate (where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way)
	4	High (where natural, cultural or social functions or processes are altered to the extent that it will temporarily cease) or
	5	Very high / don't know (where natural, cultural or social functions or processes are altered to the extent that it will permanently cease)
Reversibility	1	Impact is reversible without any time and cost
	2	Impact is reversible without incurring significant time and cost
	3	Impact is reversible only by incurring significant time and cost
	4	Impact is reversible only by incurring prohibitively high time and cost
	5	Irreversible Impact

Once the C has been determined the ER is determined in accordance with the standard risk assessment relationship by multiplying the C and the P. Probability is rated/scored as per Table 20. Table 17 indicates the determination of environmental risk.

Table 17: Probability scoring.

Probability	1	Improbable (the possibility of the impact materialising is very low as a result of design, historic experience, or implementation of adequate corrective actions; <25%),
	2	Low probability (there is a possibility that the impact will occur; >25% and <50%)
	3	Medium probability (the impact may occur; >50% and <75%)
	4	High probability (it is most likely that the impact will occur- > 75% probability), or
	5	Definite (the impact will occur)

The result is a qualitative representation of relative ER associated with the impact (Table 18). ER is therefore calculated as follows:

ER = C x P

Table 18: Determination of environmental risk.

Consequence						
	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
		Probability				

The outcome of the environmental risk assessment will result in a range of scores, ranging from 1 through to 25. These ER scores are then grouped into respective classes as described in Table 19.

Table 19: Significance classes.

Environmental Risk Score	
Value	Description
< 10	Low (i.e. where this impact is unlikely to be a significant environmental risk)
≥ 10 and < 20	Medium (i.e. where the impact could have a significant environmental risk)
≥ 20	High (i.e. where the impact will have a significant environmental risk)

The impact ER will be determined for each impact without relevant management and mitigation measures (pre-mitigation), as well as post implementation of relevant management and mitigation measures (post-mitigation). This allows for a prediction in the degree to which the impact can be managed/ mitigated.

9.1.3 Impact Prioritisation

In accordance with the requirements of Appendix 3(j) of the NEMA 2014 EIA Regulations (GNR 982, as amended), and further to the assessment criteria presented in the Section above it is necessary to assess:

1. Each potentially significant impact in terms of: cumulative impacts
2. The degree to which the impact may cause irreplaceable loss of resources.

In addition, it is important that the public opinion and sentiment regarding a prospective development and consequent potential impacts is considered in the decision-making process.

In an effort to ensure that these factors are considered, an impact prioritisation factor (PF) will be applied to each impact ER (post-mitigation). This prioritisation factor does not aim to detract from the risk ratings but rather to focus the attention of the decision-making authority on the higher priority/significance issues and impacts (Table 20). The PF will be applied to the ER score based on the assumption that relevant suggested management/ mitigation impacts are implemented.

Table 20: Criteria for the determination of prioritisation.

Public Response (PR)	Low (1)	Issue not raised in public response.
	Medium (2)	Issue has received a meaningful and justifiable public response.
	High (3)	Issue has received an intense meaningful and justifiable public response
Cumulative Impact (CI)	Low (1)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change
	Medium (2)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change
	High (3)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is highly probable/definite that the impact will result in spatial and temporal cumulative change
Irreplaceable loss of Resources (LR)	Low (1)	Where the impact is unlikely to result in irreplaceable loss of resources
	Medium (2)	Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited
	High (3)	Where the impact may result in the irreplaceable loss of resources of high value (services and/or functions)

The value for the final impact priority is represented as a single consolidated priority, determined as the sum of each individual criterion. The impact priority is therefore determined as follows:

Priority = PR + CI + LR

The result is a priority score which ranges from 3 to 9 and a consequent PF ranging from 1 to 2 (Table 21).

Table 21: Determination of prioritisation factor.

Priority	Ranking	Prioritisation Factor
3	Low	1
4	Medium	1.17
5	Medium	1.33
6	Medium	1.5
7	Medium	1.67
8	Medium	1.83
9	High	2

In order to determine the final impact significance, the PF is multiplied by the ER of the post mitigation scoring. The ultimate aim of the PF is to be able to increase the post mitigation environmental risk rating by a full ranking class, if all the priority attributes are high (i.e. if a medium environmental risk impact is identified after the conventional impact rating, but there is significant cumulative impact potential,

significant public response, and significant potential for irreplaceable loss of resources, then the net result would be to upscale the impact to a high significance (Table 22).

Table 22: Environmental significance rating.

Environmental Significance Rating	
Value	**Description**
< -10	Low negative (i.e. where this impact would not have a direct influence on the decision to develop in the area)
≥ -10 and < -20	Medium negative (i.e. where the impact could influence the decision to develop in the area).
≥ -20	High negative (i.e. where the impact must have an influence on the decision process to develop in the area)
0	No impact
< 10	Low positive (i.e. where this impact would not have a direct influence on the decision to develop in the area)
≥ 10 < 20	Medium positive (i.e. where the impact could influence the decision to develop in the area)
≥ 20	High positive (i.e. where the impact must have an influence on the decision process to develop in the area)

9.2 ASSESSMENT AND EVALUATION OF POTENTIAL PROJECT IMPACTS

The proposed prospecting activities to be undertaken are non-invasive and as such there is only one alternative worth assessing which is the initial layout and activities proposed. There will therefore be no physical disturbance to the application area and/or interference with landowners or communities.

It should be noted that this report has been made available to I&AP's for review and comment and their comments and concerns will be addressed in the final report to be submitted to the DMRE for adjudication. Furthermore, it should be noted that the impact scores themselves will include the results of the public response and comment. The results of the public consultation will be used to update the impact scores upon completion of the public review period.

Please refer to Section 9.1 for the Methodology used in determining and ranking the nature, significance, consequence, extent, duration and probability of potential environmental impacts and risks.

The following potential impacts were identified during the Basic Assessment and are for the prospecting layout as well as activities proposed. Please refer to Appendix F for the full impact scoring calculations.

9.2.1 Socio-Economic Perceptions and Expectations of the Community

The notification of the proposed project is likely to create great interest, particularly in the potential for employment and perceived safety and security risks. However, due to the non-invasive activities for this project, no unskilled labour is required and no site access is required. As such, perceptions and

expectations must be managed through on-going, open and transparent communication with affected stakeholders, communities and landowners.

9.2.1.1 Significance of Impact

The above impact will be negative but site-specific. With mitigation, the impact can be controlled but not prevented and will remain low to moderate in significance.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Socio-economic perceptions and expectations of the community	-11.00	-9.00	-9.00

9.2.1.2 Possible Mitigation Measures:

Potential mitigation measures that can be applied to reduce the impact of the socio-economic perceptions and expectations include:

1. Adhere to an open and transparent communication procedure with stakeholders at all times
2. Ensure that accurate and regular information is communicated to I&AP's
3. Ensure that information is communicated in a manner which is understandable and accessible to I&AP's
4. Enhance project benefits and minimise negative impacts through intensive consultation with stakeholders.

9.2.2 Safety and security risks to landowners and lawful occupiers

Required access and use of land for field mapping is a risk to the safety and security of landowners and lawful occupiers due to property access and use by unfamiliar people in the area.

9.2.2.1 Significance of Impact

The above impact will be negative but site-specific. With mitigation, the impact can be controlled but not prevented and will remain low in significance.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Safety and security risks to landowners and lawful occupiers	-3.00	-1.25	-1.25

9.2.2.2 Possible Mitigation Measures:

Potential mitigation measures that can be applied to reduce the impact of the safety and security risks to landowners and lawful occupiers include:

1. Ensure non-invasive prospecting activities are consistent with occupational health and safety requirements.
2. Prior to accessing any portion of land, the Applicant must enter into formal written agreements with the affected landowner. This formal agreement should additionally stipulate landowners special conditions which would form a legally binding agreement.
3. All homestead gates must be closed immediately upon entry/exit.
4. Vehicles used must be in a roadworthy condition and their loads secured. Speed limits must be adhered to and all local, provincial and national regulations with regards to road safety and transport

9.2.3 Interference With Existing Land Use

During the operation phase, the Applicant and the contractors will require access to the site in order to confirm where the activities will take place and where machinery will be placed. This may interfere with current land-uses.

9.2.3.1 Significance of Impact

The above impact will be negative but site-specific. With mitigation, the impact can be controlled but not prevented and will remain low in significance.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Interference with existing land uses	-2.50	-2.00	-2.00

9.2.3.2 Possible Mitigation Measures:

A potential mitigation measure that can be applied to reduce the impact of interference with existing land uses includes:

1. The Applicant must enter into formal written agreements with the affected landowners and provide compensation for any loss of revenue due to the prospecting activities.

9.2.4 Sense of Place

The proposed prospecting project may impact on the established sense of place of the property. The character of the area will not change due to the absence of invasive prospecting activities.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Sense of place	-2.50	-1.00	-1.00

9.2.4.1 Possible Mitigation Measure:

A potential mitigation measure that can be applied to reduce the impact of sense of place includes:

1. The Applicant must enter into formal written agreements with the affected landowners and provide compensation for any loss of revenue due to the prospecting activities.

9.2.5 Job creation

Prospecting operations have the potential to positively influence by contributing directly towards employment (albeit short) on a local scale.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Job Creation	+9.00	+12.00	+14.00

9.2.5.1 Significance of Impact

This impact will be positive in nature and of short-term duration as employment positions will be limited to Geologists only and will be lost once the operational activities cease.

9.2.5.2 Possible Mitigation Measure:

1. Maximise employment opportunities, skills development and training.

9.2.6 Discovery of Economically Viable Mineral Resources

Should prospecting prove successful and a resource quantified, it would indicate a potential viable economic activity in the form of mining. Mining will contribute greatly to the local economy by stimulation through direct employment, future business opportunities, royalties and tax revenues.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Discovery of Economically Viable Mineral Resources	+13.00	+18.75	+21.88

9.2.6.1 Significance of Impact

This impact will be positive in nature in the long term.

9.2.6.2 Possible Mitigation Measures:

1. Maximise through optimisation of economic growth opportunities.

10. MOTIVATION WHERE NO ALTERNATIVE SITES WERE CONSIDERED

There will be no development footprint due to the fact that only non-invasive prospecting will be undertaken. The geology is the primary driver in determining the location of prospecting and mining.

Sunshine's exploration programme is targeting the gold- and uranium-bearing sediments of the Central and West Rand Groups of the Witwatersrand Supergroup, as well as the Ventersdorp Contact Reef at the base of the Ventersdorp Supergroup. In addition to gold and uranium, these reefs are also known to contain silver. Base metals such as copper, lead and zinc also occur in small quantities within the reefs, but considering the large tonnages that can potentially be mined, the to be extracted base metal content will result in substantial quantities. The reefs are also known to contain high quantities of pyrite, which contains sulphur. Base metals are potentially present in vein systems in the Ventersdorp Supergroup. These additional commodities could contribute to the viability of the future mining processes and are included in the application.

The geology of the project area has been explored extensively in the past by various exploration companies. The vast amount of historical data will be applied to determine the potential resources and reserves without the need of invasive prospecting techniques. As such, no assessment of alternative development scenarios was conducted.

11. STATEMENT MOTIVATING THE ALTERNATIVE DEVELOPMENT LOCATION WITHIN THE OVERALL SITE

As discussed above, the proposed application area has been selected due to the geology of the site, which indicates the potential for economically viable minerals to occur. The site layout was determined based on the close vicinity of existing mining areas and the extensive historical prospecting work conducted in the area. No alternative development location within the overall site has been identified as viable or is considered in this report.

12. 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

The impact assessment process may be summarised as follows:

1. Identification of proposed prospecting activities including their nature and duration
2. Screening of activities likely to result in impacts or risks
3. Utilisation of the above-mentioned methodology to assess and score preliminary impacts and risks identified
4. Inclusion of I&AP comment regarding impact identification and assessment
5. Finalisation of impact identification and scoring.

13. IMPACT ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK

Refer to Appendix F for a summary of the full scoring for each of the assessed impacts.

14. SUMMARY OF SPECIALIST REPORTS

Owing to the limited scope and short duration of the proposed project which will include non-invasive activities only, specialist studies were not undertaken. Only desktop baseline assessments were undertaken, namely:

1. General description of the application area
2. Socio-economic
3. Biodiversity (fauna and flora)
4. Surface hydrology
5. Heritage
6. Palaeontology.

The summary of the key findings is detailed below.

14.1 General Description of the Application area

The prospecting area is generally flat to gently undulating, with a few elevated rises and hills. It is characterised by natural vegetation, agricultural activities (cultivated fields), woodland and watercourses. The topography of the application area varies in altitude between 1 350 to 1 550 mamsl. The area

experiences a continental climate, characterised by mild to hot summer temperatures in excess of 30°C and cold winter temperatures during winter months.

14.2 Socio-Economic

The application area is located along the border of the North West and Gauteng provinces close to the town of Carletonville. It can be found in wards 2, 3 and 28 of the JB Marks Local Municipality within the Dr Kenneth Kaunda District Municipality in the North West Province.

According to the 2016 census data, the JB Marks Local Municipality has a population of 243 527. Gold mining is the dominant economic activity in the district, with Potchefstroom and Ventersdorp being the only exceptions. While Ventersdorp to the north-west of Potchefstroom focuses on agricultural activity, Potchefstroom's economic activity is driven by services and manufacturing. The main economic sectors in JB Marks Local Municipality are: mining, agriculture, community services, manufacturing, trade, finance and transport.

14.3 Flora

The application area falls within the Carletonville Dolomite Grassland (Gh 15), Rand Highveld Grassland (Gm 11), Gauteng Shale Mountain Bushveld (SVcb 10), Andesite Mountain Bushveld (SVcb 11) and Eastern Temperate Freshwater Wetlands (ZAf 3).

Carletonville Dolomite Grassland (Gh 15) is considered *Vulnerable*. The national target for conservation protection for this vegetation type is 24%, but only a small extent is conserved in statutory areas such as Sterkfontein Caves (part of the Cradle of Humankind World Heritage Site). Almost a quarter of this vegetation type is already transformed for cultivation by urban sprawl or by mining activities as well as dams (Boskop and Klerkskraal dams).

Rand Highveld Grassland (Gm 11) is classified as *Endangered*. The national target for conservation protection for this vegetation type is 24%, but only 1% is statutory conserved in small patches protected in statutory reserves and in private conservation areas. Almost half has been transformed mostly by cultivation, plantations, urbanisation or dam-building.

Gauteng Shale Mountain Bushveld (SVcb 10) is considered *Vulnerable*. Of the 24% national target for conservation protection for this vegetation type, over 1% is statutory conserved nature reserves. About 21% of this vegetation type is transformed mainly by urban and built-up areas, mines and quarries, cultivation and plantations. Wattles are a common invasive plant in places.

Andesite Mountain Bushveld (SVcb 11) is considered Least Threatened. Of the 24% national target for conservation protection for this vegetation type, about 7% is statutory conserved mainly in the Suikerbosrand Nature Reserve and Magaliesberg Nature Area. Some 15% is transformed, mainly due to cultivated and some urban and built-up areas. Some of the unit fringes on major urban areas. Erosion is generally very low.

Eastern Temperate Freshwater Wetlands (ZAf 3) is considered Vulnerable. Of the 24% national target for conservation protection for this vegetation, only 5% is conserved in statutory areas such as Blesbokspruit (a Ramsar site), Hogsback, Marievale, Olifantsvlei, Seekoeivlei (a Ramsar site), Wakkerstroom Wetland, Umgeni Vlei, Umvoti Vlei and Pamula Park Nature Reserves. It is also protected in private nature reserves such as the Korsman Bird Sanctuary and Langfontein. Some 15% has been transformed to cultivated land, urban areas or plantations. In places intensive grazing and use of lakes and freshwater pans as drinking pools for cattle or sheep cause major damage to the wetland vegetation.

14.4 Fauna

A baseline assessment was conducted to establish whether any potentially sensitive faunal species occur in the vicinity of the application area. The South African National Biodiversity Institute (SANBI) online biodiversity tool was utilised to query a species list for the 2627CA quarter degree square (QDS) grid cell and the Virtual Museum and Animal Demography Unit (ADU) was used to compile species lists based on the data gathering from SANBI.

14.4.1 Avifauna

Based on the South African Bird Atlas Project, Version 2 (SABAP2) database, 130 bird species are expected to occur in the vicinity of the application area comprising a range of both terrestrial and aquatic species. Of these expected bird species, 3 bird species are of conservation concern.

14.4.2 Mammals

The International Union for Conservation of Nature (IUCN) Red List Spatial Data (IUCN, 2017) lists 80 mammal species that could be expected to occur within, or in the vicinity of the application area. Of these, 6 are of conservation concern.

14.4.3 Reptiles

Based on the IUCN Red List Spatial Data (IUCN, 2017) and the ReptileMAP database provided by the Animal Demography Unit (ADU, 2017), 26 reptile species are expected to occur within, or in the vicinity of the application area. Of these, one is of conservation concern.

14.4.4 Amphibians

Based on the IUCN Red List Spatial Data (IUCN, 2017) and the AmphibianMAP database provided by the Animal Demography Unit (ADU, 2017) 13 amphibian species are expected to occur in the vicinity of the application area.

14.4.5 Anthropoids

There is limited arthropod data available on the Virtual Museum database of the FitzPatrick Institute of African Ornithology (2019) for the 2627CA QDS. No records exist on scorpion diversity. However, ButterflyMAP indicates that 131 butterfly species have been recorded, including one species that is listed as *Endangered.* Two spiders are considered of conservation value and are listed in the Red List Category of 2016.

14.5 Surface Water

The Vaal Water Management comprises of 12 tertiary catchment areas and the application area is situated in the C23G, C23H and C23K quaternary catchment areas. These catchment areas are rated as having moderate ecological sensitivity. The proposed prospecting activities, which are all non-invasive, will not have any impact on the water resources.

14.6 Critical Biodiversity

Sections within the application area are identified as *Critical Biodiversity Areas* (CBA 1 and 2), *Ecologically Sensitive Areas* (ESA 1 and 2) according to the North West Biodiversity Sector Plan. The plan is a compilation of sensitive ecological elements considered to be a high priority in terms of protection and conservation.

Proposed prospecting activities will be undertaken off-site, thus resulting in no impact on critical biodiversity and ecological sensitivity areas within the application area.

14.7 Heritage

No heritage environments were identified by the desktop studies as well as the on-site inspection undertaken during the site visit. As no invasive prospecting work will be conducted in the application area, no heritage resources will be affected.

14.8 Palaeontology

According to the Palaeontological Sensitivity Map developed by the South African Heritage Resources Agency, the application area is situated in areas classified as very high, high to moderate sensitive.

15. ENVIRONMENTAL IMPACT STATEMENT

This Basic Assessment was undertaken in order to identify all of the potential impacts associated with each phase of prospecting. Each of the identified risks and impacts were assessed following the impact methodology described in the body of this report. The assessment criteria include nature, extent, duration, magnitude/intensity, reversibility, probability, public response, cumulative impact, and irreplaceable loss of resources.

Based on the impact assessment conducted by the Environmental Assessment Practitioner, the environmental impacts associated with the proposed prospecting activities are expected to be localised and of low significance.

The following negative impacts were identified and assessed in the Basic Assessment Report:

1. Safety and security risks to landowners and lawful occupiers
2. Interference with land-use
3. Sense of place
4. Perceptions and expectations.

In terms of positive impacts, the following key benefits have been identified:

1. Job creation during prospecting operations
2. Discovery of economically viable mineral resources.

16. FINAL SITE MAP

Figure 28 represents the combined sensitive features on site.

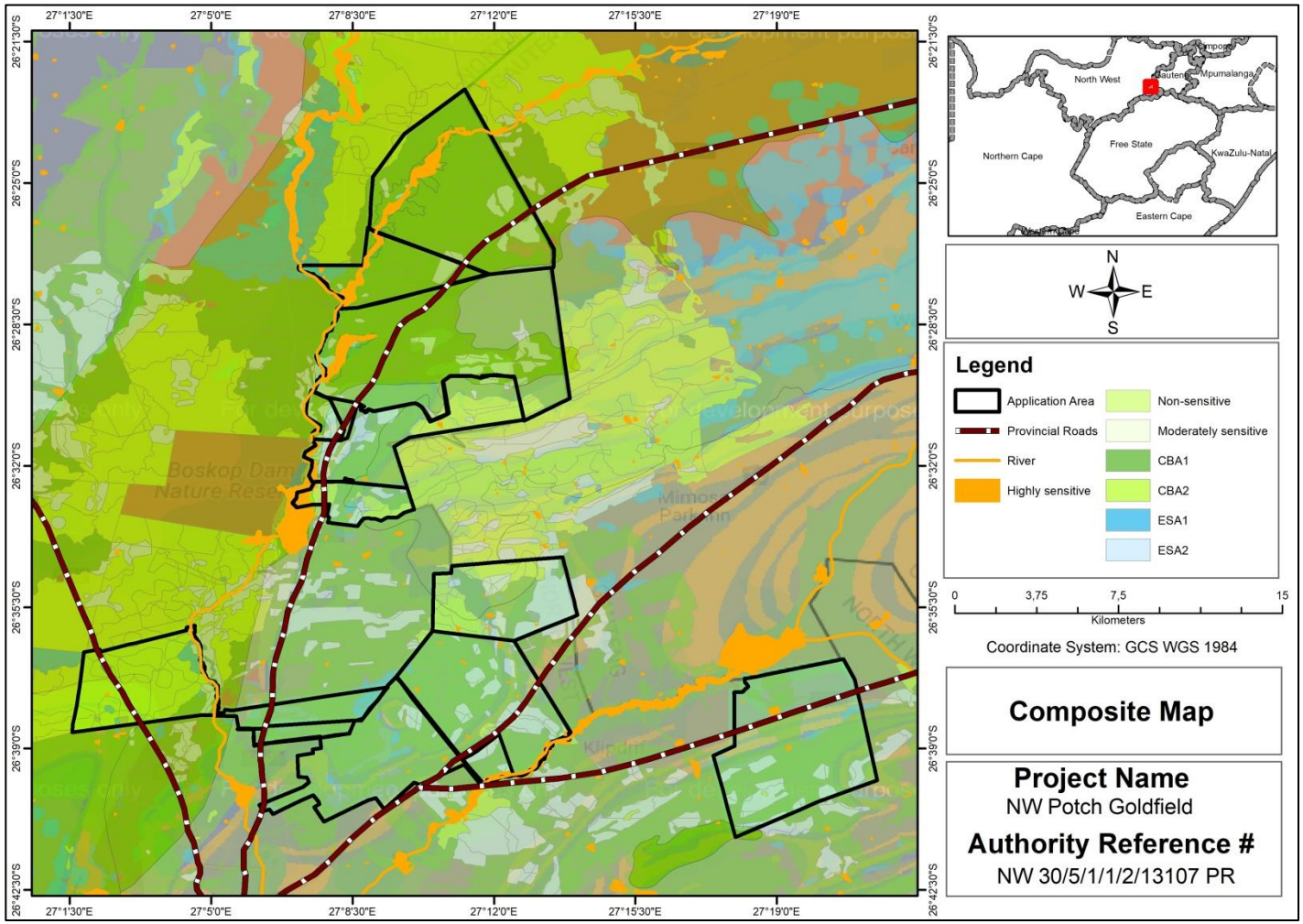


Figure 28: Composite map of the application area and surroundings.

17. SUMMARY OF POSITIVE AND NEGATIVE IMPLICATIONS AND RISKS

The positive implications of the proposed project are (i) job creation (albeit short-term) and (ii) the discovery of economically viable mineral resources.

Due to the non-invasive nature of the proposed prospecting activities, the negative implications and risks of the project are minimal and as such the positive outcomes for the project would far outweigh the negative. The negative impacts are (i) safety and security risks to landowners and lawful occupiers, (ii) interference with land-use, (iii) sense of place and (iv) perceptions and expectations. The EMPR has identified appropriate mechanisms for avoidance and mitigation of this negative impact.

18. PROPOSED IMPACT MANAGEMENT OBJECTIVES AND OUTCOMES

The management objective is to minimise the impact of the proposed project in terms of the socio-economic perceptions and expectations of I&AP's. The outcome to be achieved is to lessen the impact through the following measures:

1. Adhere to an open and transparent communication procedure with stakeholders at all times
2. Ensure that accurate and regular information is communicated to I&AP's
3. Ensure that information is communicated in a manner which is understandable and accessible to I&AP's
4. Enhance project benefits and minimise negative impacts through intensive consultation with stakeholders
5. Assemble adequate, accurate, appropriate and relevant socio-economic information relating to the context of the operation.

19. ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION

1. The approval of the project is for prospecting only. The approval excludes any mining activities
2. Stakeholder engagement will continue throughout the prospecting activities to ensure the community and landowners are kept informed and allowed to raise issues. These issues will then be addressed through a grievance mechanism
3. The applicant should adhere to the conditions of the EA and EMPR for this project.

20. DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

The following assumptions, uncertainties and gaps in knowledge are applicable to this BAR:

1. The baseline environment was compiled through desktop studies and previous specialist reports undertaken around the vicinity of the application area. The baseline environment is subject to change based on the results of the public participation process. The possibility exists that the baseline data is outdated or incomplete. Furthermore, the description of the baseline environment has been further informed by the results of the public participation process
2. The faunal searches are based on incomplete datasets and are not conclusive. As such there is still the chance that threatened or protected species can occur on site and this can only be confirmed with a more detailed study
3. There will be no invasive work undertaken for the project. This report only considers non-invasive prospecting activities and as such is not adequate to mitigate any invasive activities. Should the Applicant determine at a later stage that invasive work is required, this willrequire an amendment of the PWP and EMPR. Furthermore, the revised EMPR may require specialist studies depending on the planned activities
4. In interpreting the NFEPA data, it must always be remembered that the NFEPA database is in incomplete. The NFEPA Implementation Manual, Driver et al. (2011) states “not all wetlands have been mapped and there are substantial gaps”. Furthermore, “rivers and wetlands that are not FEPA’s… still require a biodiversity assessment because knowledge of special ecological features or species of special concern is incomplete.”

21. REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

Should prospecting prove successful and a resource quantified, it would indicate a potential viable economic activity in the form of mining. Mining will contribute greatly to the socio-economic status quo in the form of increased income, employment and other benefits that would cascade through the local, regional and national levels.

Due to the nature of the proposed prospecting activities, potential impacts are expected to be minimal. The potential impacts that have been identified will have a low significance if prospecting impacts are mitigated correctly. The EMPR aims to present management measures that will eliminate, offset or reduce adverse environmental impacts, as well as to provide the framework for environmental monitoring.

Based on the various impact assessments as well as the mitigation measures put forward during the course of this report, it is the opinion of the EAP that this activity should be authorised with conditions attached.

22. PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

The Environmental Authorisation is required for the same duration as the associated Prospecting Right, which is 5 years.

23. UNDERTAKING

It is confirmed 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 BAR and the EMPR.

24. FINANCIAL PROVISION

The Regulations pertaining to the Financial Provision for Prospecting, Prospecting, Mining or Production Operations promulgated under section 44(aE), (aF), (aG), (aH) read with sections 24(5)(b)(ix), 24(5)(d), 24N, 24P and 24R of the National Environmental Management Act, 1998 (Act No.107 of 1998) (20 November 2015) have been considered and this is anticipated to result in an increase in the rehabilitation costs estimated using above mentioned quantum.

The detailed amount that is required to both manage and rehabilitate the environment in respect of rehabilitation is reflected in the quantum of financial provision in Section 36 (Part B) of this report. As the quantum indicates that an amount of R0.00 is required for Financial Provision, the DMRE can recommend an appropriate amount.

25. SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

No additional information has been requested from the Competent Authority.

26. 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 BAR REPORT MUST INCLUDE THE:

26.1 IMPACT ON THE SOCIO-ECONOMIC CONDITIONS OF ANY DIRECTLY AFFECTED PERSON

The proposed project may create interest, particularly in the potential for employment and concerns over damage to natural resources. As such, perceptions and expectations must be managed through

on-going, open and transparent communication with affected stakeholders, communities and landowners.

The consultation process will allow directly affected parties to raise their concerns. Further to this, it must be noted that I&AP's, including directly affected parties such as landowners, have the opportunity to review and comment on this report. The results of the public consultation have been included in the final report submitted to the department for adjudication.

26.2 IMPACT ON ANY NATIONAL ESTATE REFERRED TO IN SECTION 3(2) OF THE NATIONAL HERITAGE RESOURCES ACT

Notice of the proposed Prospecting Right Application has been uploaded onto the SAHRA website, SAHRIS. No invasive work will be conducted on the prospecting area therefore, no national estates will be affected.

27. OTHER MATTERS REQUIRED IN TERMS OF SECTIONS 24(4)(A) AND (B) OF THE ACT

There are no other matters required in terms of Section 24(4)(A) and (B) of the Act.

PART B:

ENVIRONMENTAL MANAGEMENT PROGRAMME

28. INTRODUCTION

28.1 DETAILS OF THE EAP

The details and expertise of the EAP are detailed in Sections 1.4 and 1.5 above as required.

28.2 DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

A description of the aspects of the activity covered by the EMPR below is included in Section 2 above.

29. DESCRIPTION OF IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

29.1 DETERMINATION OF CLOSURE OBJECTIVES

The vision and consequent objective and targets for rehabilitation, decommissioning and closure, aim to reflect the local environmental and socio-economic context of the project and to represent both the corporate requirements and the stakeholder expectations.

As no invasive prospecting activities will be undertaken on the project area, no environmental impacts which could result in any environmental risk, will exist. A risk assessment will be undertaken to serve as evidence that rehabilitation is not required on-site.

29.2 VOLUMES AND RATE OF WATER USE REQUIRED FOR THE OPERATION

Due to the non-invasive nature of the prospecting activities, no water use will be required.

29.3 HAS A WATER USE LICENCE BEEN APPLIED FOR?

Due to the non-invasive nature of the prospecting activities, no water will be required. As such, there is no requirement to apply for a Water Use License.

29.4 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

Table 23: Impacts to be mitigated.

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
• Desktop studies and acquisition of historical data • Data inventory and capturing • Data synthesis and database creation • Generation of geological models • Resource estimations • Scoping and/or (pre-)feasibility studies, if required	All phases	No direct physical disturbance	• Ensure non-invasive prospecting activities are consistent with occupational health and safety requirements • Prior to accessing any portion of land, the Applicant must enter into formal written agreements with the affected landowner. This formal agreement should additionally stipulate the landowner's special conditions which would form a legally binding agreement • All homestead gates must be closed immediately upon entry/exit • All vehicles using public roads must be in a roadworthy condition and their loads secured. Speed limits must be adhered to and all local, provincial and national regulations with regards to road safety and transport	Shall adhere to South African legislation pertaining to social issues, including the Constitution and NEMA principles as published in the Public Participation Guideline, 2010	Throughout prospecting

29.5 IMPACTS MANAGEMENT ACTIONS AND OUTCOMES

Table 24: Impact management actions and outcomes.

Activities	Potential impact	Mitigation type	Compliance with standards	Time period for implementation
• Desktop studies and acquisition of historical data • Data inventory and capturing • Data synthesis and database creation • Generation of geological models • Resource estimations • Scoping and/or (pre-)feasibility studies, if required	• Perceptions and expectations	• Ensure non-invasive prospecting activities are consistent with occupational health and safety requirements • Prior to accessing any portion of land, the Applicant must enter into formal written agreements with the affected landowner. This formal agreement should additionally stipulate the landowner's special conditions which would form a legally binding agreement • All homestead gates must be closed immediately upon entry/exit • All vehicles using public roads must be in a roadworthy condition and their loads secured. Speed limits must be adhered to and all local, provincial and national regulations with regards to road safety and transport	Shall adhere to South African legislation pertaining to social issues, including the Constitution and NEMA principles as published in the Public Participation Guideline, 2010	Throughout prospecting

30. FINANCIAL PROVISION

The requirement for final rehabilitation, decommissioning and closure stems primarily from the legislative requirements of the MPRDA and NEMA. On 20th of November 2015 the Minister promulgated the Financial Provisioning Regulations under the NEMA. The Regulations aim to regulate the determination of financial provision as contemplated in the NEMA for the costs associated with the undertaking of management, rehabilitation and remediation of environmental impacts from prospecting, prospecting, mining or production operations through the lifespan of such operations and latent or residual environmental impacts that may become known in the future. These regulations provide for, inter alia:

- Determination of financial provision: An Applicant or holder of a right or permit must determine and make financial provision to guarantee the availability of sufficient funds to undertake rehabilitation and remediation of the adverse environmental impacts of prospecting, prospecting, mining or production operations, as contemplated in the Act and to the satisfaction of the Minister responsible for mineral resources
- Scope of the financial provision: Rehabilitation and remediation; decommissioning and closure activities at the end of operations; and remediation and management of latent or residual impacts
- Regulation 6: Method for determining financial provision – An applicant must determine the financial provision through a detailed itemisation of all activities and costs, calculated based on the actual costs of implementation of the measures required for:
  - Annual rehabilitation – annual rehabilitation plan
  - Final rehabilitation, decommission and closure at end of life of operations – rehabilitation, decommissioning and closure plan
  - Remediation of latent defects
- Regulation 10: An applicant must-
  - ensure that a determination is made of the financial provision and the plans contemplated in regulation 6 are submitted as part of the information submitted for consideration by the Minister responsible for mineral resources of an application for environmental authorisation, the associated environmental management programme and the associated right or permit in terms of the Mineral and Petroleum Resources Development Act, 2002
  - Provide proof of payment or arrangements to provide the financial provision prior to commencing with any prospecting, prospecting, mining or production operations
- Regulation 11: Requires annual review, assessment and adjustment of the financial provision. The review of the adequacy of the financial provision including the proof of payment must be independently audited (annually) and included in the audit of the EMPR as required by the EIA Regulations.

Appendix 4 of the Financial Provisioning Regulations provides the minimum content of a Final Rehabilitation, Decommissioning and Closure Plan. The detailed amount that is required to both manage and rehabilitate the environment in respect of rehabilitation is reflected in the quantum of financial provision in Section 36 of this report. As the quantum indicates that an amount of R0.00 is required for Financial Provision, the DMRE can recommend an appropriate amount. Based on experience in similar projects, the minimum financial provision amount recommended by the DMRE for rehabilitation is R20 000.00.

31. DESCRIBE THE CLOSURE OBJECTIVES AND THE EXTENT TO WHICH THEY HAVE BEEN ALIGNED TO THE BASELINE ENVIRONMENT DESCRIBED UNDER THE REGULATION

As no invasive prospecting activities will be undertaken on the project area, no environmental impacts which could result in any environmental risk will exist. A risk assessment will be undertaken to serve as evidence that rehabilitation is not required on site.

32. CONFIRM SPECIFICALLY THAT THE ENVIRONMENTAL OBJECTIVES IN RELATION TO CLOSURE HAVE BEEN CONSULTED WITH LANDOWNER AND INTERESTED AND AFFECTED PARTIES

The Public Participation Process (PPP) is a requirement of several pieces of the South African legislation and aims to ensure that all relevant I&AP's are consulted, involved and their opinions taken into account. A record thereof will be included in the reports submitted to the Authorities. The process ensures that all stakeholders are provided this opportunity as part of a transparent process which allows for a robust and comprehensive environmental study. The PPP which forms part of this application needs to be managed sensitively and according to best practises in order to ensure and promote:

1. Compliance with national legislation
2. Establish and manage relationships with key stakeholder groups
3. Encourage involvement and participation in the environmental study and authorisation/ approval process.

As such, the purpose of the PPP and stakeholder engagement process is to:

1. Introduce the proposed project
2. Explain the environmental authorisations required
3. Explain the environmental studies already completed and yet to be undertaken (where applicable)

4. Determine and record issues, concerns, suggestions and objections to the project
5. Provide opportunity for input and gathering of local knowledge
6. Establish and formalise lines of communication between the I&AP's and the project team
7. Identify all significant issues for the project
8. Identify possible mitigation measures or environmental management plans to minimise and/or prevent negative environmental impacts and maximise and/or promote positive environmental impacts associated with the project.

Landowners and I&AP's have been consulted and provided an opportunity to comment on this Basic Assessment Report, EMPR including all decommissioning, closure and rehabilitation plans. As no invasive prospecting activities will be undertaken on the project area, no environmental impacts which could result in any environmental risk, will exist. A risk assessment will be undertaken to serve as evidence that rehabilitation is not required on site.

33. REHABILITATION PLAN

33.1 INTEGRATED REHABILITATION AND CLOSURE PLAN

The main aim in developing a rehabilitation plan is to mitigate the impacts caused by the prospecting activities and to restore land back to a satisfactory standard. As no invasive prospecting work shall be undertaken, a rehabilitation plan is not required. However, provision must be made to monitor any unforeseen impact that may arise as a result of the proposed prospecting activities and incorporated into post closure monitoring and management.

34. EXPLAIN WHY IT CAN BE CONFIRMED THAT THE REHABILITATION PLAN IS COMPATIBLE WITH THE CLOSURE OBJECTIVES

As no invasive prospecting activities will be undertaken on the project area, no environmental impacts which could result in any environmental risk will exist. No closure objectives and a rehabilitation plan are required.

35. CALCULATE AND STATE THE QUANTUM OF THE FINANCIAL PROVISION REQUIRED TO MANAGE AND REHABILITATE THE ENVIRONMENT IN ACCORDANCE WITH THE APPLICABLE GUIDELINE

Table 25 details the quantum for Financial Provision.

Table 25: Quantum for Financial Provision.

CALCULATION OF THE QUANTUM (2022 RATES)

PR Holder: Sunshine Mineral Reserves (Pty) Ltd
Evaluator: Imbokodo Services (Pty) Ltd

Reference: NW 13107 PR
Date: May-22

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)	m^3	0	15.42	1	1	0.00
2 (A)	Demolition of steel buildings and structures	m^2	0	212.89	1	1	0.00
2 (B)	Demolition of reinforced concrete buildings and structures	m^2	0	313.75	1	1	0.00
3	Rehabilitation of access roads	m^2	0	38.08	1	1	0.00
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	369.75	1	1	0.00
4 (B)	Demolition and rehabilitation of non-electrified railway lines	m	0	201.69	1	1	0.00
5	Demolition of housing and/or administration facilities	m^2	0	427.11	1	1	0.00
6	Opencast rehabilitation including final voids and ramps	ha	0	223,198.93	1	1	0.00
7	Sealing of shafts adits and inclines	m^3	0	114.29	1	1	0.00
8 (A)	Rehabilitation of overburden and spoils	ha	0	148,799.27	1	1	0.00
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	185,326.81	1	1	0.00
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	538,276.91	1	1	0.00
9	Rehabilitation of subsided areas	ha	0	124,596.98	1	1	0.00
10	General surface rehabilitation	ha	0	117,874.12	1	1	0.00
11	River diversions	ha	0	117,874.12	1	1	0.00
12	Fencing	m	0	134.45	1	1	0.00
13	Water management	ha	0	44,819.06	1	1	0.00
14	2 to 3 years of maintenance and aftercare	ha	0	15,686.67	1	1	0.00
15 (A)	Specialist study	Sum	0	0.00		1	0.00
15 (B)	Specialist study	Sum	0	0.00		1	0.00
					Sub Total 1		0.00
1	Preliminary and General (12%)		0.00		**Weighting Factor 2**		0.00
					1		
2	Contingencies (10%)				0.00		0.00
					Sub Total 2		0.00
					VAT (15%)		0.00
					Grand Total		**0.00**
3	**Minimum financial provision amount recommended by the DMRE**						20 000.00
					Total		**20 000.00**

36. CONFIRM THAT THE FINANCIAL PROVISION WILL BE PROVIDED AS DETERMINED

According to Regulation 8 pertaining to the financial provision for prospecting, exploration, mining or production operations (GN 1147), an applicant or holder of a right or permit must make financial provision by one or a combination of the following:

- Financial guarantee from a bank registered in terms of the Banks Act, 1990 (Act 94 of 1990) or from a financial institution registered by the Financial Services Board as an insurer or underwriter
- Deposit into an account administered by the Minister responsible for mineral resources or
- Contribution to a trust fund established in terms of applicable legislation.

The Directors of Sunshine have committed to finance the prospecting costs.

37. MECHANISMS FOR MONITORING COMPLIANCE

Table 26: Mechanisms for monitoring compliance.

Source Activity	Impacts Requiring Monitoring Programmes	Functional Requirements For Monitoring	Roles And Responsibilities	Monitoring And Reporting Frequency And Time Periods For Implementation
• Desktop studies and acquisition of historical data • Data inventory and capturing • Data synthesis and database creation • Generation of geological models • Resource estimations • Scoping and/or (pre-) feasibility studies, and updating thereof, if required	None	None	None	None

38. INDICATE THE FREQUENCY OF THE SUBMISSION OF THE PERFORMANCE ASSESSMENT/ ENVIRONMENTAL AUDIT REPORT

The result of environmental monitoring and compliance to the approved EMPR will be undertaken every second year and submitted to the DMRE in the form of an environmental performance assessment. Included in the report will be the following relevant information:

1. The period when the performance assessment was conducted
2. The scope of the assessment
3. The procedures used for conducting the assessment
4. Interpreted information gained from monitoring the EMPR
5. Evaluation criteria used during the assessment
6. Results of the assessment are to be discussed and mention must be made of any gaps in the EMPR and how it can be rectified
7. Yearly updated layout plans.

Any emergency or unforeseen impacts will be reported immediately to the DMRE and other relevant government departments.

39. ENVIRONMENTAL AWARENESS PLAN AND TRAINING

As no invasive prospecting work will be undertaken for the project, there is no requirement for environmental awareness and training.

39.1 MANNER IN WHICH RISKS WILL BE DEALT WITH TO AVOID POLLUTION OR DEGRADATION

As no invasive prospecting work will be undertaken for the project, there is no requirement for environmental awareness and training.

40. SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

No additional information was requested or is deemed necessary.

41. UNDERTAKING

The EAP herewith confirms:

(a) The correctness of the information provided in the reports

(b) The inclusion of comments and inputs from stakeholders and I&AP's

(c) The inclusion of inputs and recommendations from the specialist reports, where relevant

(d) That the information provided by the EAP to the I&AP's and any responses by the EAP to comments or inputs made by the I&AP's are correctly reflected herein.

Signature of the Environmental Assessment Practitioner

Imbokodo Services (Pty) Ltd

Name of company

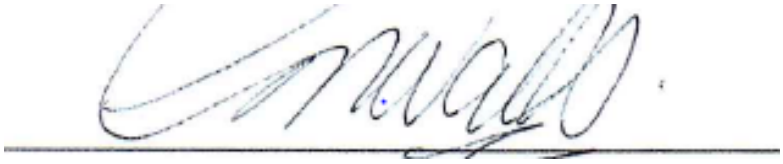
27 May 2022

Date

The Applicant herewith confirms:

(a) The person whose name is stated below is the person authorised to act as representative of the Applicant in terms of the resolution submitted with the application

(b) The applicant undertakes to execute the Environmental Management Programme as proposed

CM WATTS 

Name and Signature of the applicant / Name and Signature on behalf of the applicant

Sunshine Mineral Reserves (Pty) Ltd

Name of company

27 May 2022

Date

42. REFERENCES and BIBLIOGRAPHY

ADU (Animal Demography Unit) (2017). Virtual Museum. Available at http://vmus.adu.org.za/.

BirdLife (2017). Important Bird Areas Factsheet: Chelmsford Dam Nature Reserve. Available at http://www.birdlife.org.

Clark, J.D. (1982) The Cultures of the Middle Palaeolithic/Middle Stone Age. In: Oliver, R. (ed) The Cambridge History of Africa. Cambridge: Cambridge University Press.

Deacon, H. & Deacon, J. (1999) Human Beginnings in South Africa. Cape Town.

Department of Environmental Affairs (2009). Draft National Environmental Management: Biodiversity Act: National List of Threatened Ecosystems. Pretoria. 68pp.

Department of Environmental Affairs (1998) National Environmental Assessment Management Act (Act 107 of 1998). Pretoria. 96pp.

Department of Environmental Affairs (2014) Environmental Impact Assessment Regulations, Pretoria. 288pp.

Department of Environmental Affairs (2015) Financial Provisioning Regulations, Pretoria. 45pp.

Department of Mineral Resources (2002) Minerals and Petroleum Resources Development Act (Act 28 of 2002). Pretoria. 62pp.

Department of Water and Sanitation (1998) National Water Act (Act 36 of 1998). Pretoria.

Google Earth.

Driver, A., Nel, J.L., Snaddon, K., Murray, K., Roux, D.J., Hill, L., Swartz, E.R., Manuel, J., Funke, N. (2011) Implementation Manual for Freshwater Ecosystem Priority Areas. Report to the Water Research Commission, Pretoria.

Esterhuysen, A.B. and Behrens, J. and Harper, P. (1994) Leliehoek Shelter: a Holocene sequence from the eastern Orange Free State. The South African Archaeological Bulletin, Vol.49(160), p73-78.

Esterhuysen, A. & Smith, J. (2007) Stories in Stone. In: P. Delius, ed. Mpumalanga: History and Heritage: reclaiming the past, defining the future. Pietermatiztburg: University of KwaZulu-Natal Press, pp. 41-67

EWT. (2016) Mammal Red List (2016) www.ewt.org.za (Accessed: September 2021).

EWT (Endangered Wildlife Trust). (2017) Threatened Amphibian Programme. (2015). The Southern African Frog Atlas Project https://www.ewt.org.za/TAP/refrence.html (SAFAP, now FrogMAP). http://vmus.adu.org.za (Accessed: September 2021).

Huffman, T.N., van der Merwe, H.D. & Steel, R. (1994) Archaeological survey of the East and West Driefontein Mines. Archaeological Resources Management: unpublished report.

Imbokodo Services (2022) Background Information Document, Johannesburg, 9pp.

Imbokodo Services (2022) Environmental Authorisation Application, Johannesburg, 231pp.

Imbokodo Services (2022) Prospecting Work Programme, Johannesburg, 27pp.

IUCN (2017) International Union for Conservation of Nature and Natural Resources. Red list of threatened species. U. R. L. www.iucnredlist.org.

MammalMap (2017) http://mammalmap.adu.org.za/ (Accessed: 3 September 2021).

Makhura, T. (2007) Early inhabitants. In: P. Delius, ed. Mpumalanga: History and Heritage, Pietermaritzburg: University of KwaZulu-Natal Press, pp. 91-135.

JB Marks Local Municipality Draft Integrated Development Plan (2020-2021) Johannesburg, 319pp.

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

NBA (2011) Terrestrial Formal Protected Areas. Available at http://bgis.sanbi.org/.

Pretorius, D.A. (1964) The Goldfields of the Witwatersrand Basin. In Anhaeusser, C.R. and Maske, S. (Eds), Mineral Deposits of Southern Africa, Vol 1, Geological Society of South Africa, 1986, 489 – 494.

SAHRIS (2013) Fossil Heritage Layer Browser. [Online]. Available at: http://www.sahra.org.za/sahris/fossil-heritage-layer-browser [accessed 10 May 2022]

South African Bird Atlas Project (SABAP2) (2017) Available at http://vmus.adu.org.za/.

Statistics South Africa (2011) Statistics by Place. [Online] Available at: http://www.statssa.gov.za/?page_id=964 [Accessed 15 May 2022].

UNESCO (2018) World Heritage List: Fossil Hominid Sites of South Africa. [Online]. Available at: http://whc.unesco.org/en/list/915 [accessed 15 May 2022].