

PROPOSED PROSPECTING RIGHT - BASIC ASSESSMENT REPORT FOR DECISION- MAKING

Portion 5 of the Farm Ruighoek 169JP, North West

Prepared for: Pilanesberg Platinum Mines (Pty) Ltd



**Pilanesberg
Platinum
Mines**

A Sedibelo Platinum Mines Group Company

Authority References:

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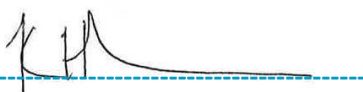
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Kate Hamilton
(Project Manager)



Ed Perry
(Reviewer)

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EXECUTIVE SUMMARY

PROJECT BACKGROUND

Pilanesberg Platinum Mines (Pty) Ltd (PPM), a subsidiary of Platinum Investor Consortium (Pty) Ltd, operates the Pilanesberg Platinum Mine; an open pit platinum and chrome mining and mineral processing operation located approximately 20 km north-west of the town of Saulspoort/Moruleng, in the Bojanala Platinum District Municipality (BPDM) and the Moses Kotane Local Municipality (MKLM), North West province.

PPM holds and operates in accordance with the authorisations outlined in Table 1.

Table 1: Authorisations held by PPM

Description	Applicable Legislation and Competent Authority	Reference Number and Date of Issue
Record of Decision (ROD) for the construction of a concentrator plant, roads, powerline, river diversion, sewage plant, abstraction of groundwater for bulk supply, pipelines, fuel and oil storage and handling on the farms Tuschenkomst 135JP, Witkleifontein 136JP, Rooderand 46JQ, Ruighoek 169JP, Groenfontein 138JP, Vogelstruisnek 173JP, Zandspruit 168JP and Wilgespruit 2JQ; portion 1 of the farm Rooderand 46JQ, portion 2 of Rooderand 46JQ and the remaining extent of farm Cyferkuil 1JQ	<ul style="list-style-type: none"> National Environmental Management Act, 107 of 1998 (NEMA) Department of Economic Development, Environment, Conservation and Tourism (DEDECT) (previously the Department of Agriculture, Conservation and Environment (DACE)) 	<ul style="list-style-type: none"> EIA410/2005NW 24/07/07
Approved Environmental Management Programme (EMPr) for the mining of platinum group metals (PGMs) and minerals associated with the farm Tuschenkomst 135 JP, portion 3 of the farm Rooderand 46JQ, portion 1 and remaining extent of portion 1 of the farm Witkleifontein 136JP and portions 2, 3, 4, 6, 9, 13 and 15 and the remaining extent of portion 1 of the farm Ruighoek 169JP	<ul style="list-style-type: none"> Mineral and Petroleum Resources Development Act, 28 of 2002 (MPRDA) Department of Mineral Resources and Energy (DMRE), previously the Department of Minerals and Energy (DME) 	<ul style="list-style-type: none"> NW30/5/1/2/3/2/1/320EM 14/02/08
Mining Right (MR) over portion 3 of the farm Rooderand 46JQ, various portions of the farm Ruighoek 169 JP, the farm Witkleifontein 136JP and the farm Tuschenkomst 135JP	<ul style="list-style-type: none"> MPRDA DMRE, previously the DME 	<ul style="list-style-type: none"> N30/5/1/2/2/ 320MR 14/02/08
Addendum to the approved EMPr for the farm Tuschenkomst 135JP, portion 3 of the farm Witkleifontein and portions 2, 3, 4, 6,9, 10, 11,12, 13, 15 and the remaining extent of Portion 1 of the farm Ruighoek 169JP for the closure of provincial Z536 road and changes to surface infrastructure	<ul style="list-style-type: none"> MPRDA DMRE, previously the Department of Mineral Resources (DMR) 	<ul style="list-style-type: none"> NW30/5/1/2/3/2/1/320EM 08/11/11

The afore-mentioned existing authorisations are provided in Appendix A.

PPM Ltd now proposes to secure a Prospecting Right (PR) for portion 5 of the farm Ruighoek 169JP. The area under consideration is located adjacent to an area where MRs (320/2002, 228/2002, 321/2002 and 67/2002) have been granted to PPM by the DMRE. The proposed prospecting activities are located within the MKLM, the BPDM and the Mankwe Magisterial District, in the North West province. The PR area is located approximately 60 km and 28 km north-west of Rustenburg and Sun City, respectively. Various smaller towns and villages are in close proximity to the prospecting area, namely Mabeleleng (\pm 2.5 km south); Tlathlaganyane (\pm 4 km south-east); Makgope (\pm 8 km north-west); and Mkoshong (\pm 9.5 km south-west). An important area of interest, the Pilanesberg National Park, is located approximately 4 km to the east.

SUMMARY OF AUTHORISATION REQUIREMENTS

Prior to the commencement of the proposed project, an Environmental Authorisation (EA) in terms of the Environmental Impact Assessment (EIA) Regulations, 2014 (as amended) promulgated under NEMA is required, from the DMRE.

SLR Consulting (South Africa) (Pty) Ltd (SLR), an independent firm of Environmental Assessment Practitioners (EAPs), has been appointed by PPM to manage the Basic Assessment (BA) process.

OPPORTUNITY FOR COMMENT

This Basic Assessment Report (BAR) was distributed for a 30-day comment period from 4 May – 2 June 2022 in order to provide Interested and Affected Parties (I&APs) with an opportunity to comment on any aspect of the BA process and the proposed project. Copies of the full report were made available on the Managing Transformation Solutions (Pty) Ltd (MTS) website: mts-engage.co.za/ruighoek.

MTS was appointed to manage the public participation process (PPP). All comments received during the comment period have been included in this BAR for submission to the DMRE for consideration and decision-making.

SUMMARY OF IDENTIFIED IMPACTS AND SIGNIFICANCE

The potential impacts associated with the proposed project can be categorised into those that have insignificant, very low, low or medium or significance in the unmitigated scenario. With the implementation of mitigation measures, the impact significance can be reduced. A summary of the impacts identified during prospecting are provided in Table 2.

Table 2: Impacts Identified for the Prospecting (Operations) Phase

Aspect	Potential Impact	Cumulative impact significance of the impact	
		Unmitigated	Mitigated
Soil and land capability	Impact on soils due to soil erosion	Very Low	VERY LOW
	Disturbance of original soil profiles	Low	VERY LOW
	Impact on soils due to chemical pollution	Medium	VERY LOW
Biodiversity	Loss of floral habitat and diversity	Medium	LOW
	Loss of floral Species of Conservation Concern (SCC)	Medium	LOW
	Loss of faunal habitat and diversity	Medium	LOW

Aspect	Potential Impact	Cumulative impact significance of the impact	
		Unmitigated	Mitigated
	Loss of faunal SCC	Medium	LOW
Surface water resources	Sedimentation of surface water resources	Very Low	INSIGNIFICANT
	Contamination of surface water resources	Very Low	INSIGNIFICANT
Groundwater	Contamination of groundwater resources	INSIGNIFICANT	
Air quality	Reduces air quality	Very Low	INSIGNIFICANT
Noise	Increase in disturbing noise levels	Very Low	INSIGNIFICANT
Visual	Negative visual impacts	INSIGNIFICANT	
Traffic	Road disturbance and traffic safety	INSIGNIFICANT	
Cultural/heritage and palaeontological resources	Loss of cultural/heritage resources	INSIGNIFICANT	
	Loss of palaeontological resources	INSIGNIFICANT	

ENVIRONMENTAL STATEMENT

The assessment of the proposed project presents the potential for negative impacts to occur (in the unmitigated scenario in particular) on the biophysical, cultural/heritage and socio-economic environments, both within the direct project footprint and in the surrounding area. With the implementation of management actions, these potential impacts can be prevented or reduced to acceptable levels. It follows that provided the EMP is effectively implemented, there is no reason from a biophysical, cultural/heritage or socio-economic standpoint why the proposed project should not proceed.

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AEL	Atmospheric Emissions Licence
APM	Archaeology, Palaeontology and Meteorites
AQMP	Air Quality Management Plan
AQSR	Air Quality Sensitive Receptor
BA	Basic Assessment
BAR	Basic Assessment Report
BGG	Burial Grounds and Graves
BIC	Bushveld Igneous Complex
BID	Background Information Document
BoQ	Bill of Quantities
BPDM	Bojanala Platinum District Municipality
CBA	Critical Biodiversity Area
DEA	Department of Environmental Affairs
DACE	Department of Agriculture, Conservation and Environment
DALRRD	Department of Agriculture, Land Reform and Rural Development
DEDECT	North West Department of Economic Development, Environment and Nature Conservation
DFFE	Department of Forestry, Fisheries and Environment
DME	Department of Minerals and Energy
DMRE	Department of Mineral Resources and Energy
DMS	Dense Medium Separation
DRDLR	Department of Rural Development and Land Reform
DWS	Department of Water and Sanitation
E-Tek	E-Tek Consulting (Pty) Ltd
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EAPASA	Environmental Assessment Practitioners Association of South Africa
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMPr	Environmental Management Programme
ESA	Ecological Support Area
ESIA	Environmental and Social Impact Assessment
GN	Government Notice
GNR	Government Notice Regulation
GPS	Global Positioning System
H&S	Health and Safety

Acronym/Abbreviation	Definition
ha	Hectares
HIA	Heritage Impact Assessment
HPC	Heritage Park Corridor
I&APs	Interested and Affected Parties
IAIAsa	International Association for Impact Assessment South Africa
IBA	Important Bird Area
IBMR	Itereleng Bakgatla Mineral Resources (Pty) Ltd
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
m	Meter
mamsl	Metres Above Mean Sea Level
MAP	Mean Annual Precipitation
MAR	Mean Annual Run-Off
Metago	Metago Environmental Engineers (Pty) Ltd
MKLM	Moses Kotane Local Municipality
MPRDA	Mineral and Petroleum Resources Development Act, 28 of 2002
MR	Mining Right
MTS	Managing Transformation Solutions (Pty) Ltd
NAAQS	National Ambient Air Quality Standards
NBA	National Biodiversity Assessment
NDCR	National Dust Control Regulations
NDP	National Development Plan
NEM: AQA	National Environmental Management: Air Quality Act, 39 of 2004
NEM: BA	National Environmental Management: Biodiversity Act, 10 of 2004
NEMA	National Environmental Management Act, 107 of 1998
NFA	National Forests Act, 84 of 1998
NFEPA	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resources Act, 25 of 1999
NPAES	National Protected Areas Expansion Strategy
NSR	Noise Sensitive Receptor
NTS	Non-Technical Summary
NWA	National Water Act, 36 of 1998
NWPTB	North West Parks and Tourism Board
P&G's	Preliminary and Generals
PGM	Platinum Group Metals
POI	Points of Interest
PPM	Pilanesberg Platinum Mines (Pty) Ltd
PPP	Public Participation Process

Acronym/Abbreviation	Definition
PR	Prospecting Right
PSDF	Provincial Spatial Development Framework
RDL	Red-Data List
RLS	Rustenburg Layered Suite
ROD	Record of Decision
ROM	Run of Mine
RQIS	Research Quality Information Services
SACAD	South African Conservation Areas Database
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SANBI	South African National Biodiversity Institute
SANS	South African National Standards
SAPS	South African Police Service
SAPAD	South African Protected Area Database
SAS	Scientific Aquatic Services CC
SAWS	South African Weather Services
SCC	Species of Conservation Concern
SLR	SLR Consulting (South Africa) (Pty) Ltd
StatsSA	Statistics South Africa
STS	Scientific Terrestrial Services CC
TDS	Total Dissolved Solids
TerraAfrica	TerraAfrica Consult cc
TNCO	Transvaal Nature Conservation Ordinance, 12 of 1983
TOPS	Threatened or Protected Species
TSF	Tailings Storage Facility
TWQR	Target Water Quality Range
VAT	Value Added Tax
WMA	Water Management Area
WUL	Water Use Licence
WRD	Waste Rock Dump

Proposed Prospecting Right - Basic Assessment Report for Decision-Making

INTRODUCTION

This chapter provides a brief description of the proposed project background, describes the purpose of the report, summarises the legislative authorisation requirements and outlines the opportunity for stakeholders to comment.

PROJECT BACKGROUND

Pilanesberg Platinum Mines (Pty) Ltd (PPM), a subsidiary of Platinum Investor Consortium (Pty) Ltd, operates the Pilanesberg Platinum Mine; an open pit platinum and chrome mining and mineral processing operation located approximately 60 km and 28 km north-west of Rustenburg and Sun City, respectively, in the Bojanala Platinum District Municipality (BPDM) and the Moses Kotane Local Municipality (MKLM), North West province. Regional and local setting maps are provided in Figure 0-1 and Figure 0-2, respectively. PPM holds and operates in accordance with the authorisations listed in Table A.

Table A: Authorisations held by PPM

Description	Applicable Legislation and Competent Authority	Reference Number and Date of Issue
Record of Decision (ROD) for the construction of a concentrator plant, roads, powerline, river diversion, sewage plant, abstraction of groundwater for bulk supply, pipelines, fuel and oil storage and handling on the farms Tuschenkomst 135JP, Witkleifontein 136JP, Rooderand 46JQ, Ruighoek 169JP, Groenfontein 138JP, Vogelstruisnek 173JP, Zandspruit 168JP and Wilgespruit 2JQ; portion 1 of the farm Rooderand 46JQ, portion 2 of Rooderand 46JQ and the remaining extent of farm Cyferkuil 1JQ	<ul style="list-style-type: none"> National Environmental Management Act, 107 of 1998 (NEMA) Department of Economic Development, Environment, Conservation and Tourism (DEDECT) (previously the Department of Agriculture, Conservation and Environment (DACE)) 	<ul style="list-style-type: none"> EIA410/2005NW 24/07/07
Approved Environmental Management Programme (EMPr) for the mining of platinum group metals (PGMs) and minerals associated with the farm Tuschenkomst 135 JP, portion 3 of the farm Rooderand 46JQ, portion 1 and remaining extent of portion 1 of the farm Witkleifontein 136JP and portions 2, 3, 4, 6, 9, 13 and 15 and the remaining extent of portion 1 of the farm Ruighoek 169JP	<ul style="list-style-type: none"> Mineral and Petroleum Resources Development Act, 28 of 2002 (MPRDA) Department of Mineral Resources and Energy (DMRE), previously the Department of Minerals and Energy (DME) 	<ul style="list-style-type: none"> NW30/5/1/2/3/2/1/320EM 14/02/08
Mining Right (MR) over portion 3 of the farm Rooderand 46JQ, various portions of the farm Ruighoek 169 JP, the farm Witkleifontein 136JP and the farm Tuschenkomst 135JP	<ul style="list-style-type: none"> MPRDA DMRE, previously the DME 	<ul style="list-style-type: none"> N30/5/1/2/2/ 320MR 14/02/08
Addendum to the approved EMPr for the farm Tuschenkomst 135JP, portion 3 of the farm Witkleifontein and portions 2, 3, 4, 6,9, 10, 11,12,	<ul style="list-style-type: none"> MPRDA 	<ul style="list-style-type: none"> NW30/5/1/2/3/2/1/320EM 08/11/11

Description	Applicable Legislation and Competent Authority	Reference Number and Date of Issue
13, 15 and the remaining extent of Portion 1 of the farm Ruighoek 169JP for the closure of provincial Z536 road and changes to surface infrastructure	<ul style="list-style-type: none"> DMRE, previously the Department of Mineral Resources (DMR) 	

Copies of the existing authorisations are provided in Appendix A.

PPM now proposes to secure a Prospecting Right (PR) for portion 5 of the farm Ruighoek 169JP. The area under consideration is located adjacent to an area where MRs (320/2002, 228/2002, 321/2002 and 67/2002) have been granted to PPM by the DMRE. The proposed prospecting activities are located within the MKLM, the BPDM and the Mankwe Magisterial District, in the North West province. The PR area is located approximately 60 km and 28 km north-west of Rustenburg and Sun City, respectively. Various smaller towns and villages are in close proximity to the prospecting area, namely Mabeleleng (± 2.5 km south); Tlhatlhaganyane (± 4 km south-east); Makgope (± 8 km north-west); and Mkoshong (± 9.5 km south-west). An important area of interest, the Pilanesberg National Park, is located approximately 4 km to the east.

SUMMARY OF AUTHORISATION REQUIREMENTS

Prior to the commencement of the proposed project, an Environmental Authorisation (EA) in terms of the Environmental Impact Assessment (EIA) Regulations, 2014 (as amended) promulgated under NEMA is required, from the DMRE.

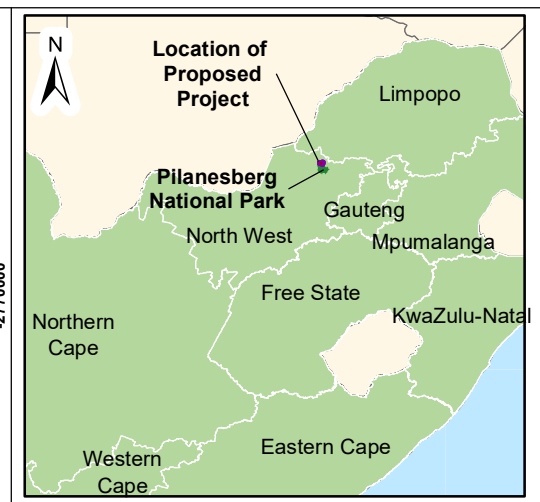
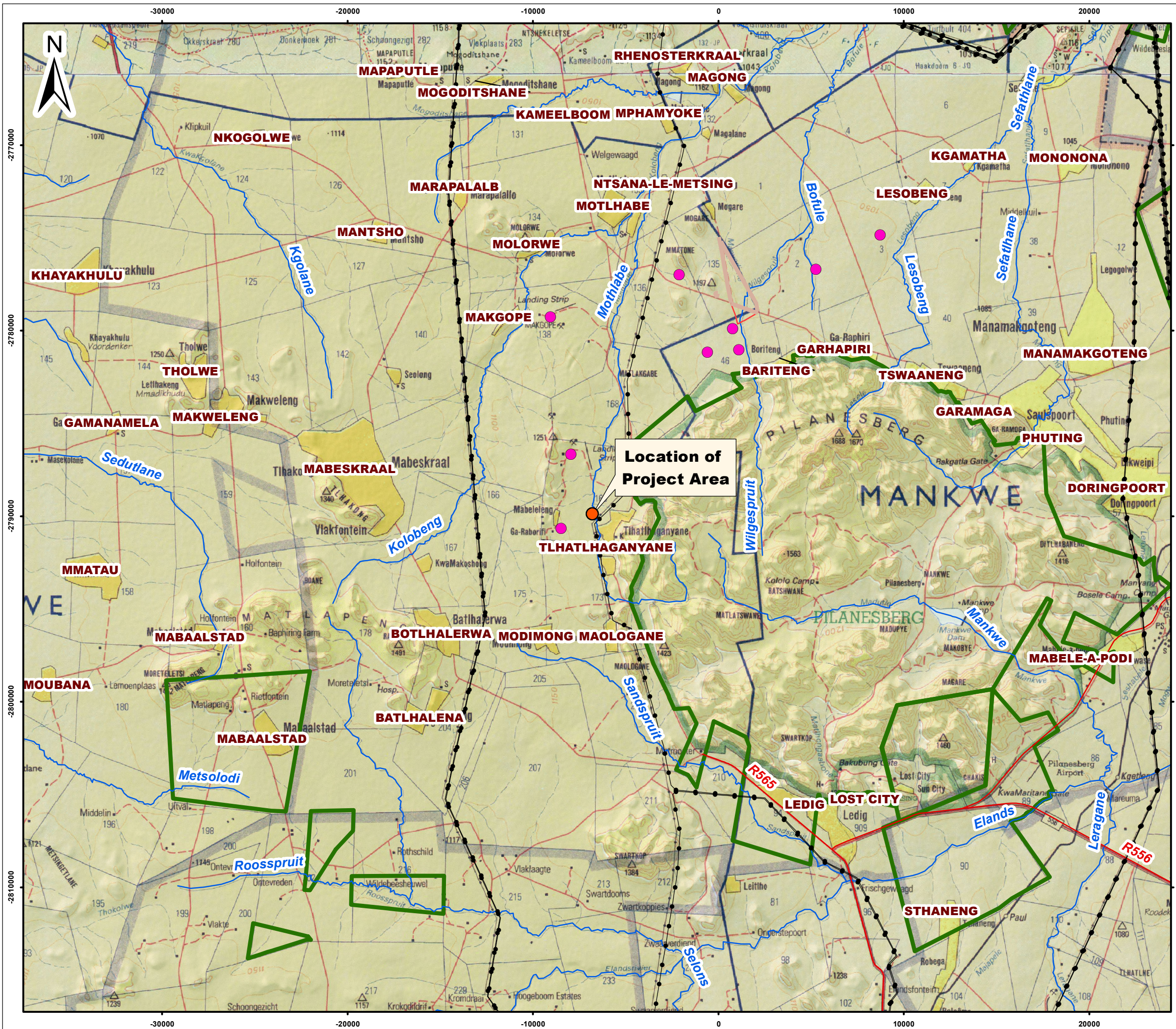
SLR Consulting (South Africa) (Pty) Ltd (SLR), an independent firm of Environmental Assessment Practitioners (EAPs), has been appointed by PPM to manage the Basic Assessment (BA) process.

PURPOSE OF THIS REPORT

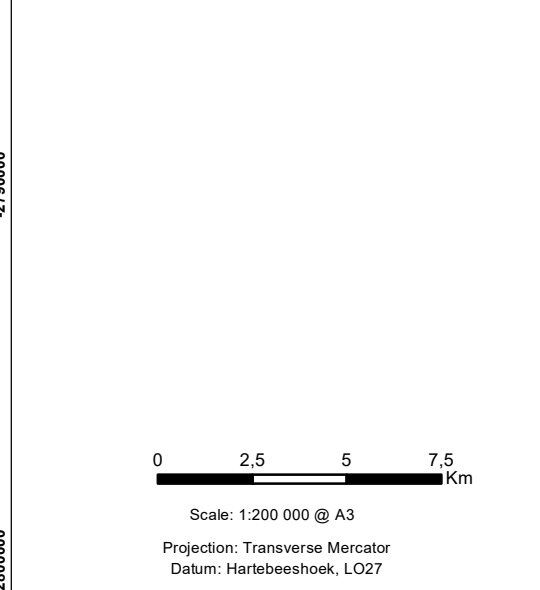
This Basic Assessment Report (BAR) is compiled in accordance with Appendix 1 of the EIA Regulations, 2014 (as amended) and was distributed for review and comment as part of a BA process undertaken for the proposed project.

This BAR provides a description of the proposed project and the affected environment, summarises the BA process undertaken to date, identifies and assesses the key impacts resulting from the proposed project and presents management and mitigation measures that are recommended to enhance benefits and limit negative impacts. The specialist findings and other relevant information are integrated into this BAR, which includes an EMPr.

The purpose of the report is to present the required information in a clear and understandable format suitable for easy interpretation by Interested and Affected Parties (I&APs) and provided an opportunity for I&APs to comment on all aspects of the proposed project, as well as findings of the impact assessment. All comments received during the comment period have been included in this BAR for submission to the DMRE for consideration and decision-making.



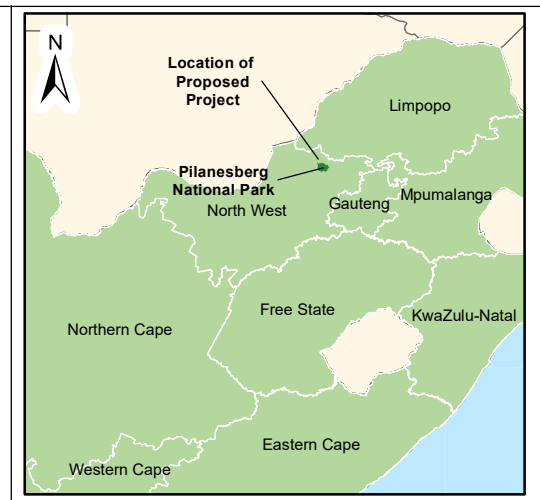
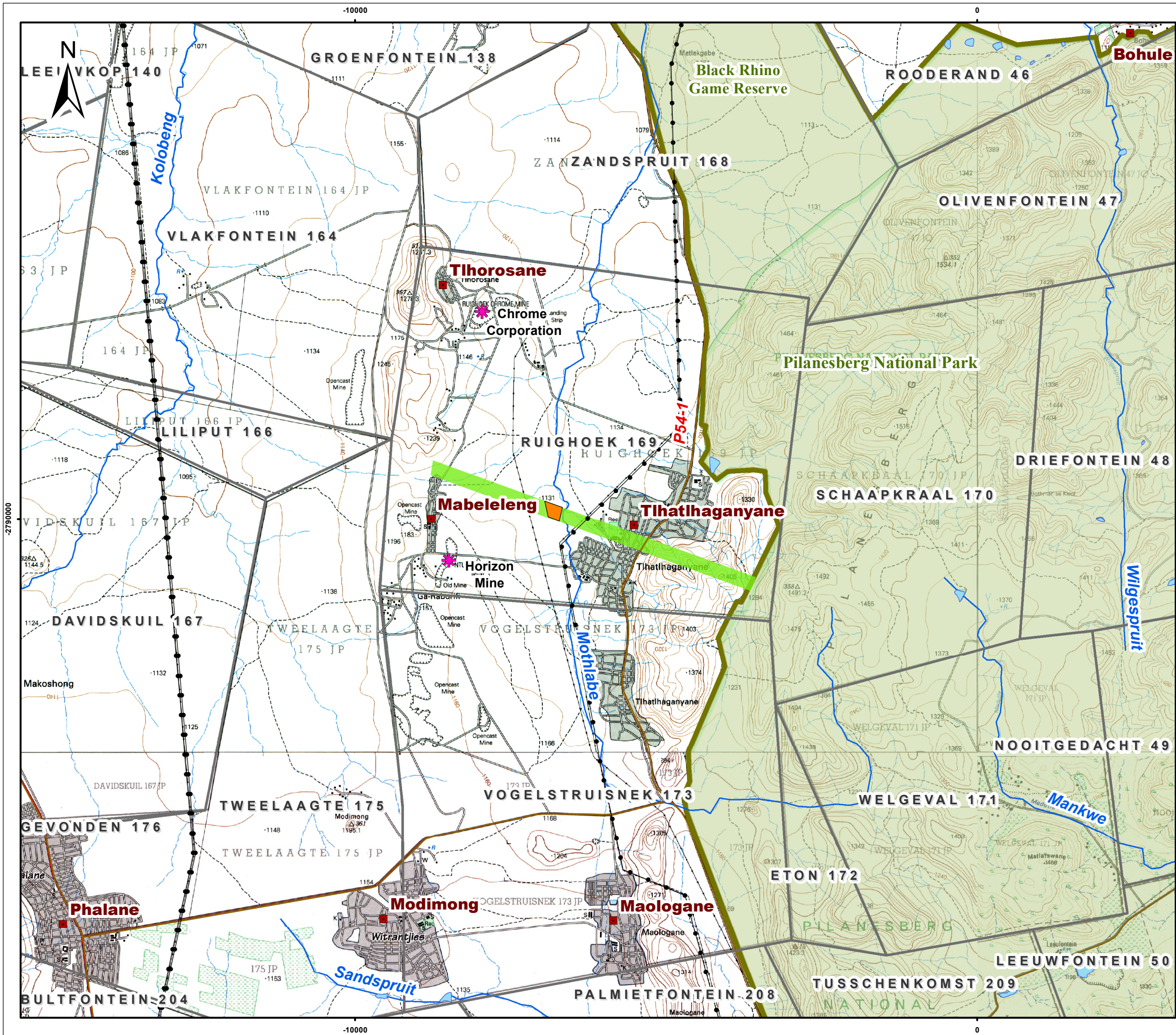
- Legend**
- Towns / Villages
 - Mining and Related Interests and Operations
 - Main Roads
 - Power Line
 - Rivers
 - South African Protected Areas



Proposed Prospecting Right on
Portion 5 of the Farm Ruighoek 169JP

Figure 0-1
Regional Setting

SLR
SLR Consulting (South Africa) (Pty) Ltd
P O Box 1596, Cramerview, 2060, South Africa
Tel: +27 (11) 467-0945 Fax: +27 (11) 467-0978



Legend

- Villages
- ✳ Mining Related Interests or Operations
- Secondary Roads
- Powerlines
- Rivers
- Dams
- Farm Boundaries
- Pilanesberg National Park (including Black Rhino Game Reserve)
- Portion RE/5/169
- Prospecting Area

0 0,7 1,4 Kilometers

Scale: 1:60 000 @ A3
 Projection: Transverse Mercator
 Datum: Hartbeeshoek, Lo27

Proposed Prospecting Right on Portion 5 of the Farm Ruighoek 169JP

Figure 0-2
Local Setting



SLR Consulting (South Africa) (Pty) Ltd
 P O Box 1596, Cramerview, 2060, South Africa
 Tel: +27 (11) 467-0945 Fax: +27 (11) 467-0978

TERMS OF REFERENCE

The terms of reference for the EA process are to:

- Apply for an EA for the Listed Activities triggered by the proposed project in terms of the EIA Regulations, 2014 (as amended) promulgated under NEMA.
- Ensure that a BA process for the proposed project is undertaken in an open, participatory manner that ensures all potential issues of concern and their associated impacts are identified.
- Undertake a formal public participation process (PPP), which includes the distribution of information to I&APs and provides an opportunity for I&APs to raise any issues/concerns arising from the proposed project, as well as an opportunity to comment on all documentation arising from the BA process.
- Integrate all information into a BAR to allow for an informed decision to be taken on the proposed project by the relevant authorities.

OBJECTIVES OF THE BASIC ASSESSMENT PROCESS

In accordance with Appendix 1 of the EIA Regulations, 2014 (as amended), the objectives of the BA process are to:

- Identify the policies and legislation relevant to the activity and determine how the activity complies and responds within the policy and legislative context.
- Present the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location.
- Identify and confirm the preferred activity, technology and sites related to the proposed project.
- Undertake an impact assessment, inclusive of cumulative impacts, to determine the biophysical, cultural/heritage and socio-economic sensitivity of the project sites and assess the nature, significance, consequence, extent, duration and probability of the impacts occurring.
- Assess the degree to which impacts can be reversed, may cause irreplaceable loss of resources and can be avoided, managed or mitigated.
- Identify suitable measures to avoid, manage or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

OPPORTUNITY FOR COMMENT

This Basic Assessment Report (BAR) was distributed for a 30-day comment period from 4 May – 2 June 2022 in order to provide I&APs with an opportunity to comment on any aspect of the BA process and the proposed project. Copies of the full report were made available on the Managing Transformation Solutions (Pty) Ltd (MTS) website: mts-engage.co.za/ruighoek.

MTS was appointed to manage the public participation process (PPP). As mentioned previously, all comments received during the comment period have been included in this BAR for submission to the DMRE for consideration and decision-making.

PART A – SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1. DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

This chapter provides the details, qualifications and experience of the EAPs undertaking the BA process for the proposed project.

1.1 DETAILS OF THE PROJECT TEAM

SLR, an independent firm of EAPs, has been appointed by PPM to manage the EA process. The details of the project team that were involved in the preparation of this BAR are provided in Table 1-1.

SLR has no vested interest in the proposed project other than fair payment for consulting services rendered as part of the EA process and has declared its independence, as required by the EIA Regulations, 2014 (as amended) in chapter 17.

Table 1-1: Details of the EAP

General		
Organisation	SLR Consulting (South Africa) (Pty) Ltd	
Postal Address	PO Box 1596, Cramerview, 2060	
Tel	011 467 0945	
Fax	011 467 0978	
Name	Task and role	Email
Ed Perry	Project Reviewer - Document and process review, quality control	eperry@slrconsulting.com
Kate Hamilton	Project Director, Project Manager and EAP - Management of BA process, assessment of impacts	khamilton@slrconsulting.com
Rizqah Baker	Assistant Project Manager – Report compilation, assistance with the management of the BA process	rbaker@slrconsulting.com

1.2 EXPERTISE OF THE EAP

Ed Perry has worked in environmental consultancy for over twenty years for a wide range of public and private sector clients. Ed is a registered Environmental Auditor with the Institute for Environmental Management and Assessment and a Lead Auditor with the International Cyanide Management Institute. Prior to moving to South Africa in 2011 Ed worked in the UK on a wide range of projects including EIAs and Integrated Pollution and Prevention Permits. This included permitting the first hazardous waste landfill in the UK under the new integrated permitting mechanism and undertaking a study for the European Commission on the implementation of the Landfill Directive in 15 European countries. Ed is a member of the International Association for Impact Assessment South Africa (IAIASa) and a Registered EAP with the Environmental Assessment Practitioners Association of South Africa (EAPASA).

Kate Hamilton has over 14 years of experience as a project manager. She has worked on projects throughout the project lifecycle, from exploration/site identification through pre-feasibility and feasibility, to operation and closure in a range of sectors such as mining, power, infrastructure and oil & gas. Kate has worked extensively in the South African Development Community (SADC) region, as well as in West Africa,

and has experience managing large integrated teams in challenging locations across the African continent. Kate is a member of IAIAA and her EAP registration with EAPASA is in progress.

Rizqah Baker is a consultant with five years' experience working in the environmental field and has worked both in the public and private sectors. She worked for the City of Cape Town; her roles included environmental auditing and providing comment on various BARs, Method Statements, EMPs and development proposals. In the private sector she worked for an environmental rehabilitation firm, with a main role being report compilation and writing and has spent considerable time in the field, having undertaken alien vegetation control and search and rescue operations. As a consultant, she has worked in the various fields including infrastructure, oil & gas, mining, and the built environment. She's also worked as an Environmental Control Officer (ECO) in various fields and thus brings with her a strong understanding of, and implementation of EMPs. Rizqah is a member of IAIAA and her EAP registration with EAPASA is in progress.

Curricula vitae and professional registrations of the project team are provided in Appendix B.

2. LOCATION OF ACTIVITY

This chapter provides details of the location of the proposed project.

2.1 LOCATION OF OVERALL ACTIVITY

Details of the properties on which the proposed project is located are provided in Table 2-1.

Table 2-1: Property Description

Description	Detail
Farm name and portion	Portion 5 of the farm Ruighoek 169JP
Application area (hectares (ha))	Portion 5 of the farm Ruighoek 169JP measures approximately 130 ha in extent, while the proposed PR area measures approximately 5 ha in extent.
Magisterial District	Mankwe Magisterial District
Distance and direction from nearest town	Approximately 60 km and 28 km north-west of Rustenburg and Sun City, respectively.
21-digit surveyor general code	T0JP0000000016900005

2.2 LOCALITY MAP

Regional and local setting maps are provided in Figure 0-1 and Figure 0-2, respectively.

3. DESCRIPTION OF THE SCOPE OF THE ACTIVITY

This chapter provides an overview of the existing operations, identifies the Listed Activities triggered by the proposed project and provides a description of the proposed project activities.

3.1 OVERVIEW OF EXISTING OPERATIONS

PPM proposes to secure a PR for portion 5 of the farm Ruighoek 169JP. The area under consideration is located adjacent to an area where MR (320/2002, 228/2002, 321/2002 and 67/2002) have been granted to PPM by the DMRE. The existing Pilanesberg Platinum Mine is an open pit platinum and chrome mining and mineral processing operation and comprises various onsite infrastructure such as an open pit mine (West Pit), temporary and permanent waste rock dumps (WRDs), a processing plant complex, a tailings scavenger plant, a chrome recovery plant, a tailings storage facility (TSF) and support infrastructure. The current mining operation involves accessing the two commonly exploited 'PGM-bearing' reef horizons, the Merensky (silicate) and UG2, in a single open-cast mining operation.

The mineral processing operations at the Pilanesberg Platinum Mine comprises a silicate (Merensky-Pseudo reef) section and a UG2 section to cater for the different reefs being mined. The mineral processing operations incorporate the following main components:

- Run of Mine (ROM) crushing and screening.
- Dense Medium Separation (DMS) for a proportion of the silicate ores.
- DMS waste storage.
- Milling and flotation circuits (one UG2 ore circuit and one Merensky ore circuit).
- Merensky (silicate) concentrator plant.
- UG2 concentrator plant.
- TSF.
- Chemical storage, mixing and dosing systems.
- Final concentrate storage and loading facilities.

3.2 PROPOSED LISTED AND SPECIFIED ACTIVITIES

The EIA Regulations, 2014 (as amended) promulgated under NEMA and published in Government Notice (GN) No. R982 controls certain Listed Activities. These activities are listed in GN No. R983 (Listing Notice 1), GN No. R984 (Listing Notice 2) and GN No. R985 (Listing Notice 3) and are prohibited until an EA has been obtained from the competent authority. Such EA, which may be granted subject to conditions, will only be considered once there has been compliance with GN No. R982.

GN No. R 982 sets out the procedures and documentation that need to be complied with when applying for an EA. A BA process must be applied to an application if the authorisation applied for is in respect of an activity or activities listed in Listing Notices 1 and/or 3 and an EIA process must be applied to an application if the authorisation applied for is in respect of an activity or activities listed in Listing Notice 2.

The proposed project triggers Listing Activities 20 and 27 contained in Listing Notice 1 and Listing Activity 12 contained in Listing Notice 3 (see Table 3-1), thus a BA process must be undertaken in order for the DMRE to consider the application in terms of NEMA and make a decision as to whether to grant EA or not.

Table 3-1: Listing Activities Applicable to the Proposed Project

Description of the proposed project	Extent of the activity	Listed Notice, Listing Activity and Relevance
Prospecting activities	Approximately 5 ha	<p>GNR 983 of 2014: Listing Notice 1, Activity 20: <i>Any activity including the operation of that activity which requires a PR in terms of section 16 of the MPRDA, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required to exercise a PR.</i></p> <p>Relevance: The proposed project entails the application for a PR on an area measuring approximately 5 ha in extent.</p>
		<p>GNR 983 of 2014: Listing Notice 1, activity 27: <i>The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for -</i></p> <ul style="list-style-type: none"> <i>(i) the undertaking of a linear activity; or</i> <i>(ii) maintenance purposes undertaken in accordance with a maintenance management plan.</i> <p>Relevance: The proposed project entails the clearance of approximately 1 ha of indigenous vegetation.</p>
		<p>GNR 985 of 2014: Listing Notice 3: Activity 12: <i>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</i></p> <ul style="list-style-type: none"> <i>h. North West:</i> <ul style="list-style-type: none"> <i>v. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; or</i> <i>vi. Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland.</i> <p>Relevance: The proposed project entails the application for a PR in an area measuring approximately 5 ha in extent. The proposed PR area is located within terrestrial and aquatic CBA 2 and in an aquatic Ecological Support Area (ESA) 1 as delineated in the North West Biodiversity Sector Plan, 2015.</p>

3.3 DESCRIPTION OF THE PROPOSED PROJECT

3.3.1 Details of the Prospecting Right Area

PPM proposes to secure a PR for portion 5 of the farm Ruighoek 169JP. The area under consideration is located adjacent to an area where MRs have been granted. Therefore, the procurement of a PR is to ensure a development pipeline of the existing operations in the area.

The PR area is located approximately 60 km and 28 km north-west of Rustenburg and Sun City, respectively. Various smaller towns and villages are in close proximity to the prospecting area, namely Mabeleleng

(± 4 km south); Tlathaganyane (± 7 km east); Makgope (± 8 km north-west); and Mkoshong (± 4.5 km south-west). An important area of interest, the Pilanesberg National Park, is located approximately 4 km to the east (refer to Figure 0-2).

Portion 5 of the farm Ruighoek 169JP measures approximately 130 ha in extent. The PR area, located on Portion 5 of the Ruighoek 169JP, is approximately 5 ha in extent. The co-ordinates of the boundary points of the area are provided in Table 3-2. A site layout is provided in Figure 3-1. It is important to note that the proposed boreholes and trenches are not located within 100 m of any watercourse (see Figure 3-2).

Table 3-2: Co-ordinates of the PR Area

Point	Latitude	Longitude
A	25° 12' 48,812" S	26° 55' 51,684" E
B	25° 12' 52,092" S	26° 56' 1,855" E
C	25° 12' 59,266" S	26° 56' 0,194" E
D	25° 12' 57,183" S	26° 55' 53,68" E

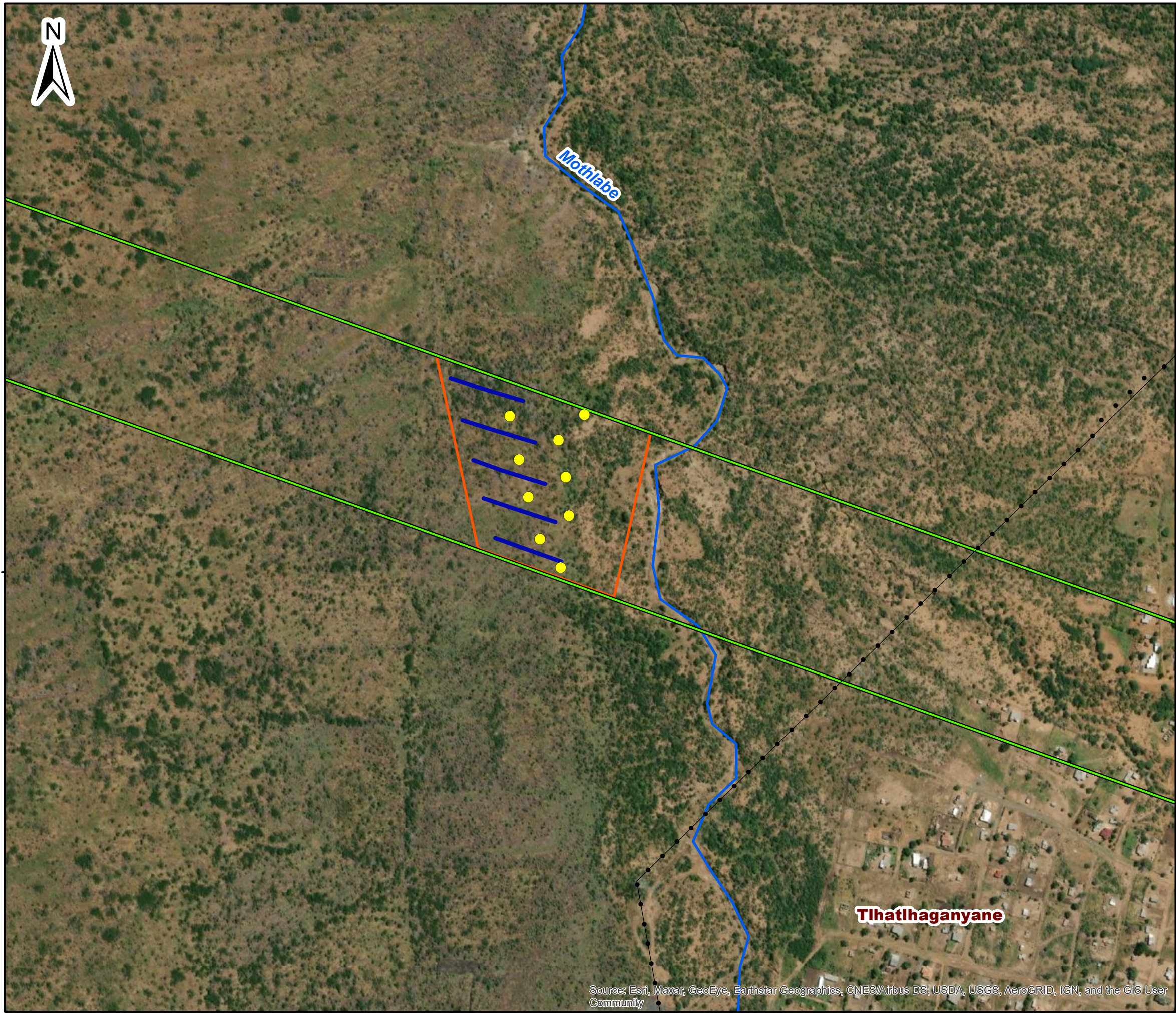
3.3.2 Details of Prospecting Activities

The target minerals for the project are PGMs including gold, nickel, copper, cobalt and other metals and minerals associated therewith (excluding chrome). The planned timeframe to complete the proposed prospecting work is provided in Table 3-3.

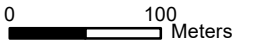
Table 3-3: Proposed Work Programme

Activity	Timeframe
Phase I – Trenching and Analysis; and Initial Diamond Drilling, Logging and Reef Sample Analysis	12 months (year 1)
Phase II – Environmental Study of Prospecting Right Area; 3D Modelling; and Metallurgical Test Work and Geotechnical Investigation	24 months (year 2 – 3)

The prospecting activities would be conducted in a phased approach (refer to Table 3-3), with each phase dependent on results of the preceding phase. The two phases are explained in the following sections.



- Legend**
- Powerlines
 - Rivers
 - Portion RE/5/169
 - Prospecting Area
 - Proposed Boreholes
 - Proposed Trenches



Scale: 1:5 000 @ A3
 Projection: Transverse Mercator
 Datum: Hartebeeshoek, Lo27

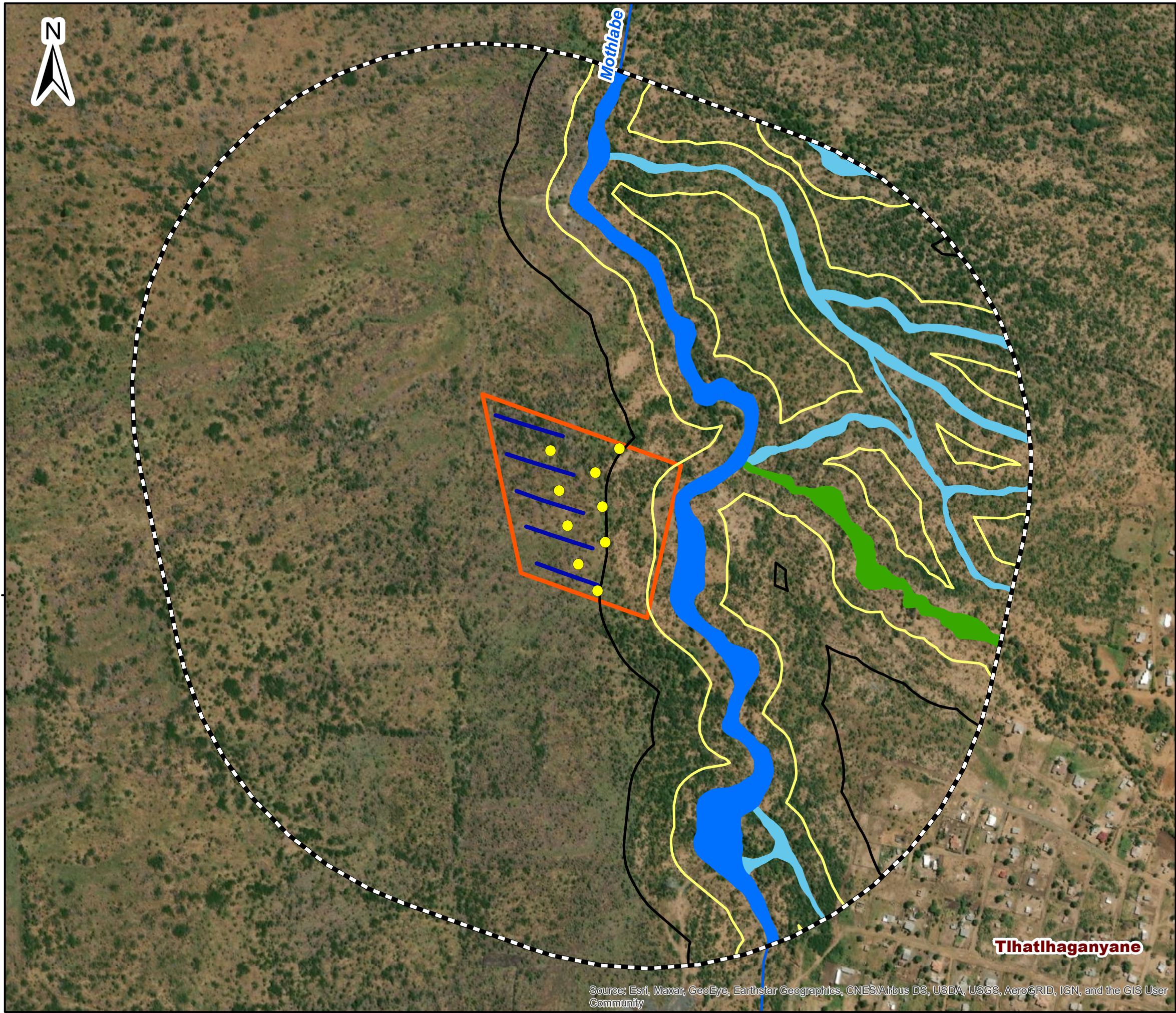
Proposed Prospecting Right on Portion 5 of the Farm Ruighoek 169JP

Figure 3-1
Site Layout



SLR Consulting (South Africa) (Pty) Ltd
 P O Box 1596, Cramerview, 2060, South Africa
 Tel: +27 (11) 467-0945 Fax: +27 (11) 467-0978

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



- Legend**
- Rivers
 - Prospecting Area
 - Proposed Boreholes
 - Proposed Trenches
 - Investigation area
- Freshwater Ecosystems**
- Mothlabe River
 - Unnamed tributary of the Mothlabe
 - Ephemeral river
- Zones of Regulation**
- 100 m Zone of Regulation (GN 509_704)
 - 32 m Zone of Regulation (NEMA)

0 100 Meters
 Scale: 1:5 400 @ A3
 Projection: Transverse Mercator
 Datum: Hartebeeshoek, Lo27

Proposed Prospecting Right on Portion 5 of the Farm Ruighoek 169JP

Figure 3-2
Zones of Regulation



SLR Consulting (South Africa) (Pty) Ltd
 P O Box 1596, Cramerville, 2060, South Africa
 Tel: +27 (11) 467-0945 Fax: +27 (11) 467-0978

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

3.3.2.1 Phase I – Soil Sampling and Initial Analysis

Phase 1 will consist of a programme where nine boreholes will be drilled, logged and sampled. The information is required to establish the depth of the PGM-bearing reefs, comprising the UG2 Chromitite and Merensky Reef, and to check the grade and quantity of the reefs. Samples will be submitted for assay for PGMs, copper and nickel. The boreholes are planned to be between 20 – 150 m deep and 75.5 mm in diameter. In addition to the boreholes, five trenches of around 100 m long will be dug to establish the sub-outcrop position of the PGM reefs. The trenches will be around 1.5 m deep and 1 m wide.

3.3.2.2 Phase II – Final Drilling and Investigation.

A geological/structural model will be compiled so that the dimensions and locality of the mineral resource can be established. This will be followed by the compilation of a resource model. The geological and resource models will incorporate all the information from the adjacent properties, where a significant amount of drilling has been done.

An overview of the activities and infrastructure associated with the proposed project are provided in Table 3-4.

A staff complement of approximately two to three general labourers would be required for the proposed prospecting activities. Procurement opportunities would be sourced locally, as far as possible.

Table 3-4: Overview of the Activities Associated with the Proposed Project

Main Activity	Sub-Activity	Applicable Phase
Site preparation	Establishment of contractor’s site camp	• Pre-Operation
	Fencing installation	• Pre-Operation
	Vegetation clearing	• Operation
	Topsoil removal	• Operation
Soil sampling and analysis	Trenching and borehole drilling	• Operation
Final drilling and investigation	Geological/structural modelling	• Operation
Transport system	The use of parking, loading and off-loading areas for truck, plant and other equipment	• Operation • Decommissioning
	Transportation of staff to and from site	• Operation • Decommissioning
	Use of access routes and walkways	• Operation
General site management	Security and access control	• Operation
	Stormwater management	• Operation
	Alien vegetation management	• Operation
	Dust suppression	• Operation
Demolition	Removal of contractor’s site camp	• Decommissioning
	Removal of infrastructure, vehicles, plant and equipment	• Decommissioning
Rehabilitation	Replenishment of soil resources	• Decommissioning
	Revegetation of disturbed areas	• Decommissioning

Main Activity	Sub-Activity	Applicable Phase
	Slope stabilisation and erosion control	<ul style="list-style-type: none"> Decommissioning
	Alien vegetation management	<ul style="list-style-type: none"> Decommissioning
Maintenance and aftercare	Initiation of aftercare and maintenance programme	<ul style="list-style-type: none"> Closure

It should be noted that once one borehole and trench are completed, these will be decommissioned, and rehabilitation will take place. As such, there will be no clear construction, operation and decommissioning phases as they will all overlap.

4. POLICY AND LEGISLATIVE CONTEXT

In accordance with the EIA Regulations, 2014 (as amended) and the DMRE BAR template, this chapter outlines the key legislative requirements applicable to the proposed project and outlines the guidelines, policies and plans that have been considered during the EA process.

4.1 CONSIDERATION OF LEGISLATION

4.1.1 Mineral and Petroleum Resources Development Act, 28 of 2008

The MPRDA governs the acquisition, use and disposal of mineral and petroleum resources. The objectives of the Act, amongst others, are to promote economic growth and mineral and petroleum resources development in South Africa, particularly the development of downstream industries through the provision of feedstock and development of mining and petroleum inputs industries and also to promote employment and advance the social and economic welfare of all South Africans.

Chapter 4 of the Mineral and Environmental Regulation provides a framework for the application of mining, prospecting and closure rights. The DMRE must apply the range of environmental principles included in Section 2 of NEMA when taking decisions that significantly affect the environment. To give effect to the general objectives of Integrated Environmental Management (IEM), the potential impacts on the environment of listed or specified activities must be considered, investigated, assessed and reported on to the competent authority. Section 24(4) of NEMA provides the minimum requirements for procedures for the investigation, assessment, management, and communication of the potential impacts.

In terms of the MPRDA, a PR must be obtained prior to the commencement of any prospecting activities. A requirement for obtaining a PR is that an applicant must submit an application in terms of Section 16(1) of the MPRDA to the Regional Manager, and they must accept the application within 14 days if, *inter alia*, no other person holds a PR, MR, Mining Permit or Retention Permit for the same mineral and land. If the application for a PR is accepted, the Regional Manager must request that the applicant comply with Chapter 5 of NEMA with regards to consultation and reporting.

An application for a PR was submitted to the DMRE at the same time as submitting the application for EA. This BAR will be submitted in compliance with NEMA for EA in support of the PR application.

4.1.2 National Environmental Management Act, 107 of 1998

The NEMA establishes principles and provides a regulatory framework for decision-making on matters affecting the environment. Section 2 of NEMA sets out a range of environmental principles that are to be applied by all organs of state when taking decisions that significantly affect the environment. Included amongst the key principles is that all development must be socially, economically and environmentally sustainable and that environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably. NEMA also provides for the participation of I&APs and stipulates that decisions must take into account the interests, needs and values of all I&APs.

Chapter 5 of NEMA outlines the general objectives and implementation of IEM, which provides a framework for the integration of environmental issues into the planning, design, decision-making and implementation of plans and development proposals. Section 24 provides a framework for granting of EA. In order to give

effect to the general objectives of IEM, the potential impacts on the environment of listed activities must be considered, investigated, assessed and reported on to the competent authority. Section 24(4) provides the minimum requirements for procedures for the investigation, assessment and communication of the potential impact of activities.

This EA process must be undertaken in consideration of the afore-mentioned principles. In line with sustainability principles, potential impacts arising from the proposed project must be identified and mitigation actions must be provided.

4.1.3 Environmental Impact Assessment Regulations, 2014 (as amended)

The EIA Regulations, 2014 (as amended) promulgated under NEMA provide for control over certain listed activities. These listed activities are detailed in Listing Notice 1, Listing Notice 2 and Listing Notice 3. The undertaking of activities specified in the Listing Notices is prohibited until an EA has been obtained from the competent authority. Such EA, which may be granted subject to conditions, will only be considered once there has been compliance with the EIA Regulations, 2014 (as amended).

The EIA Regulations, 2014 (as amended) set out the procedures and documentation that need to be complied with when applying for an EA. A BA process must be applied to an application if the authorisation applied for is in respect of an activity or activities listed in Listing Notices 1 and/or 3 and a Scoping and EIA process must be applied to an application if the authorisation applied for is in respect of an activity or activities listed in Listing Notice 2.

Furthermore, Appendix 1, Appendix 4 and Appendix 6 of the EIA Regulations, 2014 (as amended) set out the outcomes and requirements of reporting when compiling a BAR, EMPr and specialist reports, respectively. Compliance with these appendices is required upon submission of a BAR, EMPr and specialist reports (supporting documentation for a BAR) for application for an EA in terms of the EIA Regulations, 2014 (as amended).

The proposed project triggers activities in terms of Listing Notice 1 and Listing Notice 3 (refer to Table 3-1), therefore application for an EA through a BA process, requiring the compilation of a BAR and EMPr (with specialist reports as supporting documentation), must be submitted to the DMRE.

4.1.4 National Environmental Management: Air Quality Act, 39 of 2004

The National Environmental Management: Air Quality Act, 39 of 2004 (NEM: AQA) regulates all aspects of air quality, including prevention of pollution and environmental degradation; providing for national norms and standards regulating air quality monitoring, management and control; and licencing of activities that result in atmospheric emissions and have or may have a significant detrimental effect on the environment. The NEM: AQA has established a National Framework for Air Quality Management with various standards being implemented. Activities that require an Atmospheric Emissions Licence (AEL) are listed in GN No. 893 (22 November 2013), published in terms of Section 21(1) (b) of the NEM: AQA. In terms of Section 22 of NEM: AQA no person may conduct a listed activity without an AEL. Furthermore, the National Dust Control Regulations (NDCR), published on 1 November 2013, prescribes the general measures for the control of dust in all areas. The standard for the acceptable dust fall rate is set out in the NDCR for residential and non-residential areas.

The proposed project does not trigger any activities that require application for an AEL in terms of NEM: AQA. However, the proposed project would result in the clearance of vegetation and removal of topsoil prior to prospecting activities and may lead to an increase in ambient air emissions from vehicle tailpipes. In this regard, the potential impacts on air quality in terms of NEM: AQA and the NDCR must be assessed and monitoring, and mitigation measures must be recommended.

4.1.5 National Environmental Management: Biodiversity Act, 10 of 2004

The National Environmental Management: Biodiversity Act, No. 10 of 2004 (NEM: BA) provides for the management and conservation of South Africa's biodiversity within the framework of the NEMA and provides for the following:

- 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 bioprospecting involving indigenous biological resources.
- The establishment and function of a South African National Biodiversity Institute (SANBI) and for matters connected therewith.

The proposed project would result in the clearance of vegetation prior to prospecting activities. In this regard, the potential impact on biodiversity must be considered as part of the EA process. Moreover, cognisance of protected species in terms of NEM: BA must be made, in the event that these species are identified within the project footprint.

4.1.6 National Forests Act, 84 of 1998

The National Forests Act, 84 of 1998 (NFA) provides for the promotion of the sustainable management of forests for environmental, economic, educational, recreational, cultural, health and spiritual purposes, as well as the provision of measures for the protection of forests and trees. The Department of Forestry, Fisheries and Environment (DFFE) (previously the Department of Water Affairs and Forestry) followed an objective, scientific and participatory process to determine the tree species requiring protection by the Act. Protective actions take place within the framework of the Act, as well as national policy and guidelines and are protected for a variety of reasons. Moreover, some species require strict protection, while others require control over harvesting and utilisation.

The proposed project would result in the clearance of vegetation prior to prospecting activities. In this regard, cognisance of protected species in terms of the NFA must be made, in the event that these species are identified within the project footprint.

4.1.7 National Heritage Resources Act, 25 of 1999

The National Heritage Resources Act, 25 of 1999 (NHRA) provides for the identification, assessment and management of the heritage resources of South Africa. The Act lists development activities that would require authorisation by the responsible heritage resources authority. The Act requires that a person who intends to undertake a listed activity notify the relevant provincial heritage authority at the earliest stages of initiating such a development. The relevant provincial heritage authority would then in turn, notify the person whether a Heritage Impact Assessment (HIA) should be submitted. However, according to Section 38(8) of the NHRA, a separate report would not be necessary if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act (No. 73 of 1989) (now replaced by NEMA) or any other applicable legislation. The decision-making authority should,

however, ensure that the heritage evaluation fulfils the requirements of the NHRA and consider in its decision-making any comments and recommendations made by the relevant heritage resources authority. In terms of Section 38(1)(c)(i) of the NHRA, any development or activity exceeding 5 000 m² in extent would require that notification of the proposed development be made to the responsible heritage authority. Furthermore, details pertaining to the location, nature and extent of the proposed development are also required to be submitted to the responsible heritage authority.

The proposed project entails prospecting activities covering an area of approximately 5 ha, i.e., exceeding 5 000 m² in extent. In this regard, the provisions of NHRA must be followed and notification and other relevant information must be submitted to the South African Heritage Resources Agency (SAHRA).

4.2 CONSIDERATION OF GUIDELINES, POLICIES, PLANS AND FRAMEWORKS

The guidelines, policies, plans and frameworks that have been considered during the EA process are provided in Table 4-1.

Table 4-1: Guidelines, Policies, Plans and Frameworks Applicable to the Proposed Project

Document	Governing Body	Relevance
Covid-19 Directions	Department of Social Development	These Directions informed the levels of public participation possible within the restrictions related to the National State of Disaster.
Public Participation Guideline in terms of NEMA (2017)	DFFE, previously the Department of Environmental Affairs (DEA)	The purpose of these guidelines is to ensure that an adequate PPP was undertaken during the EA process. These documents informed the consideration of the need and desirability aspects of the proposed project.
Guideline for consultation with communities and I&APs (2014)	DMRE	
IEM Guideline Series Guideline 7: Public participation in the EIA process (2012)	DFFE, previously DEA	
Guideline on need and desirability in terms of the EIA Regulations (2017)		
Guideline on need and desirability in terms of the EIA Regulations (2014)		
A Minerals and Mining Policy for South Africa, 1998	DMRE, previously the DME	
DMRE Strategic Plan, 2020-2025	DMRE	
National Development Plan (NDP), 2030	National Planning Commission	
New Growth Path, 2011	Department of Economic Development	
MKLM Integrated Development Plan (IDP), 2021-2022	MKLM	
BPDM IDP, 2019-2020	BPDM	

Document	Governing Body	Relevance
North West Provincial Spatial Development Framework (PSDF), 2016	Office of the Premier of the North West	
Cumulative Effects Assessment, IEM, Information Series 7 (2004)	DFFE, previously DEA	This guideline will be consulted to inform the consideration of potential cumulative effects of the proposed project.
Criteria for determining Alternatives in EIA, IEM, Information Series 11 (2004)		This guideline was consulted to inform the consideration of alternatives.
Environmental Management Plans (EMP), IEM, Information Series 12 (2004)		This guideline will be consulted to ensure that the EMP has been adequately compiled.
Environmental Impact Reporting, IEM, Information Series 15 (2004)		This guideline was consulted to inform the approach to impact reporting.
Specialist Studies, IEM, Information Series 4 (2002)		This guideline was consulted to ensure adequate development of terms of reference for specialist studies.
Impact significance, IEM, Information Series 5 (2002)		This guideline was consulted to inform the assessment of significance of impacts of the proposed project.

4.3 LEGISLATIVE BAR CONTENT REQUIREMENTS

This BAR has been prepared in accordance with the DMRE BAR template format and Appendix 1 and Appendix 4 of EIA Regulations, 2014 (as amended), the contents of which are outlined in Table 4-2 and Table 4-3.

Table 4-2: Requirements of a BAR in terms of Part A of the DMRE template and Appendix 1 of the EIA Regulations

BAR requirements as per the DMRE template	BAR requirements as per the EIA Regulations, 2014 (as amended)	Reference in the report
Part A of the DMRE template	Appendix 1 of the EIA Regulations, 2014 (as amended)	
Details of the EAP.	Details of the EAP who prepared the report.	Chapter 1
Expertise of the EAP.	Details of the expertise of the EAP, including curriculum vitae.	Chapter 1 and Appendix A
Location of overall activity.	The location of the activity, including - the 21-digit Surveyor General code of each cadastral land parcel. Where available the physical address and farm name. Where the required information is not available, the coordinates of the boundary of the property or properties.	Chapter 2
Locality plan.	A plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, or, if it is a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken or on land where the property	Figure 1-1, Figure 0-2 and Figure 3-1

BAR requirements as per the DMRE template	BAR requirements as per the EIA Regulations, 2014 (as amended)	Reference in the report
	has not been defined, the coordinates within which the activity is to be undertaken.	
Description of the scope of the proposed overall activity.	A description of the scope of the proposed activity, including all listed and specified activities triggered. A description of the activities to be undertaken, including associated structure and infrastructure.	Chapter 3
Policy and legislative context.	A description of the policy and legislative context within which the development is located and an explanation of how the proposed development complies with and responds to the legislation and policy context.	Chapter 0
Need and desirability of the proposed activity.	A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location.	Chapter 5
Motivation for the overall preferred site, activities and technology alternative.	A motivation of the preferred development footprint within the approved site including.	Chapter 6
A full description of the process followed to reach the proposed development footprint within the site.	A full description of the process followed to reach the proposed development footprint within the approved site.	Chapter 7
Details of the development footprint alternatives considered.	Details of all the alternatives considered.	Chapter 6
Details of the PPP followed.	Details of the PPP undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs.	Chapter 7
Summary of issues raised by I&APs.	A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them.	Chapter 7
Environmental attributes associated with the alternatives.	The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	Chapter 7
Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts including the degree of the impacts.	The impacts and risks identified, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be reversed, may cause irreplaceable loss of resources and can be avoided, managed and mitigated.	Appendix D
Methodology used in determining the nature, significance, consequence, extent, duration and probability of potential environmental impacts and risks.	The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks.	Section 7.6

BAR requirements as per the DMRE template	BAR requirements as per the EIA Regulations, 2014 (as amended)	Reference in the report
The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternative will have on the environment and the community that may be affected.	Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	Appendix D
The possible management actions that could be applied and the level of risk.	The possible management actions that could be applied and level of residual risk.	Chapter 26
Motivation where no alternative sites were considered.	The outcome of the site selection matrix. If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such.	Chapter 6
Statement motivating the alternative development location within the overall site.	A concluding statement indicating the preferred alternatives, including preferred location within the approved site.	Chapter 7
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) through the life of the activity.	A full description of the process undertaken to identify, assess and rank the impacts the activity and associated structure and infrastructure will impose on the preferred location through the life of the activity including a description of all environmental issues and risks that were identified during the environmental impact assessment process and an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of management actions.	Chapter 8
Assessment of each identified potentially significant impact and risk.	An assessment of each identified potentially significant impact and risk including cumulative impacts, the nature, significant and consequence of the impact and risk, the extent and duration of the impact and risk, the probability of the impact and risk occurring, the degree to which the impact can be reversed, the degree to which the impact and risk may cause irreplaceable loss of a resources and the degree to which the impact and risk can be mitigated.	Chapter 9
Summary of specialist reports.	Where applicable the summary of the findings and recommendations of any specialist report complying with Appendix 6 of these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report.	Chapter 10
Environmental impact statement.	An environmental impact statement which contains a summary of the key findings of the environmental impact assessment, a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers and a summary of the	Chapter 11

BAR requirements as per the DMRE template	BAR requirements as per the EIA Regulations, 2014 (as amended)	Reference in the report
	positive and negative impacts and risks of the proposed activity and identified alternatives.	
Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr.	Based on the assessment, and where applicable, recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr.	Chapter 12
Aspects for inclusion as conditions of authorisation.	Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation.	Chapter 13
Description of any assumptions, uncertainties and gaps in knowledge.	A description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and management actions proposed.	Chapter 14
Reasoned opinion as to whether the proposed activity should or should not be authorised.	Reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation.	Chapter 2
Period for which environmental authorisation is required.	Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required and the date on which the activity will be concluded, and the post construction monitoring requirements finalised.	Chapter 16
Undertaking.	An undertaking under oath or affirmation by the EAP in relation to the correctness of the information provided in the reports, the inclusion of comments and inputs from stakeholders and I&APs, the inclusion of inputs and recommendations from the specialist reports where relevant and any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties.	Chapter 17
Financial provision.	Where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts.	Chapter 27
Specific information required by the competent authority.	Any specific information required by the competent authority.	Chapter 30
Other matter required in terms of section 24(4)(a) and (b) of the Act.	Any other matter required in terms of section 24(4)(a) and (b) of the Act.	N/A

Table 4-3: Requirements of a BAR in terms of Part B of the DMRE template and Appendix 4 of the EIA Regulations

BAR requirements as per the DMRE template	EMPr requirements per the EIA Regulations, 2014 (as amended)	Reference in the report
Part B of the DMRE template	Appendix 4 of the EIA Regulations, 2014 (as amended)	
Details of EAP.	Details of the EAP who prepared the EMPr and the expertise of that EAP to prepare the EMPr, including curriculum vitae.	Chapter 1
Description of the aspects of the activity.	A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description.	Chapter 3
Composite map.	A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers.	Figure 23-1
Description of impact management objectives including management statements.	A description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including planning and design, pre-construction activities, construction activities, rehabilitation of the environment after construction and where applicable post closure; and where relevant, operation activities.	Appendix D
Impacts to be mitigated in their respective phases.	-	Appendix D
Impact management outcomes.	A description and identification of impact management outcomes required for the aspects contemplated in paragraph.	Chapter 25
Impact management actions.	A description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes be achieved, and must, where applicable, include actions to avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; comply with any prescribed environmental management standards or practices; comply with any applicable provisions of the Act regarding closure, where applicable comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable.	Chapter 26
Financial provision.	-	Chapter 27
Mechanism for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon.	The method of monitoring the implementation of the impact management actions.	Chapter 28

BAR requirements as per the DMRE template	EMPr requirements per the EIA Regulations, 2014 (as amended)	Reference in the report
-	The frequency of monitoring the implementation of the impact management actions.	Chapter 28
-	An indication of the persons who will be responsible for the implementation of the impact management actions.	
-	The time periods within which the impact management actions must be implemented.	
-	The mechanism for monitoring compliance with the impact management actions.	
-	A program for reporting on compliance, taking into account the requirements as prescribed by the Regulations.	
Environmental Awareness Plan.	An environmental awareness plan describing the manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work; and risks must be dealt with in order to avoid pollution or the degradation of the environment.	Chapter 29
Specific information required by the competent authority.	Any specific information that may be required by the competent authority.	Chapter 30
Undertaking.	-	Chapter 31

5. NEED AND DESIRABILITY OF THE PROPOSED PROJECT

This chapter aims to provide an overview of the need and desirability of the proposed project within the strategic context of national development policy planning, broader societal needs and regional and local planning, as well as the NEMA principles of sustainable development.

5.1 BACKGROUND

The DFFE's (previously DEA) guideline on need and desirability (2017) notes that while addressing the growth of the national economy through the implementation of various national policies and strategies, it is also essential that these policies take cognisance of strategic concerns such as climate change, food security, as well as the sustainability in supply of natural resources and the status of our ecosystem services. Thus, the over-arching framework for considering the need and desirability of development in general is taken at the policy level through the identification and promotion of activities/industries/developments required by civil society as a whole. The DFFE guideline further notes that at a project level (as part of an impact assessment process), the need and desirability of the project should take into consideration the content of regional and local plans, frameworks and strategies.

In light of the above, and in alignment with the above-mentioned guideline (DFFE, 2017), this section aims to provide an overview of the need and desirability for the proposed project by highlighting how it is aligned with the strategic context of national, regional and local development policy and planning, as well as with the goals of sustainable development as outlined in NEMA.

5.2 RATIONALE FOR THE PROPOSED PROJECT

As mentioned previously, the Pilanesberg Platinum Mine is an open pit platinum and chrome mining and mineral processing operation and comprises various onsite infrastructure such as an open pit mine (West Pit), temporary and permanent WRDs, a processing plant complex, a tailings scavenger plant, a chrome recovery plant, a TSF and support infrastructure. The current mining operation involves accessing the two commonly exploited 'PGM-bearing' reef horizons, the Merensky (silicate) and UG2, in a single open-cast mining operation. PPM proposes to secure a PR for portion 5 of the farm Ruighoek 169JP. The area under consideration is located adjacent to an area where MRs have been granted. Therefore, the procurement of a PR is to ensure a development pipeline of the existing operations in the area.

5.3 ECOLOGICALLY SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES

Due to the nature of mining projects, impacts on biodiversity and the role that it plays in the ecosystem are inevitable. The proposed project footprint is located within the Zeerust Thornveld vegetation type. The Zeerust Thornveld vegetation type is dominated by deciduous, open to dense short, thorn woodland, which comprises *Vachellia* and *Senegalia* species with an herbaceous layer of mainly grasses, on deep, high base-status and some clay soils. The vegetation type is generally found between the rocky ridges of the Dwarsberg-Swartruggens Mountain Bushveld. The conservation status of this vegetation type is considered Least Concern.

The proposed 5 ha PR area is located within a terrestrial and aquatic CBA 2 and an aquatic ESA 1 as per the North West Biodiversity Sector Plan 2015. The project footprint also falls within a sub quaternary catchment classed as a Freshwater Ecosystem Priority Area, as per the National Freshwater Ecosystem Priority Area (NFEP) Database 2011 and in proximity to a FEPA River (Motlhabe River). It is; however, important to note that no prospecting activities, i.e. trenching or borehole activities, will take place in these areas. Additional

biodiversity sensitivity areas located in close proximity to the proposed project are the Pilanesberg Important Bird Area (IBA) and the Pilanesberg National Park, which is located approximately 4 km to the east.

The proposed project has the potential to directly disturb fauna and flora, with specific reference to vegetation clearing (approximately 1 ha of vegetation will be cleared). Furthermore, soil is considered to be a valuable resource that supports a variety of ecological functions, and the proposed project has the potential to damage soil resources through physical disturbance, which has a direct impact on the potential loss of the natural capability of the land.

As part of the EA process, independent biodiversity, aquatic and soils specialists were appointed to determine the sensitivity of the project footprint. Measures considered to avoid or minimise the destruction and disturbance of biodiversity, aquatic habitat and soil resources include, but are not limited to, limiting the extent of the development footprint, as well as demarcating the footprint to prevent access to adjacent vegetation. Where sensitivities cannot be avoided, management actions must be focussed on ensuring ecological sustainability through appropriate rehabilitation measures. These management measures have been included in the EMPr, where appropriate.

5.4 PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

5.4.1 National Policy and Planning Framework

5.4.1.1 A Minerals and Mining Policy for South Africa, 1998

South Africa's mining and minerals industry is backed by a vast and diversified resource base, which since its inception, has been the cornerstone of South Africa's economy and at the forefront of developmental opportunities. In order for mining to continue to be a core contributor to the economy and in the pursuance of the sustainable development of the nation's mineral resources, it is necessary to identify new resources through prospecting activities. A key intent of A Minerals and Mining Policy of South Africa, 1998 states that government will: "Promote exploration and investment leading to increased mining output and employment". The Policy further states the following:

- The South African mining industry, one of the country's few world-class industries, has the capacity to continue to generate wealth and employment opportunities on a large scale.
- Mining is an international business and South Africa has to compete against developed and developing countries to attract both foreign and local investment. Many mining projects in South Africa have tended to be unusually large and long-term, requiring massive capital and entailing a high degree of risk.
- South Africa has an exceptional minerals endowment, and in several major commodities has the potential to supply far more than the world markets can consume."

The proposed project is in direct alignment with the policy as the proposed prospecting activities will lead to the identification of new mineral resources to support the mining and minerals industry in the North West regionally, and in South Africa nationally.

5.4.1.2 National Development Plan, 2030

The NDP, 2030 provides the context for all growth in South Africa, with the overarching aim of eradicating poverty and inequality between people in South Africa through the promotion of development. The

NDP, 2030 provides a broad strategic framework, setting out an overarching approach to confronting poverty and inequality based on the six focused and interlinked priorities. One of the key priorities is “faster and more inclusive economic growth”.

In order to transform the economy and create sustainable expansion for job creation, an average economic growth exceeding 5% per annum is required. One of the approaches to achieve this includes increasing exports by focusing on areas where South Africa already has natural endowments and comparative advantage, such as mining.

Notwithstanding the above, it is also acknowledged that environmental challenges are in conflict with some of these development initiatives. As such, it is emphasised that there is also a need to:

- Protect the natural environment.
- Enhance the resilience of people and the economy to climate change.
- Reduce carbon emissions in line with international commitments.
- Make significant strides toward becoming a zero-waste economy.
- Reduce greenhouse gas emissions and improve energy efficiency.

The NDP, 2030 identifies the “minerals and metals cluster” (which encompasses all mining and quarrying activities, supplier industries to the mining sector, and downstream beneficiation of mined minerals) as a sector with substantial potential for growth stimulation and/or employment. It is pointed out that South Africa must exploit its mineral resources to create employment and generate foreign exchange and tax revenue.

The proposed project relates indirectly to the exploitation of mineral resources, i.e. should prospecting activities indicate the presence of mineral resources, it is expected that in future these resources would be exploited, hereby contributing to the minerals and mining industry and providing socio-economic benefits.

5.4.1.3 Department of Mineral Resources and Energy Strategic Plan, 2020-2025

The existence of the DMRE is based on its ambition of being a leader in the acceleration of South Africa’s economic growth through the sustainable development of its mining and energy sectors. In the foreword of the Executive Authority’s Statement contained in the DMRE Strategic Plan, 2020-2025, it notes that the DMRE’s ambition “will be operationalised by focussing on regulating, transforming and promoting the mining and energy sectors ... and ensuring that all South Africans derive sustainable benefit from the country’s mineral wealth”.

The proposed project will contribute directly to the mining and minerals sector through the provision of job and procurement opportunities. It is anticipated that approximately two to three general labourers would be required for the undertaking of prospecting activities associated with the proposed project.

5.4.1.4 New Growth Path, 2011

The New Growth Path, 2011 reflects the commitment of government to prioritise employment creation in all economic policies and sets out the key drivers and sectors for employment which will be the focus of government. The sectors identified for prioritisation include infrastructure, agriculture, mining, manufacturing, tourism and the green economy.

In this regard, a staff complement of approximately two to three general labourers would be required for undertaking of prospecting activities. Procurement opportunities would be sourced locally, as far as possible. Employment and economic development have the potential to improve livelihoods of individuals living in the local area through increased disposable income for individuals and households and the flow of revenue into local services and support sectors.

5.4.2 Regional and Local Policy and Planning Framework

5.4.2.1 North West Provincial Spatial Development Framework, 2016

The North West PSDF, 2016 sets out the key spatial challenges faced by the province and the proposed spatial policies, which have been formulated to address these challenges. As such, it supports the spatial development vision to achieve the North West Development Plan, 2030.

Five strategic objectives have been identified to provide foundation for spatial development strategies in the North West. These objectives are outlined below:

- **Strategic Objective 1:** Focus development on regional spatial development initiatives, development corridors, development zones and nodes.
- **Strategic Objective 2:** Protect biodiversity, water and agricultural resources.
- **Strategic Objective 3:** Promote infrastructure investment.
- **Strategic Objective 4:** Support economic development and job creation guiding the spatial development pattern of the North West.
- **Strategic Objective 5:** Balance urbanisation and the development of rural areas within the North West.

To achieve the high growth scenarios and strategic objectives above, seven development mechanisms were identified. These include land use planning and management, settlement planning, economic development, infrastructure investment, human resources development, facilitative governance and industrialisation. These mechanisms will ensure that the province enjoys high growth by shifting from social needs-based policy to infrastructure and economic growth-based policies.

The proposed project is considered to relate to the Strategic Objective 4. This is because the proposed project would support economic development through the provision of job and procurement opportunities within the region.

5.4.2.2 Bojanala Platinum District Municipality Integrated Development Plan, 2019-2020

The BPDMD IDP, 2019-2020 is the principle strategic instrument guiding all planning, management, investment and development within the district in order to provide best solutions towards sustainable development. The vision of the BPDMD IDP, 2019-2020, is to provide a model of cooperative governance for effective and efficient service delivery in partnership with local municipality and all stakeholders. In order to do so, the following priority issues and challenges within the district have been identified:

1. Water and sanitation.
2. Roads and storm water.
3. Electricity.
4. Land and housing.
5. Economic development.
6. Institutional development.

7. Municipality health.
8. Social services.

The proposed project is considered to relate to the priority issue 5. This is because the proposed project would support economic development through the provision of job and procurement opportunities within the region. As indicated previously, employment and economic development have the potential to improve livelihoods of individuals living in the local area through increased disposable income for individuals and households and the flow of revenue into local services and support sectors. The degree to which this impact would benefit local people and communities depends on the number of new opportunities realised locally and the manner in which income is used to benefit households and individuals.

5.4.2.3 Moses Kotane Local Municipality Integrated Development Plan, 2021-2022

The MKLM IDP, 2021-2022, is the principle strategic instrument guiding all planning within the local municipality. The MKLM IDP, 2021-2022, identified recurring issues within the municipality, with the main focus of developing strategic objectives and aligning them to six Key Performance Areas. These Key Performance Areas are as follows:

1. Basic Service Delivery and Infrastructure Development.
2. Municipal Transformation and Organisational Development.
3. Local Economic Development.
4. Spatial Rationale.
5. Good Governance and Public Participation.
6. Municipal Financial Viability and Management.

The proposed project relates to Key Performance Area 3 as the proposed project would support economic development through the provision of job and procurement opportunities within the region.

5.5 CONSISTENCY WITH NEMA PRINCIPLES

When considering an application for an EA, the competent authority must comply with Section 24O of NEMA and must have regard for any guideline published in terms of Section 24J of the Act and any minimum requirements for the application. This includes the DFFE's Guideline on Need and Desirability (2017). Additionally, the EIA Regulations, 2014 (as amended) require EAPs who undertake environmental assessments, to have knowledge of and consider relevant guidelines. A person applying for an EA must abide by the Regulations, which are binding on the applicant.

The DFFE's Guideline on Need and Desirability (2017) sets out a list of questions which should be addressed when considering need and desirability of a proposed development. These are divided into questions that relate to the aspects of ecological sustainability and justifiable economic and social development of the proposed project. Table 5-1 sets out the list of questions as per the Guideline.

Table 5-1: Questions to be Engaged with when Considering Need and Desirability, as per the DFFE Guideline on Need and Desirability (2017)

QUESTION	LOCATION IN REPORT/RELEVANCE
<p>1. How will this development (and its separate elements / aspects) impact on the ecological integrity of the area?</p>	
<p>1.1 How were the ecological integrity considerations taken into account?</p> <p>1.1.1. Threatened Ecosystems,</p> <p>1.1.2. Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure,</p> <p>1.1.3. Critical Biodiversity Areas (“CBAs”) and Ecological Support Areas (“ESAs”),</p> <p>1.1.4. Conservation targets,</p> <p>1.1.5 Ecological drivers of the ecosystem,</p> <p>1.1.6. Environmental Management Framework,</p> <p>1.1.7. Spatial Development Framework, and</p> <p>1.1.8. Global and international responsibilities relating to the environment (e.g., RAMSAR sites, Climate Change, etc.)</p>	<p>A Terrestrial Biodiversity study was commissioned as part of the EA process. The study outlined the biodiversity sensitivities of the development footprint and recommended monitoring, mitigation and enhancement measures to limit impacts and enhance benefits, all of which have been included in the EMPr.</p>
<p>1.2 How will this development disturb or enhance ecosystems and / or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	
<p>1.3 How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	
<p>1.4 What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?</p>	<p>Minimal volumes of waste will be generated by the proposed project. Measures to manage waste have been included in the EMPr.</p>
<p>1.5 How will this development disturb or enhance landscapes and/or sites that constitute the nation’s cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	<p>A Desktop Phase I Heritage Study was commissioned as part of the EA process. Potential cultural/heritage resources were identified within the development footprint (northern-most section of the PR area). Recommended monitoring, mitigation and enhancement</p>

QUESTION	LOCATION IN REPORT/RELEVANCE
	measures to limit impacts on cultural/heritage and enhance benefits have been included in the EMPr.
<p>1.6 How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	The proposed project does not relate directly to the development or use of non-renewable/renewable resources, rather the prospecting for non-renewable resources. Only if viable deposits are identified, will measures be put in place to enhance the positive impacts of mining the resource and ensuring its sustainable use.
<p>1.7 How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system considering carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?</p> <p>1.7.1. Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e., dematerialised growth)? (Note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life)</p> <p>1.7.2. Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e., what are the opportunity costs of using these resources this the proposed development alternative?)</p> <p>1.7.3. Do the proposed location, type and scale of development promote a reduced dependency on resources?</p>	
<p>1.8 How were a risk-averse and cautious approach applied in terms of ecological impacts?</p> <p>1.8.1. What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?</p> <p>1.8.2. What is the level of risk associated with the limits of current knowledge?</p> <p>1.8.3. Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?</p>	Assumptions, uncertainties and limitations associated with the compilation of this BAR are included in chapter 14. Compliance with the various legislative requirements is presented in this BAR.

QUESTION	LOCATION IN REPORT/RELEVANCE
<p>1.9. How will the ecological impacts resulting from this development impact on people’s environmental right in terms following:</p> <p>1.9.1. Negative impacts: e.g., access to resources, opportunity costs, loss of amenity (e.g., open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?</p> <p>1.9.2. Positive impacts: e.g., improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?</p>	<p>The impact assessment is undertaken in accordance with SLR’s methodology. The potential impacts and the significance thereof are presented in Appendix D.</p>
<p>1.10. Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development’s ecological impacts will result in socioeconomic impacts (e.g., on livelihoods, loss of heritage site, opportunity costs, etc.)?</p>	
<p>1.11. Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?</p>	
<p>1.12. Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the “best practicable environmental option” in terms of ecological considerations?</p>	<p>The PR area was determined and was dependent on proximity to the existing PPM operation. Location alternatives of the proposed boreholes and trenches were determined by consultation and review of biodiversity databases, so as to ensure the lowest possible environmental impact on sensitive environments. A map depicting the alternative borehole and trenching locations is provided in chapter 6.</p>
<p>1.13. Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?</p>	<p>The impact assessment is undertaken in accordance with SLR’s methodology. The potential impacts and the significance thereof are presented in Appendix D.</p>
<p>2.1. What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?</p> <p>2.1.1. The IDP (and its sector plans’ vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area,</p> <p>2.1.2. Spatial priorities and desired spatial patterns (e.g., need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.),</p>	<p>The need and desirability of the proposed project has been presented in terms of the consideration of the national, regional and local context.</p>

QUESTION	LOCATION IN REPORT/RELEVANCE
<p>2.1.3. Spatial characteristics (e.g., existing land uses, planned land uses, cultural landscapes, etc.), and 2.1.4. Municipal Economic Development Strategy (“LED Strategy”).</p>	
<p>2.2. Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area? 2.2.1. Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?</p>	<p>The impact assessment is undertaken in accordance with SLR’s methodology. The potential impacts and the significance thereof are presented in Appendix D.</p>
<p>2.3. How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?</p>	<p>A staff complement of approximately two to three general labourers would be required for the proposed project. Procurement opportunities would be sourced locally, as far as possible. If viable deposits are identified, the potential exists for mining activities to be undertaken. The socio-economic impact will only be determined upon completion of the prospecting activities and the analysis of the results.</p>
<p>2.4. Will the development result in equitable (intra- and inter-generational) impact distribution, in the short and long-term? Will the impact be socially and economically sustainable in the short- and long-term?</p>	
<p>2.5. In terms of location, describe how the placement of the proposed development will: 2.5.1. Result in the creation of residential and employment opportunities in close proximity to or integrated with each other, 2.5.2. Reduce the need for transport of people and goods, 2.5.3. Result in access to public transport or enable non-motorised and pedestrian transport (e.g., will the development result in densification and the achievement of thresholds in terms public transport), 2.5.4. Compliment other uses in the area, 2.5.5. Be in line with the planning for the area, 2.5.6. For urban related development, make use of underutilised land available with the urban edge, 2.5.7. Optimise the use of existing resources and infrastructure, 2.5.8. Opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g., not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement), 2.5.9. Discourage "urban sprawl" and contribute to compaction/densification, 2.5.10. Contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs, 2.5.11. Encourage environmentally sustainable land development practices and processes,</p>	<p>A staff complement of approximately two to three general labourers would be required for the proposed project. Procurement opportunities would be sourced locally, as far as possible. While the scale of the proposed project is very limited, it has the potential to expand significantly if viable resource deposits are located and a MR is obtained.</p>

QUESTION	LOCATION IN REPORT/RELEVANCE
<p>2.5.12. Consider special locational factors that might favour the specific location (e.g., the location of a strategic mineral resource, access to the port, access to rail, etc.),</p> <p>2.5.13. The investment in the settlement or area in question will generate the highest socio-economic returns (i.e., an area with high economic potential),</p> <p>2.5.14. Impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area, and</p> <p>2.5.15. In terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?</p>	
<p>2.6. How were a risk-averse and cautious approach applied in terms of socio-economic impacts?</p> <p>2.6.1. What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?</p> <p>2.6.2. What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge?</p> <p>2.6.3. Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?</p>	<p>Assumptions, uncertainties and limitations associated with the compilation of this BAR are included in chapter 14. Compliance with the various legislative requirements is presented in this BAR.</p>
<p>2.7. How will the socio-economic impacts resulting from this development impact on people’s environmental right in terms following:</p> <p>2.7.1. Negative impacts: e.g., health (e.g., HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?</p> <p>2.7.2. Positive impacts. What measures were taken to enhance positive impacts?</p>	<p>The impact assessment is undertaken in accordance with SLR’s methodology. The potential impacts and the significance thereof are presented in Appendix D.</p>
<p>2.8. Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development’s socio-economic impacts will result in ecological impacts (e.g., over utilisation of natural resources, etc.)?</p>	
<p>2.9. What measures were taken to pursue the selection of the “best practicable environmental option” in terms of socio-economic considerations?</p>	<p>An alternatives analysis was undertaken as part of the proposed project.</p>
<p>2.10. What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)?</p>	<p>The EMPr has been compiled for the proposed project which will be implemented during the development’s life cycle.</p>

QUESTION	LOCATION IN REPORT/RELEVANCE
<p>Considering the need for social equity and justice, do the alternatives identified, allow the “best practicable environmental option” to be selected, or is there a need for other alternatives to be considered?</p>	
<p>2.11. What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?</p>	<p>Due to the nature of the proposed project, this is not applicable.</p>
<p>2.12. What measures were taken to ensure that the responsibility for the environmental health and safety (H&S) consequences of the development has been addressed throughout the development’s life cycle?</p>	<p>An EMPr has been compiled for the proposed project which will be implemented during the development’s life cycle.</p>
<p>2.13. What measures were taken to:</p> <ul style="list-style-type: none"> 2.13.1. Ensure the participation of all interested and affected parties, 2.13.2. Provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, 2.13.3. Ensure participation by vulnerable and disadvantaged persons, 2.13.4. Promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means, 2.13.5. Ensure openness and transparency, and access to information in terms of the process, 2.13.6. Ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge, and 2.13.7. Ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein were be promoted? 	<p>The PPP for the proposed project was undertaken in terms of the EIA Regulations, 2014 (as amended) promulgated under NEMA. The PPP undertaken to date, as well as the proposed process for the remainder of the application process, is provided in section 7.2</p>
<p>2.14. Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g., a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?</p>	<p>The predominant needs of the local community relate to the provision of local employment opportunities. In this regard, a staff complement of approximately two to three general labourers would be required for the proposed project. Procurement opportunities would be sourced locally, as far as possible.</p>

QUESTION	LOCATION IN REPORT/RELEVANCE
2.15. What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?	Project activities would comply with PPM’s occupational H&S policies and/or standards, as well as national legislation.
<p>2.16. Describe how the development will impact on job creation in terms of, amongst other aspects:</p> <p>2.16.1. The number of temporary versus permanent jobs that will be created,</p> <p>2.16.2. Whether the labour available in the area will be able to take up the job opportunities (i.e., do the required skills match the skills available in the area),</p> <p>2.16.3. The distance from where labourers will have to travel,</p> <p>2.16.4. The location of jobs opportunities versus the location of impacts (i.e., equitable distribution of costs and benefits), and</p> <p>2.16.5. The opportunity costs in terms of job creation (e.g., a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.).</p>	A staff complement of approximately two to three general labourers would be required for the proposed project. Procurement opportunities would be sourced locally, as far as possible.
<p>2.17. What measures were taken to ensure:</p> <p>2.17.1. That there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment, and</p> <p>2.17.2. That actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?</p>	The need and desirability of the proposed project has been presented in terms of the consideration of the national, regional and local context.
2.18. What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people’s common heritage?	Measures to mitigate environmental impacts associated with the proposed project have been included in the EMPr.
2.19. Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	
2.20. What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?	PPM will be responsible for the implementation of the measures included in the EMPr. The financial provision has been determined to cater for the costs associated with the rehabilitation of the environment post-closure.
2.21. Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different	The broader area of the proposed PR area was determined and was dependent on proximity to the existing PPM operation. Location alternatives of the proposed boreholes

QUESTION	LOCATION IN REPORT/RELEVANCE
<p>impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?</p>	<p>and trenches were determined in consultation and review of biodiversity databases, so as to ensure the lowest possible environmental impact on sensitive environments. A map depicting the alternative borehole and trenching locations are provided in chapter 6.</p>
<p>2.22. Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?</p>	<p>The impact assessment is undertaken in accordance with SLR’s methodology.</p>

6. MOTIVATION FOR THE PREFERRED SITE, ACTIVITIES AND TECHNOLOGY ALTERNATIVES

This section provides a motivation for the preferred site and technology alternatives relative to the proposed project.

6.1 LOCATION/ LAYOUT ALTERNATIVES

The broader proposed PR area was determined and was dependent on proximity to the existing approved Pilanesberg Platinum Mine MR areas, as well as the extent of the UG2 and Merensky reef. As mentioned previously, the area under consideration (portion 5 of the farm Ruighoek 169JP) is located adjacent to an area where MRs have been granted. Therefore, the procurement of a PR is to ensure a development pipeline of the existing operations in the area.

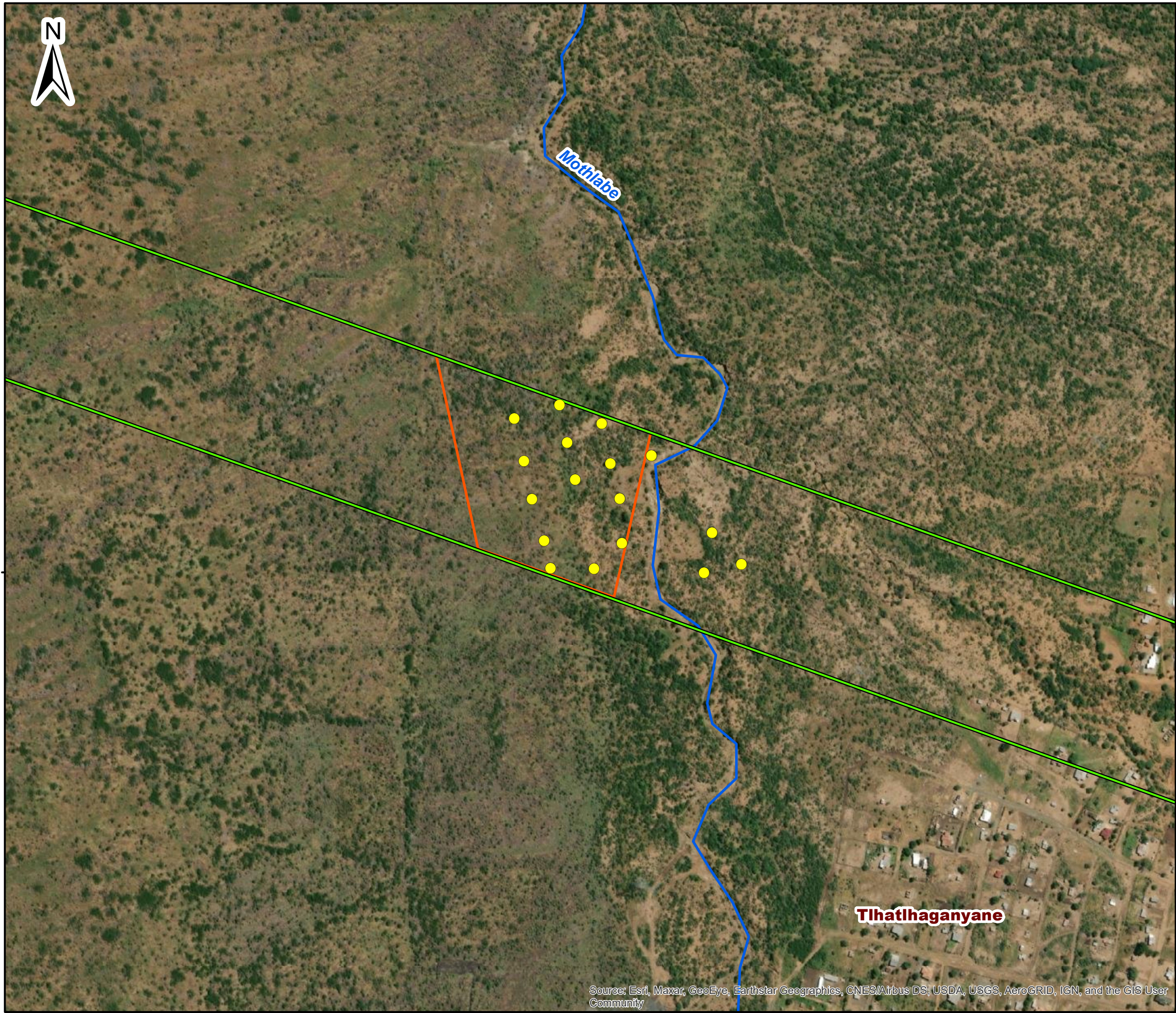
Originally 17 boreholes were proposed to be drilled as part of the proposed project. The location of these boreholes is depicted in Figure 6-1. The layout and number of boreholes was reduced to nine to minimise the impact on local biodiversity. In addition, the boreholes were moved to be further than 100 m from the watercourse (measured from the edge of the watercourse), so as to minimise impact on local aquatic biodiversity resources.

6.1.1 Activity Alternatives

The proposed project includes prospecting activities to identify additional resources for extraction by PPM. It follows that no activity alternatives have been identified.

6.2 TECHNOLOGY ALTERNATIVES

Due to the nature of the proposed project, no technology alternatives have been considered.



- Legend**
- Rivers
 - Portion RE/5/169
 - Prospecting Area
 - Proposed Borehole Alternatives

0 100 Meters
 Scale: 1:5 000 @ A3
 Projection: Transverse Mercator
 Datum: Hartebeeshoek, Lo27

Proposed Prospecting Right on Portion 5 of the Farm Ruighoek 169JP

Figure 6-1
Alternatives Map



SLR Consulting (South Africa) (Pty) Ltd
 P O Box 1596, Cramerville, 2060, South Africa
 Tel: +27 (11) 467-0945 Fax: +27 (11) 467-0978

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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

This chapter describes the alternatives considered for the proposed project and summarises the process followed to reach the preferred alternative.

7.1 DETAILS OF THE DEVELOPMENT FOOTPRINT CONSIDERED

7.1.1 Site Alternatives

Location alternatives largely pertain to the location of the boreholes to be drilled as part of the prospecting activities. As mentioned previously, originally 17 boreholes were proposed. The number of boreholes drilled has decreased to nine. The number and location of the proposed boreholes were determined through consultation and review of biodiversity databases, so as to ensure the lowest possible environmental impact on sensitive environments. The map depicted in Figure 6-1 indicates several borehole locations within close proximity to the Freshwater Habitat unit identified in the project area (see section 7.4.1.5 for more information), which has been identified as a being associated with the ephemeral Mothlabe River. The preferred alternative of nine boreholes would result in fewer project-related impacts in this area.

7.1.2 Technology Alternatives

As mentioned in section 6.2, due to the nature of the proposed project, no technology alternatives were considered.

7.1.3 Activity Alternatives

The proposed project includes prospecting activities to identify additional resources for extraction by PPM. It follows that no activity alternatives have been identified.

7.1.4 No-Go Alternative

The No-Go alternative means that the proposed prospecting would not go ahead. The negative implications of not going ahead with the proposed project include:

- Lost opportunity to identify new mineral resources to support the mining and minerals industry in the North West province; and
- Lost employment and procurement opportunities associated with the prospecting activities and subsequent mining activities.

The positive implications of the no-go option are that there would be no associated impacts on the biophysical environment within the project footprint.

7.2 DETAILS OF THE PPP FOLLOWED

The PPP was undertaken in accordance with the requirements of chapter 6 of the EIA Regulations, 2014 (as amended) promulgated under NEMA. In addition to this, consideration was also given to various public participation guidelines governed by the DFFE (refer to Table 4-1).

7.2.1 PPP Undertaken to Date

The PPP undertaken to date is provided in Table 7-1. Proof of the undertaking of the PPP associated with the pre-application phase and application phase has been included in Appendix C. Proof of the undertaking

of the PPP associated with the application phase will be provided in the BAR to be submitted to the DMRE for decision-making. The PPP for the proposed project has been managed by MTS.

Table 7-1: PPP Undertaken to Date

Step	Detail
Pre-Application Phase	
Stakeholder identification	<p>A project I&AP database was developed for the proposed project and comprises key I&APs (surrounding landowners, land users and community forums; neighbouring mines and industries, Non-Government Organisations and Associations, Parastatals and regulatory and commenting authorities (local and regional). The commenting authorities who have been identified include:</p> <ul style="list-style-type: none"> • DFFE; • Department of Water and Sanitation (DWS); • North West Department of Agriculture; • North West Department of Rural Development and Land Reform (DRDLR) (inclusive of the Land Claims Commissioner); • North West Department of Roads and Public Works; • North West Department of Rural, Environment and Agricultural Development; • North West DEDECT • North West Parks and Tourism Board; • ESKOM; • SAHRA; • MKLM; and • BPDM.
Consultation with Land Claims Commissioner	<p>The DRDLR (Land Claims Commissioner) in North West was contacted to confirm if there were any land claims on portion 5 of the farm Ruighoek 169JP. The Land Claims Commissioner confirmed that a land claim was lodged on the property. However, the portion on which the land claim was lodged on is considered to be portion 19 of portion 5 of the farm Ruighoek 169JP. This portion is not located within the project area and is in the process of being registered as a subdivision with the Deeds Office.</p>
Meetings with key stakeholders	<p>Meetings with the Bathako Ba Leema Mine Community Leadership were undertaken on 22 March 2022. The meeting was undertaken at the Tlhathaganyane Tribal Offices and was facilitated by MTS. The main aims of the meeting were to present the proposed project, discuss the Background Information Document (BID) and to obtain permission and confirmation on the placement of site notifications.</p>
BID	<p>A BID (English and Setswana) compiled by SLR was made available for public distribution at the Tribal Authority Offices and the Local Municipality Offices on 22 March 2022. An electronic copy of the BID was distributed via email to all I&APs on the project database and was made available on the project portal at mts-engage.co.za/ruighoek for download and public viewing. The BID consisted of the following information:</p> <ul style="list-style-type: none"> • Information about the proposed project. • Information about the baseline environment of the proposed project footprint. • Information regarding possible biophysical/cultural/socio-economic impacts associated with the proposed project activities. • Details pertaining to stakeholder engagement. • Information on how I&APs and commenting authorities can have input into the environmental assessment process.

Step	Detail
	<p>A registration and response form was attached to the BID, which provided I&APs with an opportunity to register as an I&AP and submit comments on the proposed project.</p> <p>A notification letter (English) was emailed on 28 March 2022 to the I&AP database indicating the availability of the BID and providing links to the web portal where the BID could be accessed.</p>
Site notices	<p>MTS placed 6 laminated A2-sized site notices (English and Setswana) on 22 March 2022 at key conspicuous places in and around the project area, the Tribal Authority Offices, the Local Municipality offices and the following local communities:</p> <ul style="list-style-type: none"> • Mabeleng. • Tlathlaganyane. • Makgope. • Mkoshong. <p>The site notices provided information about the proposed project, details pertaining to stakeholder engagement, information on how I&APs could have input into the environmental process, and information pertaining to the availability and access of the BID for review and comment.</p>
Newspaper advertisements	<p>Newspaper advertisements (English) have been placed in the <i>Platinum Weekly</i> (14 April 2022) and the <i>Rustenburg Herald</i> (13 April 2022). The advertisements provided information about the proposed project, details pertaining to stakeholder engagement, information on how I&APs could have input into the environmental process, and information pertaining to the availability and access of the BID for review and comment.</p>
Application Phase	
BAR and NTS for public review and comment	<p>The BAR (English) and NTS (English and Setswana) were made available for a 30-day public review and comment period from 4 May – 2 June 2022 in order to provide I&APs with an opportunity to comment on any aspect of the proposed project and the findings of the environmental assessment process. Full copies of the BAR and the NTS were placed on the project web portal at mts-engage.co.za/ruighoek.</p> <p>A notification letter (English) indicating the availability of the BAR and NTS and providing the links to the website in order to access the documents, was provided to I&APs registered on the project database, via email on 3 May 2022.</p> <p>Hard copies of the full BAR and EMPr were provided to Bathlako Ba Leema and DEDECT. A hard copy of the full BAR and EMPr was also placed in the Mogwase Community Library. A cover note (English) indicating an extension of the BAR and NTS public review period for those who received hard copies of the BAR was delivered by hand on 11 May 2022.</p>
Meeting with Traditional Leaders	<p>A meeting was undertaken with Traditional Leaders on 18 May 2022. The purpose of the meeting was to discuss the findings of the BA process and provide an opportunity for any comments/queries to be raised about the proposed project.</p>
BAR and NTS for decision-making	<p>This BAR (English) and NTS (English and Setswana) is compiled and updated with comments received from the I&APs. The BAR and NTS have been submitted to the DMRE for consideration and decision-making. Full copies of the BAR and the NTS submitted for decision-making have been placed on the mts-engage.co.za/ruighoek web portal.</p>

Step	Detail
	A notification letter (English) indicating the submission of the BAR and NTS to the DMRE, as well as the links to the website in order to access the documents, was provided to I&APs registered on the project database, via email.
I&AP Notification of Decision	
DMRE decision	All I&APs registered on the project database will be notified once the decision to grant or refuse EA is received. The notification letter (English) will include information on how to access the decision, as well as information pertaining to the appeal process. The notification letter will be provided to I&APs registered on the project database via email.

7.3 SUMMARY OF ISSUES RAISED BY I&APS

A full record of the issues and concerns raised by I&APs to date has been included in Table 7-2. All issues and concerns raised during the public comment and review period of the BAR have been underlined.

Table 7-2: Full Record of Issues Raised by I&APs to date

I&AP	Date comment received	Issue raised	Response provided	Report reference where the issue and responses were incorporated
Authorities				
Elijah Dumisani Katsetse (SAHRA)	8 June 2022 (South African Heritage Resources Information System [SAHRIS])	<p>The SAHRA's Archaeology, Palaeontology and Meteorites (APM) Unit has received the draft BAR as part of the EA process, attached to the BAR are heritage specialist studies. SAHRA supports the recommendation made in the reports by respective specialists and has no objections to the project.</p> <p>SAHRA inserts the following comments as a requirement in terms of section 3(4) of the NEMA Regulations and section 38(8) of the NHRA in the format provided in section 38(4) of the NHRA and must be included in the final BAR and EMPr:</p> <ul style="list-style-type: none"> • 38(4)a – The SAHRA APM Unit has no objections to the proposed expansion. • 38(4)b – The recommendations of the specialists are supported and must be adhered to. Further additional specific conditions are provided for the development. • The Archaeological Fossil Chance Find Protocol must be added to the EMPr. • An archaeological walk-over of the northern most parts of the project area and all borehole and trenches must be undertaken prior to construction and a report submitted to SAHRA for commenting. SAHRA reserves the right to object to the development pending the results of the walk-down. • 38(4)c(i) – If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Elijah Katsetse/Phillip Hine 021 462 4502) must be alerted as per section 35(3) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule; • 38(4)c(ii) – If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Nggalabutho Madida 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule. • 38(4)d – See section 51(1) of the NHRA. • 38(4)e – The following conditions apply with regards to the appointment of specialists: <ul style="list-style-type: none"> ○ If heritage resources are uncovered during the course of the development, a professional archaeologist or 	<p><u>These comments are noted.</u></p> <p><u>This comment is noted. This BAR and EMPr have been updated, where appropriate.</u></p> <p><u>This comment is noted.</u></p> <p><u>Specialist recommendations (as per Appendix E) have been included in this BAR and EMPr.</u></p> <p><u>The Chance Find Protocol has already been included in this BAR and EMPr, as per Appendix E.</u></p> <p><u>This BAR and EMPr has been updated to include this management action.</u></p> <p><u>The Chance Find Protocol has been updated to include this.</u></p> <p><u>The Chance Find Protocol has been updated to include this.</u></p> <p><u>This comment is noted.</u></p> <p><u>The Chance Find Protocol included in this BAR and EMPr already includes this management action.</u></p>	<p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>Table 9-1, Table 10-1, Table 25-1, Table 26-1, Appendix D</p> <p>Table 9-1, Table 10-1, Table 25-1, Table 26-1, Appendix D</p> <p>Table 9-1, Table 10-1, Table 25-1, Table 26-1, Appendix D</p> <p>Table 9-1, Table 10-1, Table 25-1, Table 26-1, Appendix D</p> <p>-</p> <p>Table 9-1, Table 10-1, Table 25-1, Table 26-1, Appendix D</p>

I&AP	Date comment received	Issue raised	Response provided	Report reference where the issue and responses were incorporated
		<p><u>palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA.</u></p> <ul style="list-style-type: none"> <u>The final BAR and EMPr must be submitted to SAHRA for record purposes.</u> <u>The decision regarding the EA Application must be communicated to SAHRA and uploaded to the SAHRIS Case</u> <u>Should you have any further queries, please contact the designated official using the case number quoted above in the case header</u> 	These comments are noted.	-
Landowners, Land Users and Adjacent Landowners and Land Users				
<u>Olefile Lekgoe</u>	<u>(Website portal)</u>	<u>I have just started my commercial farm in the area, so I'm concerned that my business might be affected.</u>	<u>The assessment of the proposed project presents the potential for negative impacts to occur (in the unmitigated scenario in particular) on the biophysical, cultural/heritage and socio-economic environments both within the project footprint and in the surrounding area. The significance of all these impacts, post mitigation, range from VERY LOW to LOW, with a number of impacts also being rated as being INSIGNIFICANT. Assuming the implementation of management actions, these potential impacts can be prevented or reduced to acceptable levels. Notwithstanding the above, the proposed project is not anticipated to impact nearby businesses and the footprint will be limited to the project area where the drilling of boreholes and digging if trenches will be undertaken.</u>	Table 9-1, Table 10-1, Table 25-1, Table 26-1, Appendix D
<u>Keamogetseng Bnada</u>	<u>(Website portal)</u>	<u>How will the community of Mabelleng benefit from the project hence it's of the closest community around and its 2.5km away from the project site.</u>	<u>A staff complement of approximately two to three general labourers would be required for the proposed project. Procurement opportunities would be sourced locally, as far as possible. If viable deposits are identified, the potential exists for mining activities to be undertaken. The socio-economic impact will only be determined upon completion of the prospecting activities and the analysis of the results.</u>	-
<u>Silas Ramoneke Omphemetse Moatshe</u>	<u>(Website portal)</u>	<u>I am part and parcel of I&AP.</u>	<u>The database has been updated to include this I&AP.</u>	Appendix C
Traditional Leaders				
<u>Magalefile Ntuane</u>	<u>18 May 2022 (meeting)</u>	<u>Portion 5 is not owned by Bathlhako Ba Leema, that is why they have a question as to who is the owner of the land?</u>	<u>Portion 5 of the farm Ruighoek 169JP is owned by a private person (Ralegase Amon and Moloana Moses).</u>	Section 7.4.3.2
<u>William Ntuane</u>	<u>18 May 2022 (meeting)</u>	<u>What will happen during the prospecting if the mine discovers other minerals that are not part of the application.</u>	<u>The process is in the application stage and that issue will be dealt with if it arises during prospecting activities.</u>	-
		<u>In terms of the heritage sites and the impact that they will have, if during prospecting they come across heritage sites, what procedure will be followed?</u>	<u>In the event of the uncovering of a cultural/heritage and/or paleontological resource during prospecting activities, activities will cease, and a Chance Find Procedure will be implemented.</u>	Table 9-1, Table 10-1, Table 25-1, Table 26-1, Appendix D
Businesses and Other I&APs				
<u>Irene Phasha (North West Parks Board)</u>	<u>(Website portal)</u>	<u>As one of the mandates of North West Parks Board is to protect the fauna and flora, the project is going to take place within the radius of our protected area (Pilanesberg National Park). My concern is that during the phase of drilling, water in the boreholes and rivers in our protected area may be polluted with</u>	<u>The assessment of impacts arising from the proposed project is undertaken in accordance with SLR's methodology. The potential impacts and the significance thereof are presented in this BAR and EMPr and measures to mitigate environmental impacts associated with the proposed project have been included in the EMPr. Impacts during operation are able to be managed or mitigated to a level that is considered acceptable, especially given that the impact generating activities associated with the proposed prospecting activities are</u>	Appendix D

I&AP	Date comment received	Issue raised	Response provided	Report reference where the issue and responses were incorporated
		<p><u>chemicals. If the water is polluted, wildlife and aquatic species may be poisoned this is going to result in high mortality of species.</u></p> <p><u>Dust and smoke from the mine may pollute the air, this will affect the health of our permanent staff residing in the protected area and our guest.</u></p>	<p><u>limited to one year and therefore are short-term. The significance of all these impacts, post mitigation, range from VERY LOW to LOW, with a number of impacts also being rated as being INSIGNIFICANT.</u></p> <p><u>The proposed project presents a number of sources that can have a negative impact on the ambient air quality and surrounding land uses. Sources include clearing of vegetation, materials handling, wind erosion from stockpiles and disturbed areas, as well as vehicle tailpipe emissions from plant, equipment and vehicles. The afore-mentioned activities will be localised during operation but have the potential to disturb AQSRs. It is; however, important to note that the proposed project does not present additional sources of air pollution that differ from those in the existing area, with specific reference to and in the context of the existing illegal mining activities. The potential impact on air quality as a result of the proposed project has been rated as INSIGNIFICANT, post-mitigation.</u></p>	
	15 June 2022 (email)	<p><u>North West Parks Board is the conservation authority in the North West Province responsible for the management of the Protected Areas. North West Parks Board as the I&AP, hereby acknowledge having receipt the application for the above-mentioned application for listed activities associated with MR, for the proposed PR Application on Ruighoek 169JP.</u></p>	<p><u>This comment is noted; however, it must be noted that the proposed project is associated with a PR application, not a MR application.</u></p>	-
		<p><u>I am writing to schedule a site inspection. If the time works for you, I would like to meet at 10h00 on the 22 June 2022 at Pilanesberg National Park (Ruighoek). Please confirm whether that works for you or if another time. I look forward to our meeting.</u></p>	<p><u>It is currently not possible to undertake site visits to the project area as illegal mining activity is being undertaken in the area and there are related safety concerns.</u></p>	-
	22 June 2022 (telephone)	<p><u>The North West Parks board usually has objections to projects that are within a 10 km radius of the National Park. This is dependent on expansion projects. How far is the Ruighoek project site from Pilanesberg National Park?</u></p>	<p><u>The project area is located approximately 4 km west of the Pilanesberg National Park.</u></p>	Section 7.4.3.2

7.4 ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE PROPOSED PROJECT AND THE ALTERNATIVES

An understanding of the biophysical, cultural/heritage and socio-economic context and sensitivity within which the proposed project is located is important in understanding the potential impacts of the project. This section provides a description of these attributes in the receiving environment of the project footprint.

7.4.1 Baseline Biophysical Environment Affected by the Proposed Activity

7.4.1.1 Geology

Regional Geology: The Pilanesberg Platinum Mine is situated on the Bushveld Igneous Complex (BIC). The BIC is an intrusive igneous body, extending about 400 km from east to west and about 350 km from north to south. The BIC consists of crystalline material such as norites and pyroxenites. The BIC comprises an unweathered and intact rock matrix with negligible matrix porosity and permeability, and planes of discontinuity in the rock matrix, including both faults and joint plant (collectively referred to as fractures). The ultramafic-mafic rocks of the BIC are known as the Rustenburg Layered Suite (RLS). The rocks of the RLS range from ultrabasic pyroxenites and anorthosites in the lower parts, to norite, gabbro and magnetite gabbro in the upper parts. The RLS is subdivided into the Marginal, Lower, Critical, Main and Upper Zones. The Critical Zone is the host to all chromium and PGM mineralisation within the BIC (SLR, 2019). A geological map of the BIC and associated stratigraphy of the BIC is provided in Figure 7-1.

Local Geology: The Pilanesberg Platinum Mine is located on the Western Limb of the BIC. Reefs associated with the mine include the UG2 and Merensky reefs. The mine is located just to the north-west of the prominent Pilanesberg Complex. The Pilanesberg Complex is an alkaline syenite-rich intrusive complex containing rare foyaite and lava tuff. Associated with the Pilanesberg Complex is fluoride which influences the groundwater quality. The Pilanesberg Complex is intruded into the gabbro norite and anorthosite of the BIC (E-Tek Consulting (Pty) Ltd [E-Tek], 2021). The Bushveld rocks to the north of the Pilanesberg Complex are overlain by quaternary sediments and sand, between 20 and 40 m thick. These alluvium zones are expected to form localised perched aquifers or zones of higher recharge (along drainage channels). Within the proposed PR area, rocks are mostly comprised of leuconorite, anorthosite, pyroxenite and chomitite (SLR, 2019).

Lineaments: The geology is fractured and intruded by dykes that follow the weaker areas in the rock units. The dominant structures are north-south in orientation with some prominent west-east structures coinciding with drainages from the Pilanesberg complex. There are secondary structures which branch off from the larger features and the drainage lines tend to follow these structures. A regional structure known as the Frank Fault has been identified from drilling and aerial geophysics. This fault transects the geology and displaces up to 1 000 m in places. This structure is located some 6 km west of the existing Tuschenkomst open pit at the Pilanesberg Platinum Mine and extends for more than 25 km in an approximate north-south orientation (see Figure 7-1) (SLR, 2019).

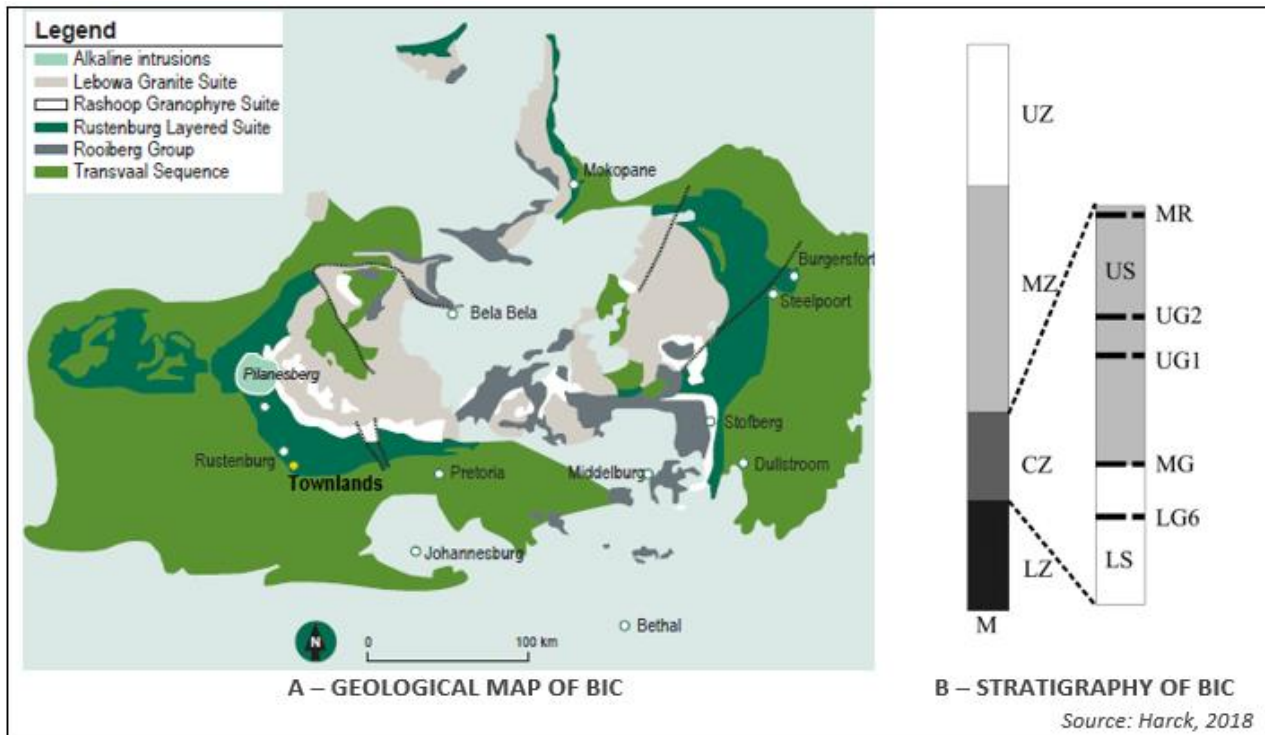
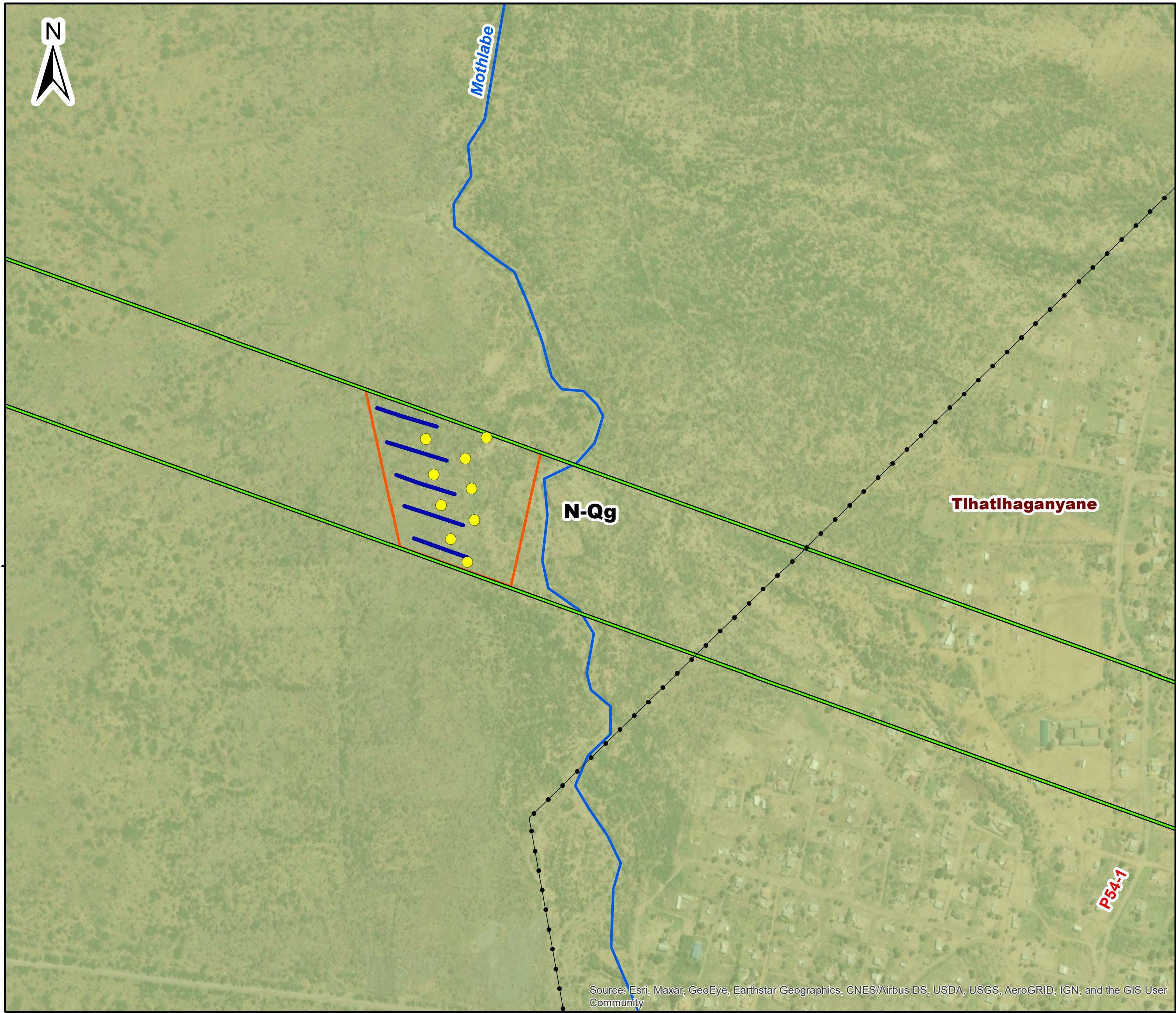


Figure 7-1: Geological Map and Stratigraphy of the Bushveld Igneous Complex

7.4.1.2 Topography

Regional Topography: Regionally Pilanesberg Platinum Mine is located on a flatter portion of land within the semi-arid zone of the MKLM. The broader environment is characterised by bushveld plains to the north of the Pilanesberg Mountains. There are several isolated *koppies* in the northern areas, that vary in height between 1 197 and 1 266 metres above mean seal level (mamsl). Hills associated with the Pilanesberg National Park, towards the south-east of the Pilanesberg Platinum Mine, range in height between 1 330 and 1 534 mamsl (Metago Environmental Engineers (Pty) Ltd [Metago], 2011). Majority of the Pilanesberg Platinum Mine has been transformed by current mining activities, including the open pit, WRDs, TSFs and other mining-related infrastructure. The ground slopes gently towards the north-west, while the average elevation is approximately 1 100 mamsl (E-Tek, 2021).

Local Topography: The proposed PR area is characterised by a combination of isolated *koppies* and flatter areas (Metago, 2011).



- Legend**
- Powerlines
 - Rivers
 - ▭ Project Area - Portion RE/5/169
 - ▭ Prospecting Area
 - Proposed Trenches
- Geology**
- ▭ ALLUVIUM, COLLUVIUM, ELUVIUM, GRAVEL, SCREE, SAND, SOIL, DEBRIS - (N-Qg)
 - Proposed Boreholes

0 100 Meters
 Scale: 1:6 100 @ A3
 Projection: Transverse Mercator
 Datum: Hartebeeshoek, Lo27

Proposed Prospecting Right on Portion 5 of the Farm Ruighoek 169JP

Figure 7-2
Geological Features Associated with PPM



SLR Consulting (South Africa) (Pty) Ltd
 P O Box 1596, Cramerview, 2060, South Africa
 Tel: +27 (11) 467-0945 Fax: +27 (11) 467-0978

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

7.4.1.3 Climate

Climate: The proposed project area falls within the Highveld Climatic Zone. The bulk of rainfall occurs during thunderstorms which generally occur every three to four days in summer and are of short duration and high intensity. Temperatures in this climatic zone are generally mild, but low minima can be experienced in winter due to clear night skies. Frost characteristically occurs in the winter months. Generally, winds are light, but south-westerly winds associated with thunderstorms are typically strong and gusty (SLR, 2019).

Rainfall and Evaporation: Rainfall for the project area was obtained from available South African Weather Services (SAWS) and DWS stations. The data indicates a mean annual precipitation (MAP) of 592 mm. Evaporation records show a mean annual evaporation of 1 532.2 mm. Average evaporation figures exceed average rainfall figures by 940 mm. These high evaporation figures indicate that the area is a water deficit area. When considering the duration and frequency of storm events, available data shows that the 1:50 year and 1:100 year 24-hour storm intensities of 151.5 mm and 169.2 mm, respectively, are close to the largest one-day rainfall event recorded in 78 years, which was 145.8 mm (SLR, 2019).

Wind and Atmospheric Stability: The prevailing wind direction is from the eastern sector. Very little airflow is recorded from the west. Strong winds are experienced during the day from the east and north, with a decrease in the wind velocity during the night-time. No change in the wind direction is reflected during the night with the prevailing winds remaining from the east (SLR, 2019).

During the summer months, stronger winds are recorded from the east and east-northeast. The autumn and spring months show a similar pattern to summer months with prevailing winds from the eastern sector. A high percentage of calm conditions (wind speeds <1 m/s) is reflected during the autumn months. During spring and winter months an increased frequency of strong winds are observed from the south-east and south-southeast (SLR, 2019).

In general wind speeds are below 5.2 m/s and are not able to lift dust particles from the ground; however, this is dependent on the material type as fine dust and dust that is already airborne can be carried by wind speeds of less than 5.2 m/s (SLR, 2019).

Stable conditions are mostly associated with winds from the east and south-east. Unstable conditions occur most frequently when the wind blows from the west. Neutral conditions are mostly associated with winds from the south-south-east and south (SLR, 2019).

Ambient Temperature: Minimum, maximum and average temperatures for the project area for the period 2013 to 2015 (using modelled meteorological data), indicate temperatures ranging from 1.1°C (in winter) to 34.6°C (in summer). Average temperatures were in the region of 19.5°C (SLR, 2019).

7.4.1.4 Soils and Land Capability¹

Land Type Classification: The proposed PR area is classified as Land Type Ea69. Mapping Unit Ea69 indicates an area consisting of dark and/or red coloured soils, with a clayey texture and high base status. More than

¹ It must be noted that the information is based on a desktop study (the Department of Agriculture, Land Reform and Rural Development's [DALRRD] National Land Capability Evaluation Raster Data Layer). A soil classification survey could not be undertaken in the proposed PR area due to safety concerns – illegal mining activity was being undertaken within the PR area.

50% of soils in this group consist of soils with vertic, melanic or red structured diagnostic horizons. According to the land type data sheet of Land Type Ea69, the terrain consists of four terrain units (Terrain Units 1, 3, 4 and 5) (TerraAfrica Consult cc [TerraAfrica], 2022).

Soil Distribution and Forms: The distribution of soils is closely linked to the topography and parent materials from which they are derived. The better drained soils are generally associated with a less basic parent material; while the more structured and more clay rich (less easily drained) soils are associated with the intrusive, basic parent material. Terrain Units 3 and 4 are associated with Arcadia soils, with clay content of the vertic topsoil ranging between 40 – 60%. Terrain Units 1 and 5 have 60% and 33% Arcadia soils, respectively. The remainder of the soil forms within the Terrain Units include Shotlands, Swartland, Rensburg, Mispah, Glenrosa, Dundee and Bonheini soils. It also included Hutton soils that have topsoil clay content ranging between 25 – 40%, and a subsoil clay content ranging between 35 – 60% (TerraAfrica, 2022).

Land Capability: The land capability within the proposed PR area is considered to be Moderate (approximately 4.7 ha). Land with a Moderate land capability is considered suitable for rainfed crop production, but with climate and/or terrain limitations which hinder suitability. Following the DALRRD's land capability classes, the proposed PR area has arable or grazing land capability (TerraAfrica, 2022).

Agricultural Production: Field crop boundary data layers of the North West were analysed to identify any crop fields within the project area. Data indicates that one crop field with subsistence farming is present within the proposed PR area. The crop field is located in the north-western corner of the proposed PR area, while additional areas with subsistence farming are located southwards and northwards. However, following the analysis of satellite imagery, it is apparent that the area has exactly the same vegetation as the surrounding area. It follows that it is more likely that this area has reverted back to natural vegetation that is used for livestock grazing or was used as an old crop field which has now returned back to natural vegetation (TerraAfrica, 2022).

7.4.1.5 Biodiversity^{2 3}

Flora: Portion 5 of the farm Ruighoek 169JP is located within the Zeerust Thornveld and Pilanesberg Mountain Bushveld vegetation types. The proposed PR area is located within the Zeerust Thornveld vegetation type only (Scientific Terrestrial Services cc [STS], 2021).

The features of the Zeerust Thornveld vegetation type include deciduous, open to dense short, thorn woodland, which is dominated by *Vachellia* and *Senegalia* species with an herbaceous layer of mainly grasses, on deep, high base-status and some clay soils. The vegetation type is generally found between the rocky ridges of the Dwarsberg-Swartruggens Mountain Bushveld. The conservation status of this vegetation type is considered Least Concern (STS, 2021).

² It must be noted that the freshwater ecosystem delineation was verified in the field at pre-selected points and points of interest (POI) along representative reaches, upgradient and downgradient of the system that flows through the proposed PR area. A freshwater ecosystem field survey could not be undertaken in the PR area due to safety concerns – illegal mining activity was being undertaken within the PR area.

³ It must be noted that the information is based on the review of satellite imagery and field experience within the broader areas. Species compositions were extrapolated from nearby POI. A biodiversity field survey could not be undertaken in the PR area due to safety concerns – illegal mining activity was being undertaken within the PR area.

The proposed PR area and alternatives are characterised by three broad habitat units (STS, 2021). These are as follows and are depicted in Figure 7-3:

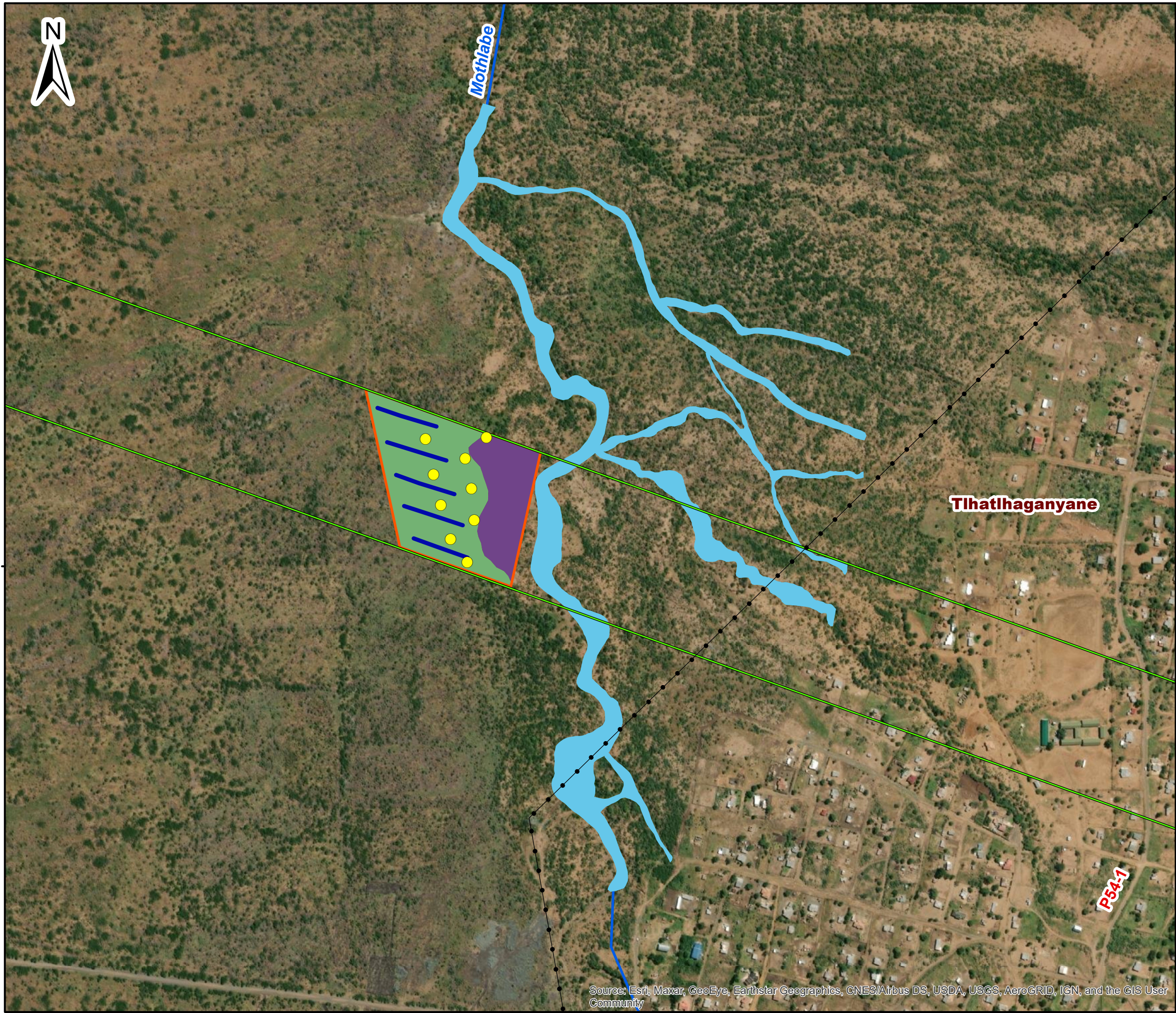
- **Thornveld Habitat:** This habitat unit is west of the PR area and is largely homogenous, supporting a moderate to moderately low species richness. It covers approximately 3.8 ha of the PR area. Indigenous vegetation dominated, although alien and invasive plant species were also recorded, albeit in moderately low densities. Woody encroachment, although not prolific within the habitat unit, was evident and the area had been subject to current and historic anthropogenic influences, including altered fire regimes, intense grazing practices, wood harvesting, current and historic mining practices and historic agricultural practices.
- **Degraded Thornveld Habitat:** This habitat unit is located within the central regions of the PR area and is likely the result of current and historic anthropogenic influences. It covers approximately 1,5 ha of the PR area. Overall. The habitat unit is supported by a lower diversity and abundance of floral species, while woody vegetation was less dense than the adjacent Thornveld Habitat. Grass and forb layers were poorly represented while overall given the impacted nature of the Degraded Habitat unit and the altered species composition, the unit is noted considered to be representative of the reference vegetation type, i.e. Zeerust Thornveld.
- **Freshwater Habitat:** This habitat unit is associated with the adjacent ephemeral Mothlabe River to the east. POI up and downstream of the Mothlabe River indicated a floral community ranging from semi- to strongly riparian in nature. Species composition was moderate to moderately low and is considered to have been significantly impacted on by anthropogenic activities, most notably sand mining associated with the river and dumping of waste material from illegal mining activities. This habitat unit was included initially within the PR area; however, the area was refined to exclude due to its aquatic biodiversity sensitivity.

No species of conservation concern (SCC) were recorded within the habitat units; however, the propensity of the area to support SCC is considered to be moderate to high. These SCC are defined as red-data list (RDL) plants in terms of Section 56 of the NEM: BA; species listed in the Threatened or Protected Species (TOPS) list for the North West province; species listed in the Transvaal Nature and Conservation Ordinance, 12 of 1983 (TNCO); and are species identified within the NFA (STS, 2021).

Prominent species identified within the identified vegetation habitats on site⁴ are provided in Table 7-3. Identified alien and invasive species have been shaded in **red**, while SCC with a medium to high probability of occurrence within the project area are shaded in **green**.

For a full list of floral species with the potential to occur within the project area, see the Terrestrial Biodiversity Study attached as Appendix E.

⁴ Species identified at POI are considered to be representative of the proposed PR area.



- Legend**
- Powerlines
 - Rivers
 - Portion RE/5/169
 - Prospecting Area
 - Proposed Boreholes
 - Proposed Trenches
- Habitat Units**
- Degraded Thornveld
 - Freshwater Habitat
 - Thornveld Habitat

0 100 Meters
 Scale: 1:6 100 @ A3
 Projection: Transverse Mercator
 Datum: Hartebeeshoek, Lo27

Proposed Prospecting Right on Portion 5 of the Farm Ruighoek 169JP

Figure 7-3
Broad Habitat Units Identified Within the Project Footprint



SLR Consulting (South Africa) (Pty) Ltd
 P O Box 1596, Cramerview, 2060, South Africa
 Tel: +27 (11) 467-0945 Fax: +27 (11) 467-0978

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Table 7-3: Floral Species Identified with the Project Footprint

Species Type	Species		
Woody	<i>Asparagus larycinus</i>	<i>Asparagus suaveolens</i>	<i>Boscia foetida</i> subsp. <i>rehmenniana</i>
	<i>Clematis brachiata</i>	<i>Combretum erythrophyllum</i>	<i>Combretum molle</i>
	<i>Dichrostachys cinerea</i>	<i>Ehretia rigida</i> subsp. <i>nervifolia</i>	<i>Euclea undulata</i>
	<i>Gomphocarpus fruticosus</i>	<i>Grewia flava</i>	<i>Gymnosporia buxifolia</i>
	<i>Melia azedarach</i>	<i>Psiadia punctulata</i>	<i>Searsia lancea</i>
	<i>Senegalia mellifera</i> subsp. <i>Detinens</i>	<i>Sesbania sesban</i>	<i>Tapinanthus oleifolius</i>
	<i>Tarchonanthus camphoratus</i>	<i>Vachellia karroo</i>	<i>Vachellia nilotica</i>
	<i>Vachellia tortilis</i> subsp. <i>heteracantha</i>		<i>Ziziphus mucronata</i>
Herbaceous	<i>Argemone ochroleuca</i> subsp. <i>ochroleuca</i>	<i>Bidens pilosa</i>	<i>Commicarpus pentandrus</i>
	<i>Dicoma tomentosa</i>	<i>Geigeria burkei</i>	<i>Jatropha zeyheri</i>
	<i>Justica</i> sp.	<i>Kyphocarpa angustifolia</i>	<i>Laggera decurrens</i>
	<i>Leonotis</i> cf. <i>ocymifolia</i>	<i>Polygala hotentotta</i>	<i>Senna italica</i> subsp. <i>arachioides</i>
	<i>Sida cordifolia</i>	<i>Tagetes minuta</i>	<i>Vernonia</i> sp.
	<i>Xanthium strumarium</i>	<i>Zinnia peruviana</i>	<i>Zornia glochidiala</i>
Succulent	<i>Agave americana</i>	<i>Agave sisalana</i>	<i>Aloe marlothii</i>
	<i>Aloe transvaalensis</i>	<i>Kalanchoe</i> sp.	<i>Opuntia</i> cf. <i>ficus-indica</i>
	<i>Viscum</i> cf. <i>rotundifolium</i>		
Graminoid	<i>Aristida congesta</i> subsp. <i>barbicollis</i>	<i>Aristida congesta</i> subsp. <i>congesta</i>	<i>Bothriochloa insculpta</i>
	<i>Brachiaria nigropedata</i>	<i>Chloris virgata</i>	<i>Cymbopogon</i> sp.
	<i>Cynodon dactylon</i>	<i>Digitaria eriantha</i>	<i>Heteropogon contortus</i>
	<i>Melinis repens</i>	<i>Panicum maximum</i>	<i>Pennisetum setaceum</i>
	<i>Trachypogon spicatus</i>		<i>Urochloa mosambicensis</i>
Various	<i>Ammocharis coramica</i> *	<i>Boscia albitrunca</i> ~	<i>Combretum imberbe</i> ~
	<i>Harpagophytum procumbens</i> +	<i>Huernia</i> spp.*	<i>Orbea</i> spp.*
	<i>Scadoxys puniceus</i> *	<i>Sclerocarya birrea</i> subsp. <i>Caffra</i> ~	<i>Spirostachys africana</i> *
	<i>Stapelia</i> spp.*		

* - Denotes a listing in the TNCO.

~ - Denotes a listing in the NFA.

+ - Denotes a listing in the NEM: BA.

It is important to note that as part of the proposed project, consideration was given to provincial and national biodiversity sensitivity databases, such as the National Protected Areas Expansion Strategy (NPAES) 2010, the South African Conservation Areas Database (SACAD) 2020, the South African Protected Area Database (SAPAD) 2020, the Mining and Biodiversity Guidelines 2013, the North West Biodiversity Sector Plan 2015, the Important Bird Areas (IBAs) 2015, the National Freshwater Ecosystem Priority Areas (NFEPA) Database 2011, the DWS Research Quality Information Services (RQIS) Database 2014, the National Biodiversity Assessment (NBA) 2018 and the NEM: BA.

In this regard, the project footprint falls within a terrestrial and aquatic CBA 2 and an aquatic ESA 1 as per the North West Biodiversity Sector Plan 2015 (the Freshwater Habitat mentioned previously). The project footprint also falls within a sub quaternary catchment classed as a Freshwater Ecosystem Priority Area, and in proximity of a FEPA River (Motlhabe River), as per the NFEPA Database 2011. Additional biodiversity sensitivity areas located in close proximity to the proposed project are the Pilanesberg IBA and the Pilanesberg National Park, which is located approximately 4 km east of the project area (STS, 2021; Scientific Aquatic Services cc [SAS], 2022).

Fauna: Based on observations in the faunal POIs, it can be noted that the project area hosts a moderate to moderately low faunal diversity. Very few faunal species and signs thereof were observed, likely due to various anthropogenic influences in the surrounding area, i.e. illegal mining and dumping activities, livestock grazing and human settlements. Additionally, faunal accessibility, resources and diversity are further limited by bush encroachment. The ephemeral nature of the Freshwater Habitat limits faunal assemblage on the site to mostly water-independent, disturbance adapted species (STS, 2021; SAS, 2022).

No faunal SCC were observed on site; however, the distribution range and habitat requirements of the species listed in Table 7-4 overlap the project area, and therefore have an increased probability of occurrence on site.

Table 7-4: Faunal SCC with an increase Probability of Occurrence on site

Scientific Name	Common Name
<i>Ardeotis kori</i>	Kori Bustard
<i>Eidolon helvum</i>	African Straw-coloured Fruit-bat
<i>Harpactira hamiltoni</i>	Highveld Baboon Spider
<i>Polemaetus bellicosus</i>	Martial Eagle
<i>Python natalensis</i>	Southern African Rock Python
<i>Pyxicephalus adspersus</i>	Giant Bullfrog
<i>Sagittarius serpentarius</i>	Secretary Bird
<i>Torgos tracheliotus</i>	Lappet-faced Vulture

For a full list of faunal species with the potential to occur within the project area, see the Terrestrial Biodiversity Study attached as Appendix E.

7.4.1.6 Surface Water

Catchment and Bioregion: The proposed PR area is located within the Limpopo Water Management Area (WMA) (formerly the Crocodile West and Marico WMA) within A24D quaternary catchment (see Figure 7-4)

(SLR,2019; SAS, 2022). Quaternary catchment A24D has a catchment area of 1 326.51 km² and a mean annual runoff (MAR) of 15.53 million m³. The proposed PR area is located within the Bushveld Basin Aquatic Ecoregion and the wetland vegetation group associated with the area is the Central Bushveld Group 2, which is considered to be Least Concerned (SAS, 2022).

Surface Water Resources: As mentioned previously, the proposed PR is located within the Limpopo WMA. The major rivers associated with this WMA include the Limpopo, Matlabas, Mokolo, Lephalele, Mogalakwena Sand, Nzhele, Mutale and Luvuvhu rivers. The Mothlabe River, an unnamed tributary of the Mothlabe River and various ephemeral drainage lines were identified within 500 m of the proposed PR area (see Figure 7-4). The Mothlabe River is classified as a river FEPA; however, the habitat and biota associated with the river is considered to have been altered by disturbances within and along the river, including the creation of residential settlements, frequent livestock grazing, erosion and illegal mining and dumping activities (SAS, 2022).

Surface Water Use: There is no significant reliance on surface water for community consumption due to the ephemeral nature of most of the watercourses. Aquatic ecosystem reliance is also limited due to the transient nature of the flow in the streams (only for a few days following rain) This does not; however, negate the importance of surface water flow for certain species that rely on this limited flow (SLR, 2019).

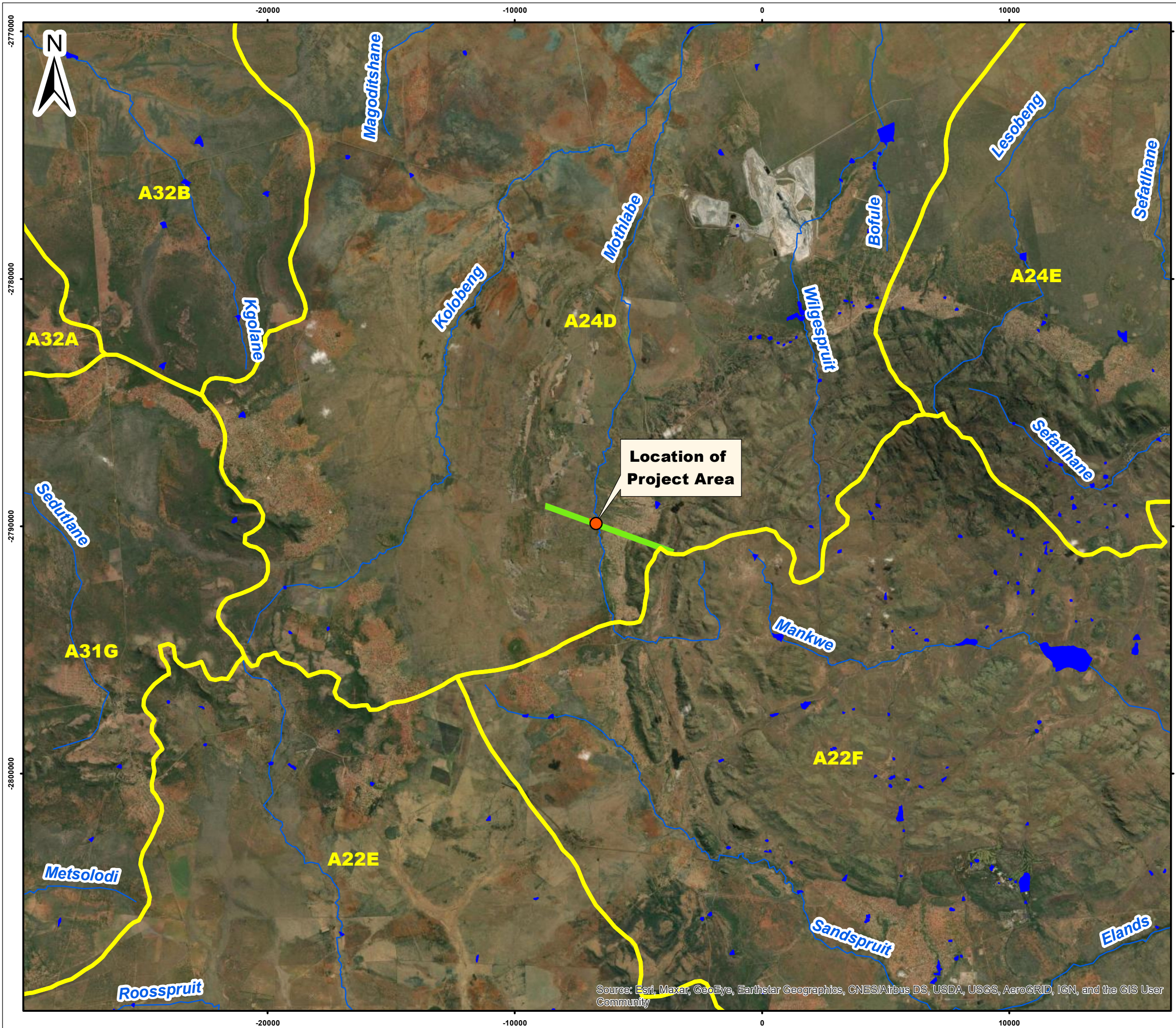
Surface Water Quality: As part of the Pilanesberg Platinum Mine's monitoring programme, surface water is sampled from two points on the tributary of the Motlabe River. It should be noted that given that the tributary is non-perennial, it follows that water is only sampled when water is present in the tributaries (SLR, 2019).

Water quality is compared to pre-mining baseline water qualities (although the baseline data is for the main Motlabe River and not its ephemeral tributaries), Pilanesberg Platinum Mine's water use license (WUL) limits and DWS' target water quality range (TWQR) are for livestock watering. When compared to the TWQR for livestock watering, water quality was within the TWQR for most of the monitoring period except for nitrite and electrical conductivity in 2009 and total dissolved solids (TDS) in 2018 (SLR, 2019).

7.4.1.7 Groundwater

Aquifer: Three possible types of aquifers underlie the Pilanesberg Platinum Mine and are described as follows (SLR, 2019):

- **Minor Aquifer:** The aquifers in the greater area are classified as Minor Aquifers, which denotes aquifers with yields of less than 1 litre per second. According to the Aquifer Classification of South Africa, Minor Aquifers are moderately-yielding systems of variable water quality.
- **Minor to Major Aquifer:** The fractured systems within the larger Minor Aquifers could form Minor to Major Aquifer zones. According to the Aquifer Classification of South Africa, Major Aquifers are high-yielding systems of good water quality.
- **Sole Source Aquifer:** Some of the localised aquifers could be classified as Sole Source Aquifers despite them being Minor Aquifers (even though some communities have or will have access to piped water from Magalies Water, some communities rely on groundwater alone for their basic water requirements).



Legend

- Quaternary Catchments
- Rivers
- Dams
- Portion RE/5/169

0 1,5 3 4,5 Km
 Scale: 1:200 000 @ A3
 Projection: Transverse Mercator
 Datum: Hartbeeshoek, LO27

Proposed Prospecting Right on
 Portion 5 of the Farm Ruighoek 169JP

Figure 7-4
 Catchment Areas



SLR Consulting (South Africa) (Pty) Ltd
 P O Box 1596, Cramerview, 2060, South Africa
 Tel: +27 (11) 467-0945 Fax: +27 (11) 467-0978

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community