mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT AS PART OF THE ENVIRONMENTAL AUTHORISATION APPLICATION FOR THE PROSPECTING RIGHT APPLICATION ON THE REMAINING EXTENT OF PORTION 1 OF THE FARM KOPJE ALLEEN 422 KQ SITUATED IN THE IN THE THABAZIMBI LOCAL MUNICIPALITY OF LIMPOPO PROVINCE

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

DMRE Reference Number: LP30/5/1/1/2/14909PR

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Report Status: Draft

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NORTHAM
ZONDEREINDE

1. IMPORTANT NOTICE

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

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

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

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

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

PREFACE

This Basic Assessment Report has been compiled by uKhozi Environmentalists (Pty) Ltd in association with JEMS (Pty) Ltd, based on the guidelines provided by the National Environmental Management Act, 1998 (Act no 107 of 1998), Environmental Impact Assessment Regulations, 2014. Full acknowledgement is made for use of the NEMA EIA 2014 regulations guideline in compiling this report. This document includes uKhozi's own interpretation of the requirements of the National Environmental Management Act (Act 107 of 1998), the regulations, the guidelines, and the integration with other statutory and best practice criteria. This report is the first step in the process of applying for environmental authorisation for the proposed prospecting operation by Northam Platinum Limited.

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DISCLAIMER

uKhozi Environmentalists (Pty) Ltd in association with JEMS (Pty) Ltd was appointed by Northam Platinum Limited to facilitate the Prospecting Right and Environmental Authorisation application process. This report has been compiled to comply with the specific requirements of the National Environmental Management Act (No. 107 of 1998) (NEMA) Environmental Impact Assessment (EIA) Regulations (2014). The management measures presented in this report was based on the project description and site plans provided by the Applicant. uKhozi accepts no liability for any incorrect data and/or information supplied by the Applicant on which any of the EMPr has been based.

The mitigation and management measures presented in this report are made for the benefit of those responsible for the implementation and monitoring of the prospecting operation. Northam Platinum Limited is fully responsible for the correct implementation of the EMPr. uKhozi accepts no liability resulting from misinterpretation and/or mismanagement of the operation made in conjunction with this EMPr. The EMPr by nature is a dynamic document and the NEMA provides for continual updating of the EMPr, with approval from the Competent Authority.

PART A:

Basic Assessment Report

Objective of the basic assessment process

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

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

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

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

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

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

  (ii) the degree to which these impacts—

    (aa) can be reversed;

    (bb) may cause irreplaceable loss of resources; and

    (cc) can be managed, avoided or mitigated;

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

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

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

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

Executive Summary

Northam Platinum Limited (Northam), has submitted an application for an environmental authorisation (EA Application) under the National Environmental Management Act 107 of 1998 (NEMA) to the Department of Mineral Resources and Energy (DMRE) for the prospecting right application (PR Application) on the Remaining Extent (RE) of Portion 1 of the Farm Kopje Alleen 422 KQ ("Proposed Prospecting Area").

The proposed Prospecting Area is located within the Limpopo Province (LP) of the Republic of South Africa (RSA) and falls under the local jurisdiction of the Thabazimbi Local Municipality (TLM), situated in the larger district of the Waterberg District Municipality (WDM). The Prospecting Area is 1 167.3865 hectares in extent and is situated between the towns of Northam and Thabazimbi.

The Prospecting Area is currently used for agricultural land that is used for cattle and game farming. The Amandelbult Mine of Anglo-American Platinum Limited is situated to the far west, whilst the Zondereinde Platinum Mine (ZM) of Northam (the current applicant) is immediately adjacent to the north of the Prospecting Area. The northern portion of the Prospecting Area is held under Northam's mining right LP37MR but for different minerals to that included in this prospecting right application.

uKhozi Environmentalists Pty Ltd ("uKhozi") in association with JEMS Pty Ltd ("JEMS") was appointed by Northam as the independent EAP for the PR Application. The prospecting schedule will be for Iron, Vanadium and Titanium and related metals over the prospecting area. The proposed operation will comprise the following activities collectively referred to as the "PR Application":

- a desktop study,
- collation of existing data and project planning,
- surface geological mapping,
- geochemical sampling,
- geophysical sampling and analysis,
- borehole drilling and sampling (two boreholes),
- trenching and sampling, and ultimately (three trenches)
- modelling/ore resource estimation.

The DMRE Limpopo Regional Office will be the competent authority ("CA") for the PR Application.

Legal context

The project requires a Prospecting Right in terms of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act 28 of 2002) and Environmental Authorisation (EA) for triggering activities that fall under the Listing Notices of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA), as amended. An integrated application for a Prospecting Right and associated Environmental Authorisation will be followed with the DMRE Limpopo identified as the Competent Authority. A Basic Assessment Process is required, as stipulated in GNR326 EIA Regulation 19, in support of the application.

Need and Desirability

The Applicant is an independent, fully empowered, mid-tier and integrated PGM producer. It currently has a number of operating assets, Zondereinde, Eland and Booysendal Mines respectively. All three operations are PGM mines in the South African Bushveld Igneous Complex (BIC). The proposed prospecting area is located immediately adjacent to the south of the Zondereinde Platinum Mine of Northam (the current applicant). The northern portion of the Prospecting Area is held under ZM's mining right LP37MR but for different minerals to that included in this prospecting right application.

The proposed prospecting activities would have a beneficial impact on the local economy, albeit of low significance, through the creation of new employment opportunities during its operational phase. Both skilled

and unskilled temporary employment opportunities would be created. In a developing country, such as South Africa, following a "no-project" option would have potential adverse impacts on a local and regional employment scale. Although prospecting is not seen as an activity that significantly and sustainably contributes to an area's economy, it is a precursor to possible mining activities.

Alternatives

No reasonable or feasible alternatives exist for the Prospecting Right Application and, as such, motivation for no alternatives has been provided in this document.

Public Participation

The following steps have and will be undertake as part of the public participation process:

- I&APs and stakeholders will be informed of the PR Application via emails, registered mail and hand delivered notices;
- Newspaper advertisements will be placed in one local newspaper.
- Site Notices will be placed around the application area
- Stakeholder discussions will be held with various I&APs on the application where relevant and requested;
- The Draft Basic Assessment Report (DBAR) and Draft EMPr (DEMPR) will be available for review and comments.
- The concerns and issues raised by I&APs and stakeholders during the DBAR will be captured and addressed in the Final Basic Assessment Report (FBAR).

Baseline Environment

The baseline environment is summarised below per environmental aspect.

Aspect	Description
Regional setting	The prospecting area is located in the Western Limb of the BIC, 25km south of the town of Thabazimbi and 12km northwest of the town of Northam. The main access to the PR Area is off the main Rustenburg-Thabazimbi Road (R510) and the Thabazimbi-Brits Road (R511). The PR Area falls within the jurisdiction of the Thabazimbi Local Municipality (TLM) which is under the jurisdiction of the Waterberg District Municipality of the Limpopo Province. Neighbouring communities in proximity to the PR Area include Setaria Village, Northam Town Amandelbult Mine Town and Thabazimbi. The PR Area is located within Ward 11 of the TLM, and forms part of the platinum mining region, established along the Western Limb of the BIC which includes several mining complexes (i.e., Northam-Zondereinde Mine, Anglo-Amandelbult, Rustenburg Platinum Mines, etc.)
Socio economic environment	The PR Area is located within the TLM which falls within the jurisdiction of the WDM. Platinum and iron ore mining are major contributors to the economy of the TLM (TLM, 2020). According to Stats SA, the 2021 projection shows that there are ± 104 781 people residing within the area of the TLM, which amounts to ± 38 175 households (TLM, 2022). A 13% growth rate was experienced from 2011 to 2016, and 15% from 2016 to 2020.
Climate	The PR Area is located in a semi-arid rainfall region, which is characterised by cool, dry winters (May to August) and warm , wet summers (October to March). Summer temperatures are high, and infrequent frost occurs in winter. The wind direction is predominantly from south-west to northeast (Prism, 2020). The study area falls within a summer rainfall region, rainfall is usually in the form of convectional thunderstorms, which are usually accompanied by thunder and lightning, high winds, heavy rainfall and the occasional hail. Evaporation data for the area is recorded at the Thabazimbi Weather Station, which is located approximately 35km north of Zondereinde Mine. Gross annual 'A' pan evaporation is 2479.1mm/a.
Topography	The topography of the PR Area is relatively flat with low hills and koppies to the West. The PR Area is located on the catchment divide of the Bierspruit and the Crocodile River. The highest elevation point is 1030 mamsl near the Western side of the PR Area to the lowest elevation on the PR area at 965 mamsl to the East. The average slope for the PR area is 1.9%.

Aspect	Description
Geology	The PR Area is located in the Western Limp of the BIC. It is underlain by the magnetite seams located at the base of the upper zone of the Bushveld Rustenburg Layered Suite.The magnetite seams of the Bushveld Complex are located at the base of the upper zone of the Rustenburg Layered Suite. The base of the upper zone is purported to lie upon the Prospecting Area. The magnetite seams are known resources of Iron, Vanadium and Titanium bearing heavy minerals.
Soils, Land Capability, and Use	The main soil forms associated with the PR Area is Mispah, Glenrosa, Shortlands, Hutton and Swartland forms (Terra Africa, 2013). The soil forms in this area have a sandy clay-loam texture. The proposed project area consists of two different land capability classes according to the land capability data (DALRRD, 2016). The largest part of the area consists of land with Moderate (Class 08) land capability, while the south-western and south-eastern corners have slightly lower land capability (Class 07 or Low-Moderate). The surrounding land consists of the same two land capability classes. The Prospecting Area is surrounded by agricultural land and is used for cattle and game farming. There is no crop production – irrigated or rainfed - within the project area or on land directly surrounding this area. No irrigation infrastructure was observed within the project area and soil and terrain conditions indicate that the area has not recently been used for crop production. Northam has recently received an approval for the development of a renewable power/ solar project on a portion of the PR Area. Northam has an existing mining right on a section of the PR Area for other commodities
Hydrology	The PR area is located in the Lower Crocodile sub-management area of the Limpopo Water Management Area (Water Management Area 3). The Lower Crocodile has two large tributaries, namely the Sand River and the Bierspruit which join the Crocodile River west of the town of Thabazimbi. There are no perennial rivers on the PR Area. A channelled Valley Bottom Wetland was identified over the centre of the PR Area.
Groundwater	The Zondereinde area is characterised by three aquifers, namely (Future Flow, 2017): • Alluvial aquifer material. • Shallow weathered fractured material • Underlying competent and fractured rock material. Groundwater flows in the fractured rock aquifer are associated with the secondary fracturing in the competent rock and as such will be along discrete pathways associated with the fractures. Faults and fractures in the competent rock can be a significant source of groundwater depending on whether the fractures have been filled with secondary mineralisation.
Ecology	The PR Area is located in the Northern Turf Thornveld IBA. According to the protected area spatial dataset from SAPAD (2022), the proposed project does not occur within any protected area. The nearest protected area is however approximately 3 km away from the study area, which means the area does fall within the 5 km protected area buffer area. The project area is within the 5 km buffer for the Sharme Private Nature Reserve. The PR Area falls within a least concerned vegetation type (Dwaalboom Thornveld) and overlaps with a moderately protected ecosystem. The western portion of the PR Area is situated within an area considered of highest biodiversity importance. No physical disturbance will be undertaken in this area. Majority of the PR Area is located within an area considered of high biodiversity importance. No CBAs or ESAs are situated over the PR Area. The project area overlaps with an NNR area. The project area overlaps with an ONA area.
Terrestrial Biodiversity	The following terrestrial habitats were identified (Biodiversity Company, 2021): • Degraded Bushveld

Aspect	Description
	• Disturbed bushveld • Rocky Koppie • Transformed • Rock Outcrops
Air quality	The PR Area is located within the Waterberg-Bojanala National Priority Area, as contemplated in section 18(1) of NEM:AQA, 2004. The Waterberg-Bojanala National Priority Area was established due to the exceedance of the ambient air quality standards or alternatively that a situation exists within the Area which is causing or may cause a significant negative impact on air quality in the area and the area requires specific air quality management action to rectify the situation. Existing key sources of air pollution surrounding the PR Area include: • Mining activity (Zondereinde Mine and Amandelbult); • Vehicle dust entrainment on unpaved roads (surrounding areas); • Commercial agricultural activities (surrounding areas); • Domestic fuel burning at informal settlements.
Noise	The general noise climate in the area and surrounds can be described as industrial / semi-rural. The area is characterised by mining operations, farms and vacant land. Existing sources of noise include: • Traffic (heavy and light vehicles) on the new R510, R511 and mining roads • Various mining operations Zondereinde and Amandelbult; and • Farming activities.
Visual Aesthetics	Data on the visual resource was collected from topographical maps and available satellite imagery for the Proposed Prospecting Area. The PR Area is located directly south of the ZM Smelter Area and the established mine. Mining forms an integral part of the current landscape of the area. Furthermore, the people living within the surrounding living quarters are mining employees and farmers within the MRA lease out the properties. The PR Area is situated in a relatively remote area amongst other mines and is only visible from the internal mining road.
Heritage and cultural resources	Two main heritage complexes were recorded within the study area, namely: • Rocky Outcrop complex; and • Koppie complex. The smaller rocky outcrop complex (site 4) was disturbed when a large water reservoir was built through the middle of the site somewhere between 2000 and 2013 in service of the mining in the area in the early 2000s (CTS, 2021). The Koppie Complex (Site 5) has fortunately had very low impacts limited to a jeep track and no additional infrastructure has been built there (CTS, 2021). According to the SAHRIS Palaeosensitivity Map, the area proposed for PR Application is underlain by sediments that have zero palaeontological sensitivity. The broader study area is underlain by Pyramid Gabbro-Norite which has zero palaeontological sensitivity. As such, no palaeontological resources will be impacted by the proposed PR Application and no further specialist palaeontological assessment is recommended.
Specific environmental features and infrastructure	The following specific environmental features and infrastructure have been identified that my require protection, remediation, management or avoidance: • Channelled Valley Bottom Wetland. • Rocky outcrops and Koppies; • Protected trees; • Heritage resources. • Cultivated fields. • Powerlines. • Smelter infrastructure. • Fences and gates surrounding game farms/camps.

Impacts

No impacts are expected to exceed a significance level of medium post mitigation. The key negative impacts along with the proposed mitigation measures are summarised below:

Impact	Environmental Risk (Pre-Mitigation)	Proposed Mitigation Measures	Environmental Risk (Post Mitigation)
Loss or damage to protected tree species	Medium	• Plan location of drill sites properly to avoid sensitive features such as watercourses and rocky outcrops. • Survey prospecting sites in areas with natural vegetation for any protected species known to occur in the region and either keep species in situ with 50m buffer zone to prevent inadvertent damage to these species or obtain permits to remove / destroy protected species. • Don't remove or damage protected trees without consulting a specialist.	Low
Establishment and spread of declared weeds and alien invader plants.	Medium	• Rehabilitate disturbed areas as quickly as possible following completion of prospecting activities in an area. • Do not translocate soil stockpiles from areas with alien plants. • Control any alien plants immediately, to avoid establishment of a soil seed bank that would take decades to remove. • Establish an on-going monitoring programme to detect and quantify any aliens that may become established.	Low
Loss of topsoil	Medium	• Implement mitigation measures under soil compaction, erosion and contamination above. • Rehabilitate disturbed areas as quickly as possible following completion of prospecting activities in an area. • Rehabilitate and re-vegetate the disturbed areas as per the ZM rehabilitation plan. • Do not translocate soil stockpiles from areas with alien plants.	Low - Medium
Deterioration in surface water quality due to hydrocarbon, sewage, process water from sumps or other waste spillages ending up in surrounding watercourses.	Medium	• Remove any spills as soon as it occurs along with the polluted soil and dispose of it at a registered waste site. • Follow the equipment's operation and maintenance procedures and all vehicles must undergo periodic maintenance and inspection. • Leaky vehicles will not be parked over bare ground; where	Low

Impact	Environmental Risk (Pre-Mitigation)	Proposed Mitigation Measures	Environmental Risk (Post Mitigation)
		unavoidable, drip trays will be placed under the equipment to collect leaks. The leaky vehicles will be discontinued until repairs are made. • Use biodegradable lubricants and fluids/polymers.	
Exposure of soils, causing increased runoff from cleared areas and erosion of the freshwater features, and thus increased potential for sedimentation, leading to changes in instream habitat and potentially altering surface water quality.	Medium	• No access roads may cross or encroach any wetlands, drainage lines or streams. • A Wetland Assessment must be undertaken prior to the commencement of the proposed project. • Maintain buffer zones recommended by the wetland specialist around watercourses as ecological corridors and refuges.	Low
Contamination of the groundwater resources through hydrocarbons, process water and wastes seeping into the groundwater table in the event of leaks/spills.	Medium	• The Applicant must identify boreholes on the proposed PR Area and monitor the groundwater quality prior to commencement of the activities to establish the baseline. • It is recommended that quarterly monitoring samples be taken of boreholes. • Equipment and vehicles must be maintained. • Inspect, repair, and replace any damaged toilets. • Appoint the necessary reputable contractor to manage portable toilets. • Potential pollution must be managed by implementing the following processes: ➢ education and training of workers (permanent and temporary); ➢ appropriate management of hazardous materials and waste; ➢ the required steps to enable containment and remediation of pollution incidents; and ➢ specifications for post rehabilitation audit criteria to ascertain whether the remediation has been successful and, if not, to recommend and implement further measures.	Low
Impact on the surrounding landowners and users. Impact includes: • Property damage (private roads, fences, gates, etc.). • Trespassing on private property.	Medium	• Prospecting activities must only be undertaken during weekdays from 6:00 to 18:00. • Remain in designated roads /routes. • The drilling team must always close the farm gates after entering. • Damage caused as a result of prospecting activities must be	Low

Impact	Environmental Risk (Pre-Mitigation)	Proposed Mitigation Measures	Environmental Risk (Post Mitigation)
• Nuisance. • Veld fires. • Disturbance of day-to-day activities.		repaired to the reasonable satisfaction of the landowner. • Vehicles will be in roadworthy condition with reflective strips to make them clean and visible for other road users. • Intersections with main tarred roads will be clearly signposted. • No employee will be allowed to loiter around farms. • The drill contractor must monitor the whereabouts of the drill team. • No employees will be allowed to make any open fires on the farms or adjacent land. • Cigarette butts may not be thrown in the veld but must be disposed of correctly. • Contractors must ensure that basic fire-fighting equipment and suitably qualified/experienced personal are always available on site. • Fire extinguishers shall be placed at working areas and all areas where hazardous substances are kept.	
Creation of employment opportunities, skills development, and training.	Medium (+)	• It is recommended that local contractors are used to maximise the opportunities made available to the local labour force. • Training and skills development programmes should be initiated prior to the commencement of the operation phase. • Develop a database of local BEE service providers and ensure that they are informed of economic opportunities.	Medium (+)

Conclusion and Recommendations

The assessment methods proved adequate to determine the nature and extent of all impacts that the proposed operation may have on the natural, social, and economic environments. Based on the findings of the impact assessment, a comprehensive Environmental Management Programme (EMPr) has been developed to prevent, reduce, or contain the impacts of the proposed prospecting operation. The likely negative impacts and risks associated with the proposed project will be short term and in a reasonably small footprint. There exist no highly significant impacts and or risks after mitigation therefor it is the consideration of the EAP that authorisation of the activity should be granted, with the understanding that legal commitment and strict adherence to the EMPr are agreed to by the Applicant.

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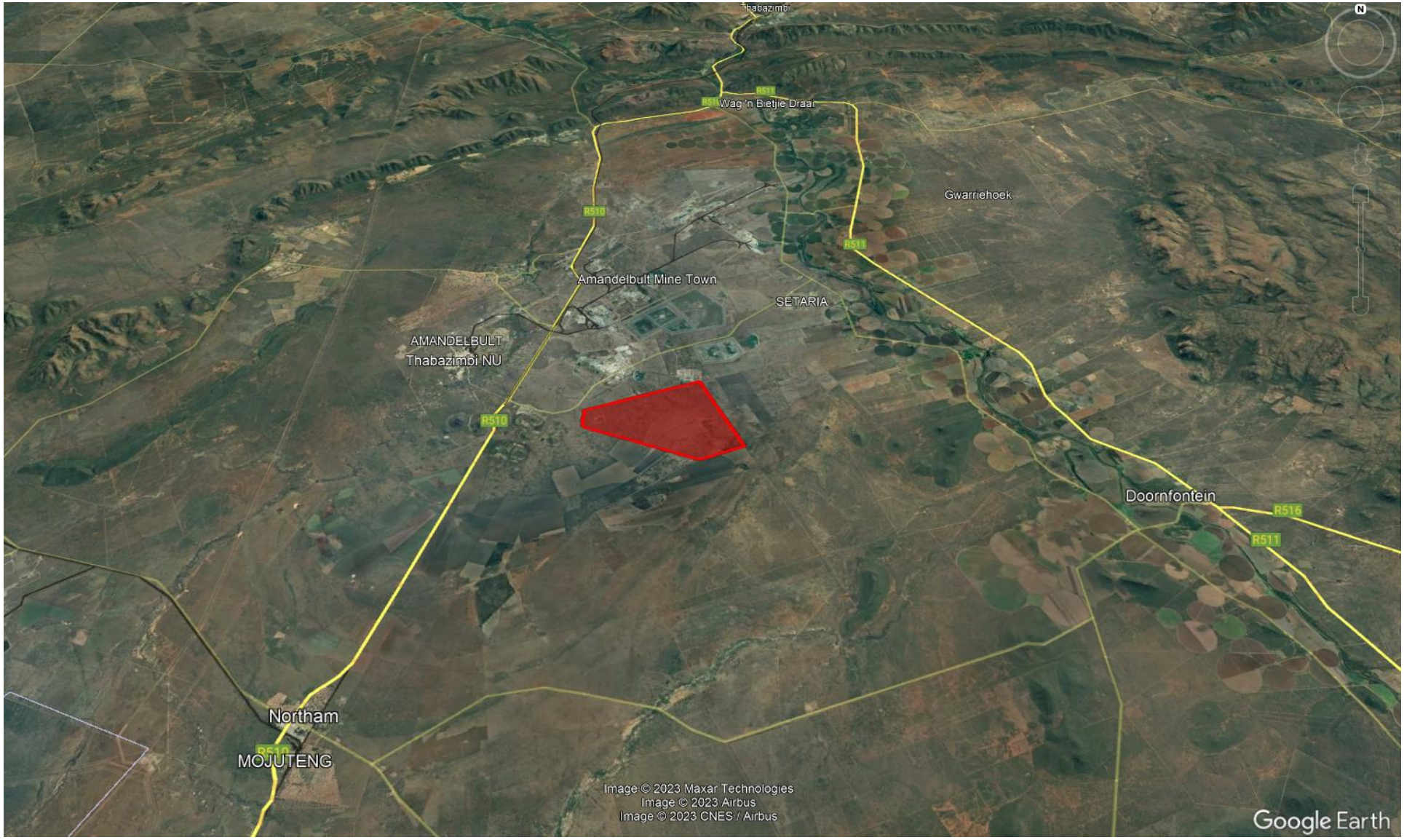

General Location of Application Area

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APPENDIXES

List of Abbreviations

Term/Abbreviation	Definition
2013 WML Regulations	The Regulations published under NEMWA in GN 921 of Government Gazette 37083 on 29 November 2013
2014 EIA Regulations	Environmental Impact Assessment Regulations promulgated in terms of NEMA in GN 982 of Government Gazette 38282 on 4 December 2014 (as amended in 2017).
2006 EIA Regulations	Environmental Impact Assessment Regulations promulgated in terms of NEMA in GN 385 of Government Gazette 28753 of 21 April 2006
AIP	Alien and Invasive Plants
BIC	Bushveld Igneous Complex
CA	Competent Authority
CARA	Conservation of Agricultural Resources Act (Act No. 43. of 1983)
CBA	Critical Biodiversity Area
DALRRD	Department of Agriculture, Land Reform and Rural Development
DEFF	Department of Environmental, Forestry and Fisheries, previously the Department of Environmental Affairs
DBAR	Draft Basic Assessment Report
DWS	Department of Water and Sanitation
DEFF Screening Tool	National Web Based Environmental Screening Tool in terms of Section 24(5)(h) of the National Environmental Management Act, 1998 (Act No. 107 of 1998)
DMRE	Department of Mineral Resources and Energy, previously the Department of Mineral Resources and Department of Minerals and Energy
DWA	Then former Department of Water Affairs, now Department of Human Settlement, Water and Sanitation
DWAF	Then former Department of Water Affairs and Forestry, now Department of Human Settlement, Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EAPASA	Environmental Assessment Practitioners Association of South Africa
EC	Ecological Category
EI	Ecological Importance
EIA	Environmental Impact Assessment
ZM	Zondereinde Mine
EMP	Environmental Management Programme
EMPR	Environmental Management Programme Report
ES	Ecological Sensitivity
ESA	Ecological Support Areas
FBAR	Final Basic Assessment Report
GDP	Gross Domestic Product
GG	Government Gazette
GIS	Geographical Investigation System
GN	Government Notice
GN704	GN 704, published under the NWA in GG 20118 on June 1999)
GN 983	Environmental Impact Assessment Regulations, promulgated in terms of NEMA in GN 983 of GG 38282 on 4 December 2014 (as amended in 2017).
GN 984	Environmental Impact Assessment Regulations, promulgated in terms of NEMA in GN 984 of GG 38282 on 4 December 2014 (as amended in 2017).

GN 984	Environmental Impact Assessment Regulations, promulgated in terms of NEMA in GN 985 of GG 38282 on 4 December 2014 (as amended in 2017).
NEMBA Ecosystem List	List of Threatened or Protected or Threatened Species, published under NEMBA in GN 1002 in GG 3809 on 9 December 2011.
Ha	Hectares (measure of area, 10 000 square metres)
HIA	Heritage Impact Assessment
HSEC	Health Safety Environment Community
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
IWULA	Integrated Water use licence application
IWMMP	Integrated waste and water management plan
Km	Kilometres
LOM	Life of Mine
m^2	Square Metres
MAP	mean annual precipitation
MAR	mean annual runoff
Mm	Millimetres
MPRDA	Mineral and Petroleum Resources Development Act (Act No. 28 of 2002), as amended
NEMA	National Environmental Management Act (Act No. 107 of 1998), as amended
NEMAQA	National Environmental Management: Air Quality Act (Act No. 39 of 2004), as amended
NEM:BA	National Environmental Management: Biodiversity Act (Act No. 10 of 2004), as amended
NEMPAA	National Environmental Management: Protected Area Act (Act No. 57 of 2003), as amended
NEMWA	National Environmental Management: Waste Act (Act No. 59 of 2008), as amended
NEMWA GN 635 and 638	The National Norms and Standards for the Assessment of Waste for Landfill Disposal and the National Norms and Standards for the Disposal of Waste to Landfill (published under GN 635 and GN 636 respectively in GG 36784 on 23 August 2013)
2013 WML Regulations	Published in GN 921 under the NEMWA in GG 37083 on 29 November 2013, as amended in GNR 633 on 24 July 2015
NBA	National Biodiversity Assessment (2018)
NHRA	National Heritage Resources Act (Act No. 25 of 1999)
NFEPA	National Freshwater Ecosystems Priority Areas
NWA	National Water Act (Act No. 36 of 1998), as amended
LBSP	Limpopo Biodiversity Sector Plan
LEDET	Limpopo Department of Economic Development, Environment and Tourism
Northam	Northam Platinum Limited
LP	Limpopo Province
PCD	Pollution control dam
PES	Present Ecological Status
PGM	Platinum Group Metals
PPP	Public Participation Process
Pr. Sci. Nat	Professional Natural Scientists
ROM	Run-of-mine
RSA	Republic of South Africa
SACNASP	South African Council of Natural Scientific Professions
SAHRA	South African National Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SANS	South African National Standards
SAWS	South African Weather Service
SCC	Species of Conservation Concern
SHE	Safety Health Environment
SDF	Spatial Development Framework
SLP	Social and Labour Plan
SQ	Sub-quaternary catchment
STP	Sewage Treatment Plant
SWD	Stormwater dam
SWMP	Stormwater Management Plan

SMS	Short Message Services
TSF	Tailings Storage Facility
WRD	Waste Rock Dump
WTP	Water Treatment Plant
WUL	Water Use Licence
WML	Waste Management Licence
ZoR	Zones of Regulation
YRS	Years

1 Introduction

Northam Platinum Limited ("**Northam**"), has submitted an application for an environmental authorisation (EA Application) under the National Environmental Management Act 107 of 1998 (NEMA) to the Department of Mineral Resources and Energy (DMRE) for the prospecting right application (PR Application) on the Remaining Extent (RE) of Portion 1 of the Farm Kopje Alleen 422 KQ ("Proposed Prospecting Area"), The proposed Prospecting Area is located within the Limpopo Province (LP) of the Republic of South Africa (RSA) and falls under the local jurisdiction of the Thabazimbi Local Municipality (TLM), situated in the larger district of the Waterberg District Municipality (WDM). The Prospecting Area is 1 167.3865 hectares in extent and is situated between the towns of Northam and Thabazimbi.

The Prospecting Area is surrounded by agricultural land and is used for cattle and game farming. The Amandelbult Mine of Anglo-American Platinum Limited is situated to the far west, whilst the Zondereinde Platinum Mine (ZM) of Northam (the current Applicant) is immediately adjacent to the north of the Prospecting Area. The northern portion of the Prospecting Area is held under Northam's mining right LP37MR but for different minerals to that included in this prospecting right application.

The prospecting schedule will be for Iron, Vanadium and Titanium and related metals over the prospecting area. The proposed operation will comprise the following activities collectively referred to as the "PR Application":

- a desktop study,
- collation of existing data and project planning,
- surface geological mapping,
- geochemical sampling,
- geophysical sampling and analysis,
- borehole drilling and sampling (two boreholes),
- trenching and sampling, and ultimately (three trenches)
- modelling/ore resource estimation.

The application has since been accepted by the DMRE, and the Applicant has been instructed to proceed with the relevant EA Application process. uKhozi Environmentalists Pty Ltd ("**uKhozi"**) in association with JEMS Pty Ltd ("**JEMS**") was appointed by Northam as the independent EAP for the PR Application. The DMRE Limpopo Regional Office will be the competent authority ("**CA**") for the PR Application.

2 Purpose and Scope of the Impact Assessment Process

Environmental impact assessment is used to assess the potential implications, combining environmental, social, and economic considerations, of a project before the project commences. The main objectives of Environmental Impact Assessments are to:

- Understand the consequences or impacts (effects) of the proposed development (causes) on the environment.
- Identify ways in which the impacts of the development can be improved. These could include ways to minimize negative impacts and ways to enhance its benefits.
- Provide this information to IAPs and decision-makers.

Ultimately, the aim of an environmental assessment is to prevent significant damage to the environment. The impact assessment will focus on the aspects of the proposed prospecting operation and their impacts on the natural and societal environment. The findings of the impact assessment guide the plan/development, implementation, and monitoring/evaluation of an Environmental Management Plan which will attempt to maximise human benefit and to minimise environmental degradation resulting from the proposed project.

2.1 Basic Assessment Process

As mentioned above, the application for the Prospecting Right was accepted on the 18/04/2023 by the DMRE, and the Applicant has been instructed to proceed with the relevant EA Application process.

The Basic Assessment Process is carried out in accordance with Regulation 19 of the EIA Regulations, 2014. According to the regulated timeframes, once the application has been accepted by the Competent Authority the Final Basic Assessment Report (BAR) and Environmental Management Program (EMPr) must be submitted within 90 calendar days which must have been subjected to a public participation process of at least 30 days. The competent authority must within 107 calendar days of receipt of the Final Basic Assessment and EMPr grant or refuse environmental authorisation. The BAR and EMPr reports content will align with Appendix 1 and Appendix 4 of the EIA Regulations.

The DMRE granted a 50-day extension to finalise outstanding work and submit the BAR/EMPr in a letter dated 29/06/2023. Taking into account the 50-day extension the final BAR must be submitted on or before the 20/08/2023. Refer to copies of the acceptance and extension letters received from the DMRE in **Appendix 6**.

Figure 1: NEMA BAR process as contemplated in the EIA Regulations, 2014 (as amended)

3 Contact Person and correspondence address

Northam appointed uKhozi in association with JEMS in as independent environmental consultants to facilitate the Integrated Environmental Application Process for the proposed project.

3.1 Details of the Environmental Assessment Practitioner (EAP)

uKhozi in association with JEMS has been appointed as the independent EAP by Northam to undertake the Proposed PR Application in terms of the NEMA and 2014 EIA Regulations. The team is a multi-skilled Environmental and Water Management Consultancy, providing independent and professional services to the industrial, mining, and commercial sectors, refer to ***Table 1.***

Refer to ***Appendix 1*** for copies of the project team qualifications and Curriculum Vitae as listed above for this project.

Table 1: Details of the EAP

EAP:	Tommy Olivier and Gerhardus Stephanus Barkhuizen			
Company:	uKhozi in association with JEMS			
Address:	26 In Full Flight, Mooikloof, 0059			
P.O. Box	92269 P O Box, Mooikloof, Pretoria, 0059			
Tel:	083 776 7898	082 521 8870		
Fax:	086 658 3132			
Email:	stephan@jems.co.za		tommy@ukhozi-enviro.co.za	
Team Details				
Designation	**Name**	**Qualification**	**Registration**	**Experience**
Project Manager/reviewer and Sponsor	GS Barkhuizen	BTech Landscape Technology Hons. BSc Environmental Monitoring and Modelling	Certified Natural Scientist in the Environmental Sciences Field (Registration number: 115982), with SACNASP EAP registration pending with EAPASA	15 Years
Lead EAP	Tommy Olivier	BSc (Honours) Environmental Analysis & Management	Registered Environmental Assessment Practitioner: Number 2020/1162	13 Years

3.2 Full Particulars of Applicant

Details of the Applicant and the contact details of the responsible person are captured in ***Table 2*** below.

Table 2: Applicant Contact Details

Project applicant:	**Northam Platinum Limited ("Northam")**
Registration no:	1977/003282/06
Responsible person:	Damian Smith
Physical address:	Building 4, 1st Floor, Maxwell Office Park, Magwa Crescent West, Waterfall City, Jukskei View 2090, South Africa
Postal address:	PO Box 412694, Craighall, 2024, South Africa
Telephone no:	011 759 6000
Email:	damian.smith@norplats.co.za

4 Project Location

The Prospecting Area is situated between the towns of Northam and Thabazimbi. The surrounding communities and their proximity to Project Area include:

- Thabazimbi (25km north);
- Northam (12 km south-west); and
- Setaria Village (5 km north-east).

4.1 Description of the Property

The Prospecting Right Area ("**PR Area**") is surrounded by agricultural land and is used for cattle and game farming. The Amandelbult Mine of Anglo-American Platinum Limited is situated to the far west, whilst the Zondereinde Platinum Mine (ZM) of Northam (the current applicant) is immediately adjacent to the north of the Prospecting Area. A detailed property description of the PR Area is listed in ***Table 3*** below and an aerial map showing the PR Area in relation to the surrounding farms in ***Figure 2***.

Table 3: Project Location Details

Property Details	
Remaining Extent of Portion 1 of the farm Kopje Alleen 422 KG - SG 21-digit code: T0KQ00000000042200001	
Application area (Ha):	
1167.3865 hectares in extent	
Province:	Limpopo Province
District Authority	Waterberg District Municipality
Local Authority	Thabazimbi Local Municipality
Magisterial district:	Thabazimbi
Municipal Wards	Ward 11
Catchment	
The PR Area is located in the Limpopo Water Management Area (WMA), and the site falls within two quaternary catchments; namely A24F and A24C.	
Servitudes	
No servitudes are registered on the property	
Major roads and routes	
The site can be accessed by the provisional R510 (west) and the R511 (east) routes and internal access roads of the ZM.	

Figure 2: Aerial map of the proposed Prospecting Area

4.2 Locality map

Please refer to the locality map in ***Figure 3*** below. The figure indicates the nearest urban area, which is the town of Northam, the location of the ZM and Amandelbult mines and roads in relation to the Prospecting Area. The Regulation 2(2) plan developed in terms of the Minerals and Petroleum Resources Development Regulations is included in ***Figure 4*** below.

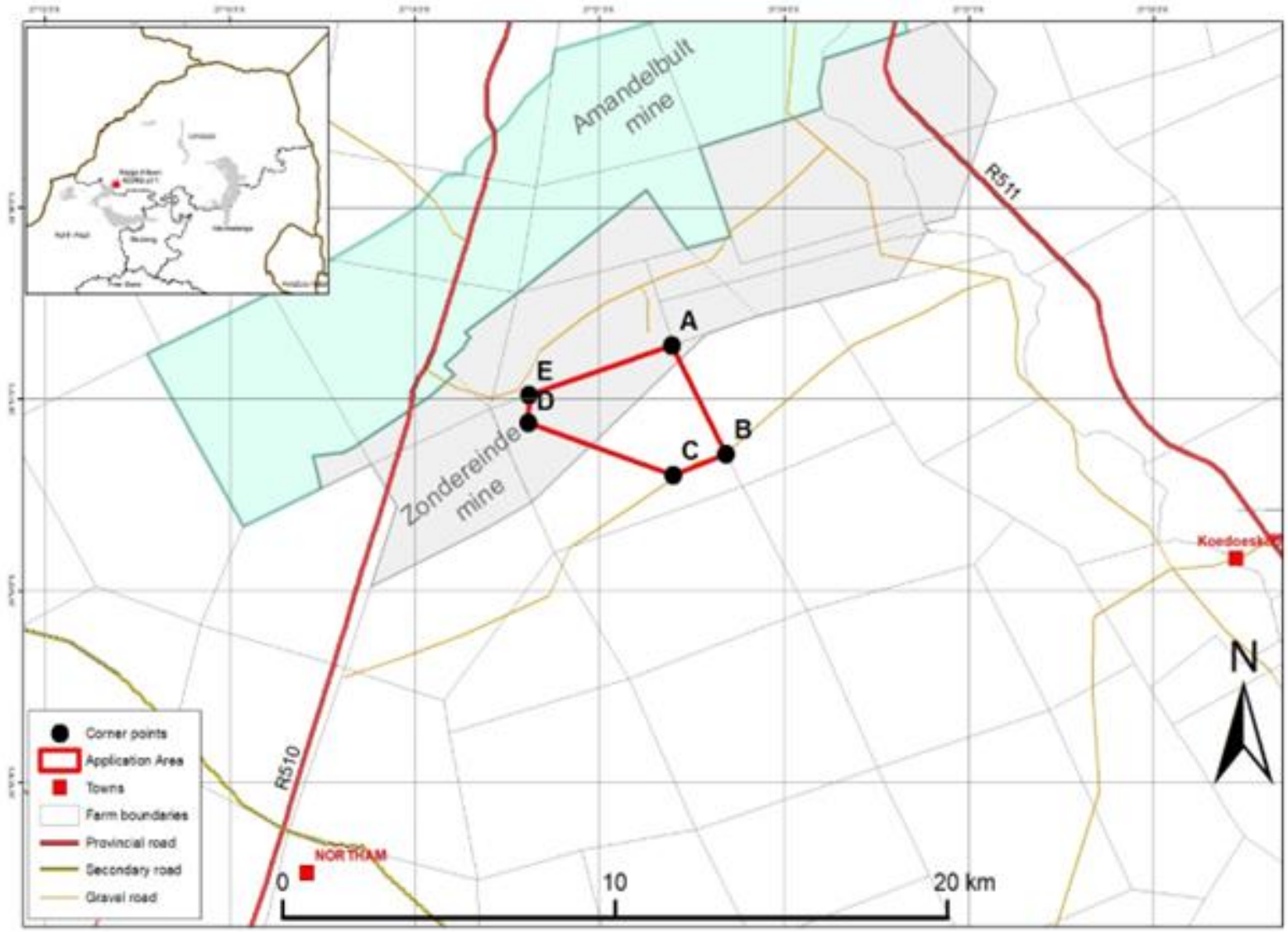

Figure 3: Locality Map

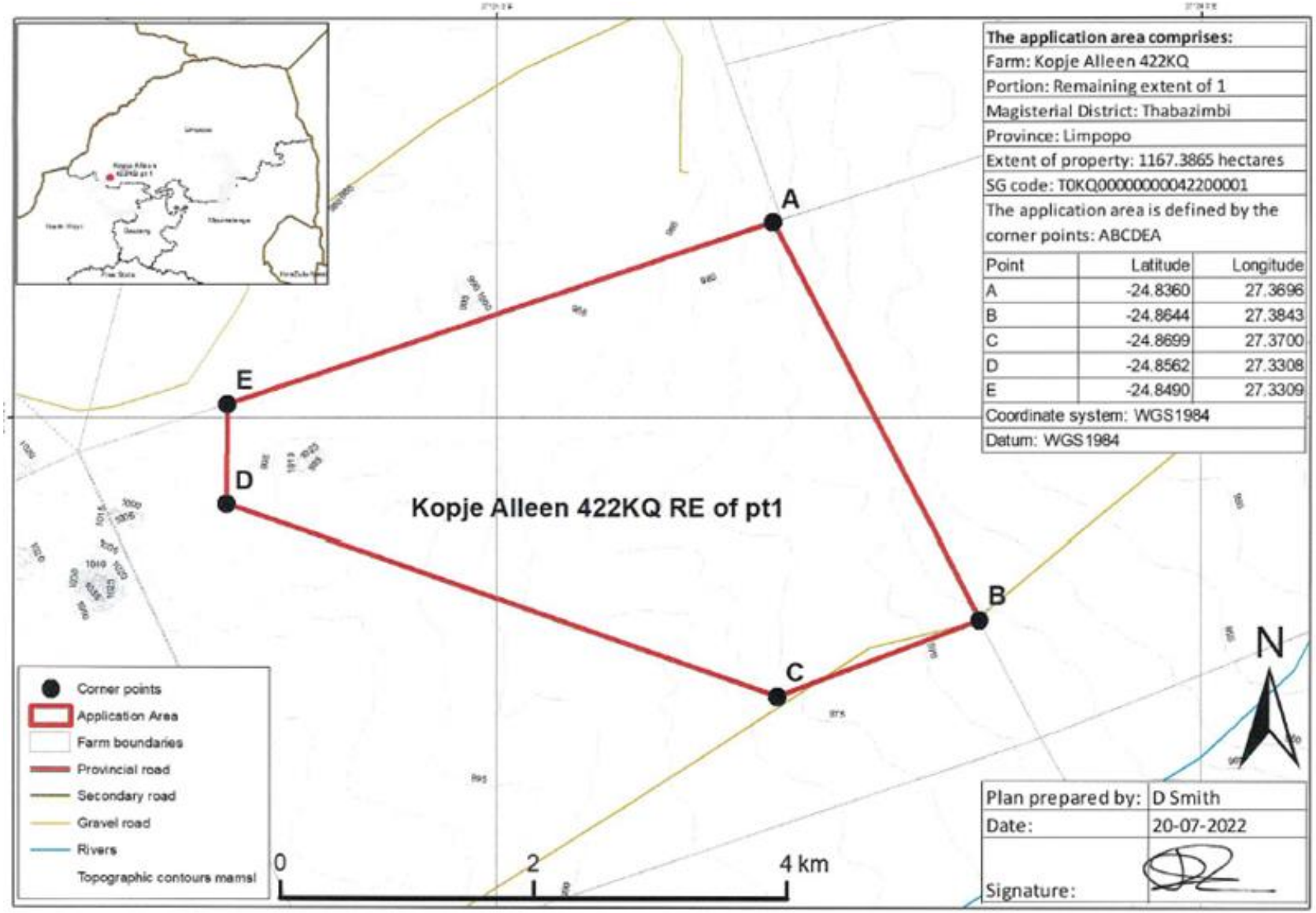

Figure 4: Regulation 2(2) Plan

5 Description of the scope of the proposed overall activity

As mentioned above, Northam operates the Zondereinde Platinum Mine (ZM) situated immediately adjacent to the north of the Prospecting Area. The northern portion of the Prospecting Area is held under the Applicant's existing Mining Right LP37MR but for different minerals to that included in this prospecting right application.

5.1 Overview of ZM and legal framework

The development of ZM commenced in 1986 to abstract Platinum Group Metals (PGMs) from the UG2 and Merensky Reefs via underground mining operations. The Zondereinde operations comprise of Main Mining Area (Shaft Complex), Western Extension (3 Shaft Complex) currently under development and the Smelter/BMR Complex. For the locality of the mining development, related infrastructure and surrounding mines please refer to ***Figure 5*** below.

ZM is an operational mine and is governed by the requirements of the MPRDA and Regulations thereunder. NEMA, NWA, NEMWA and the 2014 EIA Regulations also inter alia apply to ZM. ZM operates with the following environmental approvals (**Table 4**), licenses and permits for the area held under the Zondereinde Mining Rights ("ZM Mining Right Area"). (*This list does not cover mining health and safety legislation requirements*).

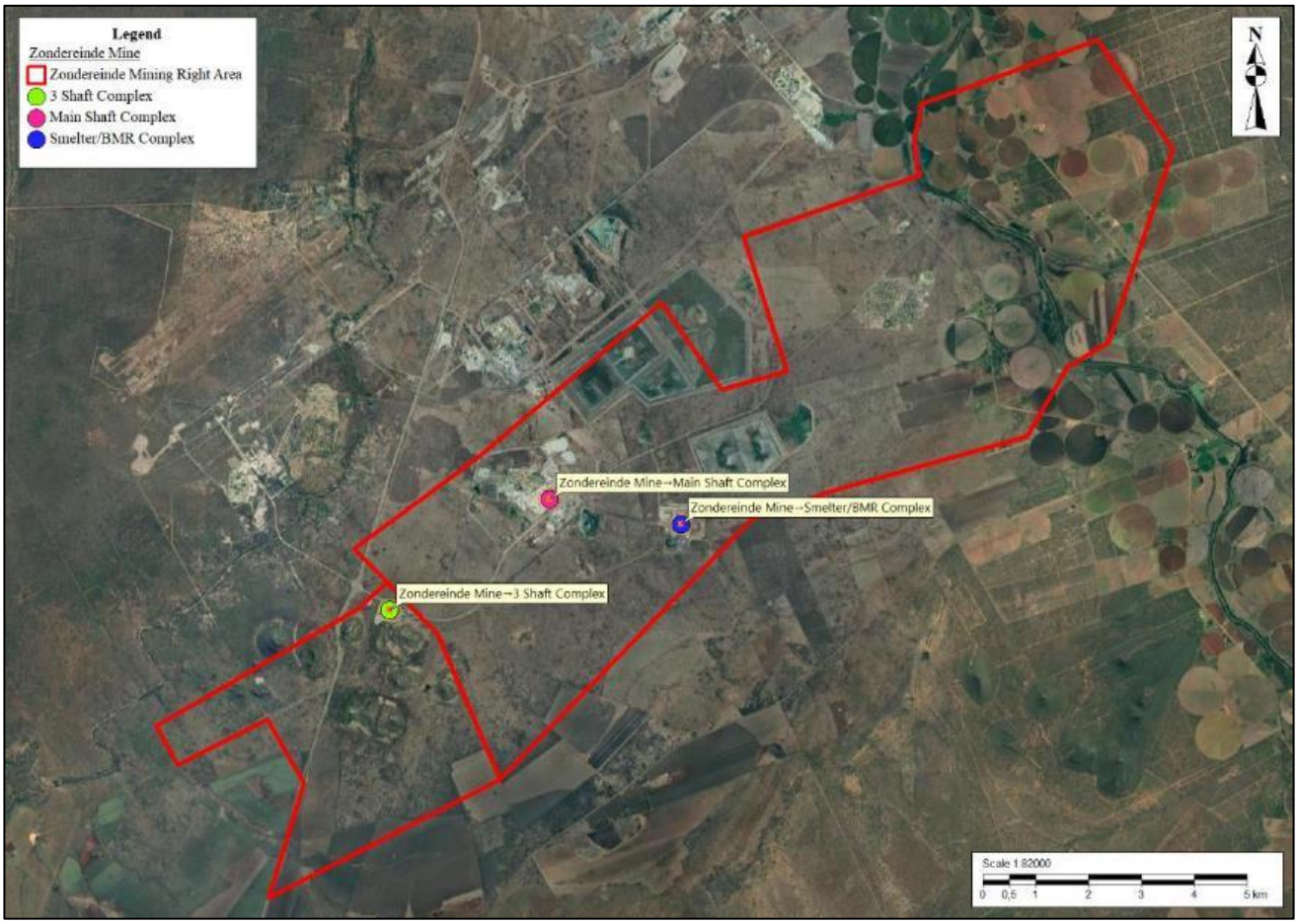

Figure 5: Zondereinde Mine Complex distribution map

Table 4: Authorisations received for Zondereinde Mine

TYPE OF AUTHORISATION	DESCRIPTION	REF NO:	DATE
New order Mining Right	Mining right in terms of the Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA)		July 2011
EMPR	Initial mine infrastructure and development		03/12/1998
EMPR Amendment	UG2 mining expansion and the expansion of the Concentrator plant, together with the associated infrastructure		July 2000
EMPR Addendum	Extension to the Waste Rock Dump		2003
EMPR Amendment	UG2 Chrome beneficiation plant, concentrate pad and associated infrastructure	08/2005/04	2004
EMPR Amendment	EMPR Amendment and Consolidation	LP30/5/1/3/2/1 (36) EM	December 2013
EMPR	Extension of the Mining Area (Shaft 3)	LP30/5/1/3/2/1 (37) EM	September 2017
Environmental Authorisation (EA)	Extension of the Mining Area (Shaft 3)		13-12-2017
Environmental Authorisation (EA)	Expansion of the existing Eskom yard at the Smelter Complex and associated infrastructural activities	LP30/5/1/2/3/2/1(36/37) EM	
Atmospheric Pollution Prevention Permit (APPA)	Roasting Processes (No. 27 of the Second Schedule) – where dried Cu-Ni-S concentrate is melted in one 15MVA electric furnace and converted in two Pierce Smith converters to Cu-Ni matte.	Certificate No 1634	28/02/2001
Atmospheric Emission License (AEL)	Operation of the Zondereinde Mine, Smelter and associated infrastructure	12/4/12L-W16/A2	11/04/2022
Water Use License (WUL)	Integrated Water Use License for the Zondereinde Mining and Processing Operation.	IWUL Ref No: 03/A24F/AEFGJ/1582	10 May 2022

5.2 Proposed prospecting activities

The prospecting schedule will be for Iron, Vanadium and Titanium and related metals over the prospecting area. The proposed operation will comprise the following activities collectively referred to as the "PR Application":

- a desktop study,
- collation of existing data and project planning,
- surface geological mapping,
- geochemical sampling,
- geophysical sampling and analysis,
- borehole drilling and sampling (two boreholes),
- trenching and sampling, and ultimately (three trenches)
- modelling/ore resource estimation.

5.3 Description of activities to be undertaken

The proposed prospecting operation will involve non-invasive and invasive activities. A description of the prospecting method or methods to be implemented is provided below:

5.3.1 Description of planned non-invasive activities:

5.3.1.1 Desktop Study

In order to conduct the Prospecting activities in an efficient and effective manner, there will be an acquisition and review of information and data gathered during historical exploration on the Prospecting Area (and in the general area). A short economic costing study may be undertaken, to determine the likely mineral concentration required to make the project feasible (and direct further work). This may also include photo-geological and satellite interpretations. Data will be sourced from the Council for Geoscience (including regional magnetic and gravity datasets); universities and other libraries; and previous explorers may be approached with a view to gaining results.

Re-evaluation of previously prospected areas of similar nature is very important at this stage in order to build a conceptual geological model. Field reconnaissance will be undertaken in the Prospecting Area, in order to ascertain the orientation of infrastructure, land use, terrain access and development. The regional relationship between soil form distribution and potential outcrop/subcrop of mineralisation will be investigated during the field reconnaissance.

5.3.1.2 Geological Surface Mapping

The area will be geologically mapped on a regional basis to update information on a 1:50 000 scale, using photo-geological interpretations and satellite imagery; remote sensing technologies; and interpretations from the previous phase as a guide. This data, with assistance of 1:10 000 ortho-photo maps (and those gathered from the desktop study efforts), will be integrated in GIS systems and an upgraded digital geological model will be compiled. Some detailed field mapping will be required in areas outlined by the quality of the information gained from historical archives. The conceptual geological model will then be upgraded prior to conducting any exploration drilling or trenching.

The end product of geological mapping is a map which accurately documents rock types, alteration, mineralogy and structural data, such as faults, folds, and dip of strata.

5.3.1.3 Geochemical Survey

The target mineralisation identified during the desktop study and mapping exercise would be further defined using surveyed line/grid based surveys traversing geochemical soil/stream sediment, and grab/float sampling activities if needed.

An orientation survey would be undertaken prior to this and is usually undertaken along existing roads, survey tracks and open areas to test the effectiveness of the technique in the specific terrain.

The choice is broadly between stream sediment sampling in an area with a drainage pattern; surface soil or rock (grab) sampling in areas of shallow cover and poorly developed or non-existent drainage pattern; auger hole sampling of the regolith and/or bed rock in areas of deep transported cover; or special regolith sampling procedures followed by proper analysis usually at ppb (parts per billion detection limit) level.

5.3.1.4 Geophysical Survey

Various methods of geophysical applications will be applied on the target areas and include; ground magnetic, gravity and radiometric traversing on irregular grids, where road infrastructure allows for it; and symmetrical grid traversing in areas where it is possible.

An airborne magnetic fixed wing/helicopter survey could be added if deemed viable to further delineate potential ore body extent, with traverse lines orientated perpendicular to the strike of known geology. The necessity for, and the flight dimensions of this survey, is dependent on the above phases. To further delineate the target area, it would be recommended to conduct a surface gravimetric and or magnetic survey along predefined traverses on surface.
The digital geological model will be upgraded based on geophysical results.

5.3.1.5 Anomaly Screening

Geochemical target anomalies identified from the soil/stream sediment and grab sampling coupled with geophysical magnetic/gravity anomalies and possible airborne survey verification would be integrated in a GIS model and followed up by geological mapping over selected target areas, if possible, to determine possible extent and depth of orebody. Also, if possible, an attempt at defining structural complexities will be undertaken at this stage.

5.3.2 Description of Planned Invasive Activities:

5.3.2.1 Reconnaissance/Stratigraphical Drilling

As part of Phase 1, drilling of two (2) reconnaissance diamond drillholes is planned. These holes will be approximately 30m deep and mainly used as a stratigraphic / lithology guide. All other future planned infill boreholes would then be drilled to a depth of 30m and widely spaced, roughly a 500-1000m apart along strike. The information gathered from these holes will be used in conjunction with the methods described in the below, to create a preliminary geological model that will be used to plan the next phase of exploration.

5.3.2.2 Diamond Drilling And Trenching

Phase 1 drilling, as mentioned above, would be followed by infill drilling (Phase 2), which would be focused on the determination of anomalies, as this is dependent on the initial phase and based on a conceptual structural geological model. If mineralized horizons are found, a follow-up drill-hole, either down dip or on strike, will be drilled to confirm these intersections. It is estimated that for initial Fe/V/Ti exploration, a total of 2 short HQ or NQ diameter diamond drill-holes will be drilled to a depth of 30m. If economically viable reef is intersected, a drill

grid will be established as per Phase 2, with infill drilling allowing the determination of a three-dimensional structural model of the target area. The infill drilling would potentially start on a 250 - 500m based grid.

This follow up exploration drilling program (Phase 2) will be conducted as the source for gaining ground truth information of the potential ore body and to prove continuity in the third dimension in detail, addressing reef facies, structure and metallurgical parameters. In a more complex geological area, the grid may be closer spaced to 125 – 250m, to aid correlation. This is to define the orientation and shape of the ore body and the grade and tonnage, to improve the geological confidence.

Drill core will be geologically logged (structure, lithology and facies), sampled and analysed for Fe, V and Ti. Additional hole deflections or holes might be drilled for value verification and to ascertain variance in metallurgical and mineralogical parameters. The nature of the target rocks suggests that drilling and trenching would form a major part of the prospecting process. Diamond core drilling and trenching for intersections of the potential economic reef horizons will constitute a major factor in the decision-making sequence.

Each drill site will cover an approximate area of 25m x 25m, thus an area of 625 m^2 each. Two (2) boreholes are planned.

5.3.2.3 In-Fill Drilling and Metallurgical Test Work

If economically viable reef horizons are to be intersected, it would require a more detailed assessment (namely additional drilling/trenching) to be undertaken, for the orientation and shape of the ore body and grade and tonnage to be defined.

This will form part of the Phase 2 infill-drilling programme. Three trenches (as more fully set out below) are also planned as a further method to obtain the necessary information to compile a comprehensive geological model and possible Mineral Resources Statement. It is important to note that this schedule is result driven, and the outcome of any one phase may dictate the direction of the next.

Three (3) trenches measuring 30 x 4 x 3 meters each are also planned for the Prospecting Area, thus an area of 120 m^2 each.

Photo Plate 1: Example of drill rig

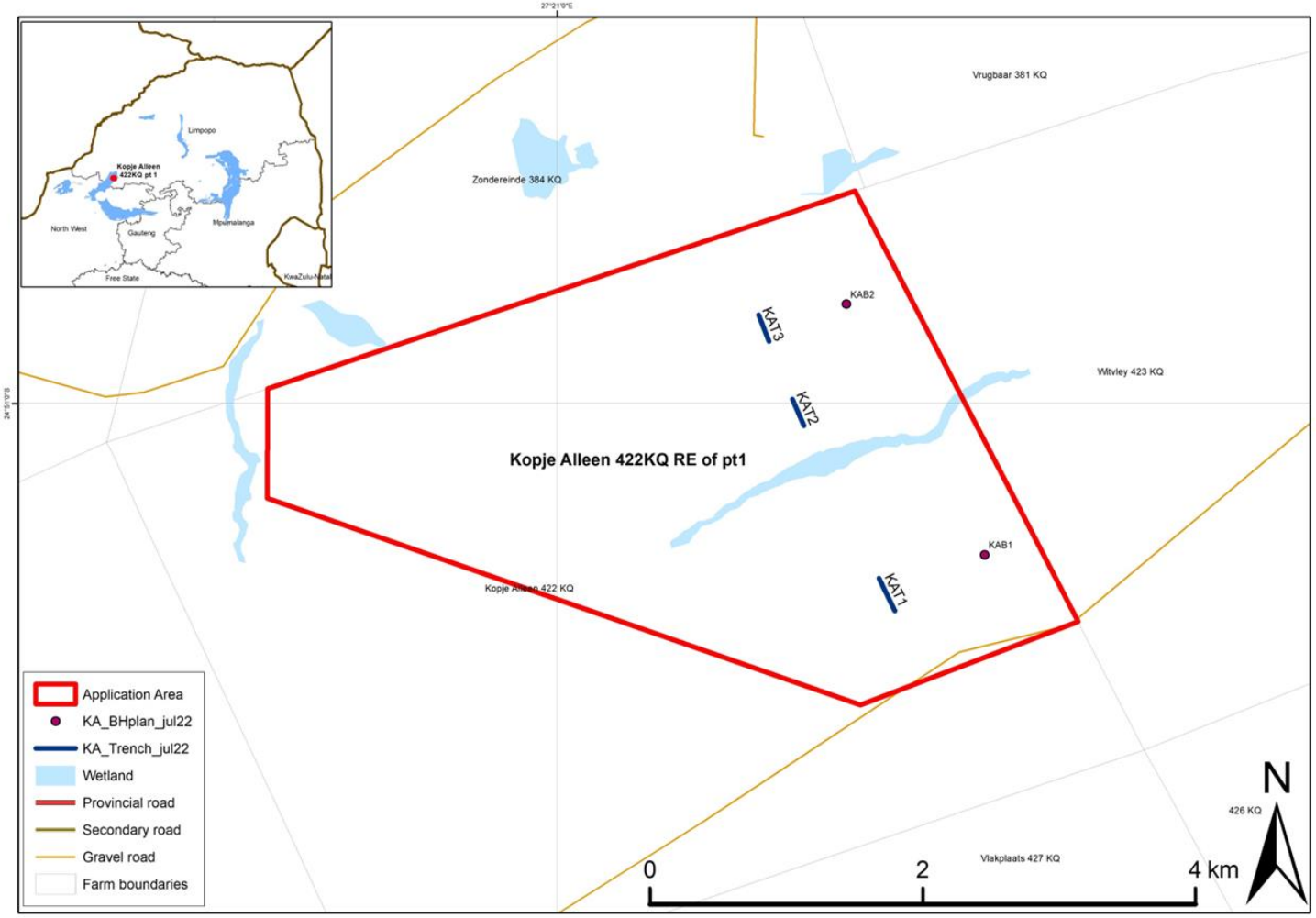

Figure 6: Surface showing the intended location and extent of the two boreholes and three trenches

Table 5: Details of the proposed activities for the PR Application

Activity (what are the activities that are planned to achieve optimal prospecting)	**Listed Activity** (applicable activities as listed in the NEMA EIA Regulations)	**Footprint**	**Skill(s) required** (refers to the competent personnel that will be employed to achieve the required results)	**Timeframe** (in months) for the activity)
Desktop Study and Monitoring of PR status/Environmental Management Programme ("**EMP**") compliance	N/A		Geologist	Approx. 2 months (49 days) over 5 years
Sampling and Assay Analysis	N/A		Geologist	At least ½ month
Borehole drilling, trenching and logging	Listing No. 1 – GNR 983 (as amended) <u>Activity 20</u> *Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the MPRDA, including-* *(a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource*	+/- 2500 m^2	Competent drilling and trenching service providers, geologist	Approximately 3 months (57 days)
Geophysical Surveys	N/A		Technician or geologist qualified in geophysical surveying	Approximately 2-3 months (80 days)
Modelling and Resource Estimation	N/A		Geologist	Approximately 3 months (57 days)
Other Work (e.g. organization of access to site, admin) including a pre-feasibility study	N/A		Geologist / Technician	Approximately 1 week (10 days)

6 Policy and Legislative Context

This prospecting application is being sought by Northam as an initial application for exploration and any future mining activities over the RE of Portion 1 of the Farm Kopje Alleen 422 KQ for the extraction of Iron, Vanadium, Titanium, and related minerals. The prospecting right application is subject to the following Acts:

- Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA).
- National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) and the NEMA EIA Regulations of 2014, as amended.

The legislative summary below is specific for the proposed prospecting activities to which this application relates.

Table 6: Policies and Legislative context of the Integrated DMRE Environmental Application

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED
1. Constitution of the Republic of South Africa (Act No. 108 of 1996) In terms of section 24 of the Constitution of the Republic of South Africa (Act No.108 of 1996) (the "Constitution"), everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislation and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources, while prompting justifiable economic and social development. Protection of the environment, as well as the needs of affected parties, should thus be integrated into overall project management to fulfil the requirements of section 24 of the Constitution.	The implications for the Proposed Project include the obligation to ensure that it: (i) will not result in significant pollution and / or ecological degradation; and (ii) is ecologically sustainable, while promoting justifiable economic and social development.
2. National Environmental Management Act (NEMA) (Act No. 107 of 1998) In terms of sections 24(2) and 24D of NEMA, the then Minister of Environmental Affairs promulgated certain activities that may not commence without an EA. Activities promulgated in terms of GN983 and GN985 require a basic assessment process, while activities promulgated in terms of GN984 require that a full Scoping and EIA process be conducted. GNs 983, 984 and 985 are promulgated under NEMA in GG 38282 of 4 December 2014 (as amended in 2017). Section 24C(2A) of NEMA indicates that where listed activities are directly related to the extraction and primary processing of a mineral or petroleum resource the Minister of Mineral Resources and Energy is the **CA** or officials at the DMRE to whom he has delegated his authority, being the Regional Managers. Section 28 of NEMA also places a duty of care on all persons to prevent, limit or remediate any pollution or degradation of the environment ("**Duty of Care**").	The Proposed Project include activities listed in terms of the 2014 EIA Regulations. This EA must be obtained prior to the commencement of the activities. The application for the EA was made to the Regional Manager of the DMRE Limpopo Regional Office. This BAR process is required as part of the Environmental Authorisation application for the specified listed activities. The Duty of Care has been applied during the basic assessment process, through the consideration of potential impacts (cumulative, direct, and indirect). Northam will be required to comply with the mitigation, management and monitoring measures recommended in the EMPr (Part B of this document) in order to reduce or avoid the potential environmental impacts of the proposed operation. It will continue to apply throughout the life cycle of the Proposed Project.
3. EIA Regulations (2014 EIA Regulations)	An integrated PPP will be undertaken to make provision for the consultation process during the PR Application.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED
Chapter 6 of the 2014 EIA Regulations provides for the requirements for PPP, which must be carried out as part of the Integrated DMRE Environmental Application process. In terms of Regulations 21 and 23, the outcome of the PPP must be reported in the FSR and FEIAR submitted to the CA. The PPP: "*must give all potential or registered interested and affected parties, including the competent authority a period of at least 30 days to submit comments on each of the EMPR, scoping report and environmental impact assessment report and, where applicable, the closure plan, as well as the report contemplated in regulation 32, if such reports or plans are submitted at different times*" (Regulation 40(1)). The PPP must also: ■ provide access to all information that reasonably has or may have the potential to influence any decision regarding an application; ■ involve consultation with the CA, every state department that administers a law relating to the environment relevant to the application, all relevant organs of state, and all I&APs; and ■ provide opportunity for I&APs to comment on reports and plans prior to submission of an application and once an application has been submitted to the CA. The process must include: ■ notification of the application to all I&APs, as stipulated in Regulation 41; ■ registration of all I&APs, as required in Regulations 42 and 43; and ■ a record of comments and responses and records of meetings of and with I&APs, as outlined in Regulation 44. Regulation 39 of the 2014 EIA Regulations requires that: "*(1) If the proponent is not the owner or person in control of the land on which the activity is to be undertaken, the proponent must, before applying for an environmental authorisation in respect of such activity, obtain the written consent of the landowner or person in control of the land to undertake such activity on that land.* *(2) Sub regulation (1) does not apply in respect of—* *(b) activities constituting, or activities directly related to prospecting … of a mineral …resource or extraction and primary processing of a mineral ..resource."*	The proposed project will be undertaken on a property owned by Northam.
4. NEMA, 1998 (Act 107 of 1998) GNR 1147 of Nov 2015. Regulations pertaining to the Financial Provision for the Rehabilitation, Closure and Post Closure for Prospecting, Exploration, Mining or Production Operations An applicant or holder of a right or permit must determine and make financial provision to guarantee the availability of sufficient funds to undertake rehabilitation and remediation of the adverse environmental impacts of prospecting, exploration and mining or production operations, as contemplated in the Act and to the satisfaction of the Minister responsible for mineral resources.	The closure plan has been combined with the content of the EMPr (Part B) in terms of Regulation 19(7) of the NEMA EIA Regulations of 2014, as amended. GNR1147 is however under review and is likely to be amended therefor the "Guideline document for the evaluation of the quantum of closure-related financial provision provided by a mine" (Department of Minerals and Energy, 2005) was used to calculate the environmental liability. Refer to **Part B: EMPr Section 6.**

<table>
<tr><th>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT</th><th>REFERENCE WHERE APPLIED</th></tr>
<tr><td></td><td></td></tr>
<tr><td colspan="2">5. <u>NEMA Listed Activities (GN983, 984 and 985), as amended</u>
A BAR process is being followed in terms of the EIA Regulations (As amended). The listed activities applicable to the proposed project are given in the Table below.
<table>
<tr><th>Number and date of relevant notice</th><th>Activity No.</th><th>Description of each listed activity as per the GN.</th><th>Description of the proposed activities in relation to the listed activities being applied for.</th></tr>
<tr><td>GN 983</td><td>20</td><td>Any activity, including the operation of that activity, which requires a prospecting right in terms of section 16 of the MPRDA, including-
(a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource; or
(b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing.</td><td>The proposed project will comprise of:
- a desktop study, collation of existing data and project planning,
- surface geological mapping,
- geochemical sampling,
- geophysical sampling and analysis,
- borehole drilling and sampling (two boreholes),
- trenching and sampling, and ultimately (three trenches)
- modelling/ore resource estimation.</td></tr>
</table></td></tr>
<tr><td>6. <u>National Environmental Management: Air Quality Act (Act No. 39 of 2004</u>)
NEMAQA was promulgated to ensure the protection and regulation of air quality and provide measures that will prevent pollution and sustainability. Under NEMAQA, the Minister of Environmental Affairs, Forestry and Fisheries must identify substances in ambient air which present a threat to health, wellbeing or the environment and establish national standards for ambient air quality, including the permissible quantity or concentration of each substance in ambient air.
The following regulations promulgated under NEMAQA were considered for the Proposed Projects:
■ Listed Activities and Associated Minimum Emission Standards, published in GN 893 of GG 37054 on 22 November 2013, which lists activities that could result in atmospheric emissions requiring an atmospheric emissions licence before being undertaken. Examples of such activities include:
▪ the use of combustion installations;
▪ storage of petroleum products;
▪ slag processes;
▪ carbonisation and coal gasification;
▪ mineral processing; and
▪ disposal of hazardous and general waste by way of incineration.</td><td>The PR Area falls within the Waterberg-Bojanala National Priority Area, as contemplated in section 18(1) of NEMAQA.

A dust fallout monitoring network and programme is in place for ZMZM is continuously monitoring the dust fallout impacts.

An Air Emissions License (AEL) is not applicable to the project. Dust suppression measures are incorporated in the EMPr to minimize fugitive dust release.</td></tr>
</table>

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED
■ Waterberg-Bojanala National Priority Area, published in GN 1207/2015 of GG 39489 on 9 December 2015: ■ The Waterberg-Bojanala National Priority Area was established due to the exceedance of the ambient air quality standards or alternatively that a situation exists within the area which is causing or may cause a significant negative impact on air quality in the area and the area requires specific air quality management action to rectify the situation. ■ National Dust Control Regulations, published in GN 827 of GG 36974 on 1 November 2013, which provide that an acceptable dust fallout rate for a non-residential area is considered more than 600 mg/m2/day but less than 1200 mg/m2/day (30-day average), with maximum allowable two exceedances per year, provided these exceedances do not take place in consecutive months. Where the dust fallout rate is exceeded, a dust fallout monitoring programme must be developed, as prescribed in terms of the Regulations, and include: ▪ the establishment of a network of dust monitoring points, using method ASTM D1739:1970 (or an equivalent standard), sufficient in number to establish the contribution to dust fallout in residential and non-residential areas near the premises; monitor identified or likely sensitive receptor locations; and establish the baseline dust fall for the district; and ▪ a schedule for submitting to the air quality officer dust fallout monitoring reports annually or at more frequent intervals, if requested by the air quality officer. ■ Greenhouse gases have been declared priority pollutants under the Declaration of Greenhouse Gases as Priority Air Pollutants, published in GN 710 of GG 40996 on 21 July 2017, in terms of NEMAQA.	
7. <u>National Environmental Management: Biodiversity Act (Act No. 10 of 2004)</u> In line with the Convention on Biological Diversity, the National Environmental Management: Biodiversity Act (Act No. 10 of 2004) ("**NEM:BA**") aims to legally provide for biodiversity conservation, sustainable use and equitable access and benefit sharing. NEM:BA creates a basic legal framework for the formation of a national biodiversity strategy and action plan and identification of biodiversity hotspots and bioregions, which may then be given legal recognition. It imposes obligations on landowners (state or private) regarding alien invasive species. NEM:BA requires that provision be made by a site developer to remove any aliens which have been introduced to a site or are present on a site. Regulations published under NEM:BA in GN 1002 in GG 3809 on 9 December 2011 ("**NEMBA Ecosystem List**") also provides for listing of threatened or protected ecosystems in one of four categories: critically endangered, endangered, vulnerable or protected. Threatened ecosystems are listed to reduce the rate of ecosystem and species extinction, by preventing	As part of the application, indigenous vegetation clearance and removal will likely be undertaken. There are no Critical Biodiversity Areas or Threatened Ecosystems situated on the prospecting area and therefor GNR 985 (Listing Notice 3) does not apply.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED
further degradation and loss of structure, function and composition of threatened ecosystems. The purpose of listing protected ecosystems is primarily to conserve sites of exceptionally high conservation value.	
8. National Environmental Management: Protected Areas Act (Act No. 57 of 2003) **The National Environmental Management: Protected Areas Act (Act No. 57 of 2003) (NEMPAA) was promulgated in order to provide for (among other things) the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes; for the establishment of a national Register of Protected Areas, and for the management of those areas in accordance with national norms and standards.**	No protected areas were identified inside the Prospecting Area. The closest protected area is the Sharme Private Nature Reserve is situated approximately 1km to the south of the Prospecting Area.
9. National Environmental Management: Waste Act (Act No. 59 of 2008) The NEM:WA was implemented on 1 July 2009 and section 20 of the Environment Conservation Act (Act No. 73 of 1989) ("ECA"), under which waste disposal sites was previously governed, was repealed. The objectives of NEM:WA involve the protection of health, wellbeing and the environment by providing reasonable measures for the minimisation of natural resource consumption; avoiding and minimising the generation of waste; reducing, recycling and recovering waste; and treating and safely disposal of waste as a last resort. In terms of the NEM:WA, all waste management activities must be licensed. According to section 44 of the NEM:WA, the licensing procedure must be integrated with an EIA process in terms of the NEMA. GN R921, published under NEM:WA in Government Gazette 37083 on 29 November 2013 contains the list of waste activities that requires a waste management licence ("GN R921").	No listed activities in terms of GN R921 are anticipated for the Proposed Project. Waste handling, storage and disposal during operation are required to be undertaken in accordance with the requirements of the Act, as has been detailed in the EMPr.
10. National Heritage Resources Act (Act No. 25 of 1999) The protection and management of South Africa's heritage resources are regulated by the National Heritage Resources Act (Act No. 25 of 1999) ("NHRA"). The national enforcing authority for the NHRA is the South African Heritage Resources Agency ("SAHRA"). In terms of the NHRA, historically important features such as graves, archaeology and fossil beds are protected. Similarly, culturally significant symbols, spaces and landscapes are also afforded protection. Permits are required to damage or destroy such heritage resources, unless the provisions of section 38(8) of NEMA are followed.	The draft BAR was uploaded on the SAHRIS (**Case ID: 21871**). The SAHRA Development Applications Unit (DAU) requested that an application specific assessment of the impact to heritage resources must be undertaken as part of the EA process that complies with section 38(3) of the NHRA as required by section 38(8) of the NHRA. A desktop Heritage Assessment was subsequently undertaken by CTS Heritage providing the following recommendation: "***On condition that the prospecting is limited to the proposed three trenches and two boreholes as proposed and mapped herein, there is no objection to the prospecting activities from a heritage perspective. Should a mining application be investigated, it is strongly recommended that a full HIA is completed at an appropriate time of year to map the significant Iron Age resources evident here. It is also recommended that a detailed Heritage Conservation Management Plan be***

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED
	developed for the significant archaeological resources to ensure their ongoing conservation and management for the life of the mine". Refer to **Appendix 7** for the report.
11.<u>National Water Act (Act No. 36 of 1998</u> ("**NWA**") The NWA is the primary legislation controlling and managing the use of water resources and pollution thereof. It provides for fundamental reformation of legislation relating to water resource use. The preamble to the NWA recognises that the ultimate aim of water resource management is to achieve sustainable use of water for the benefit of all users and that water resources quality protection is necessary to ensure sustainability of the nation's water resources in the interests of all water users. The NWA's purpose is stated in section 2, which includes the following: ■ *Promoting the efficient, sustainable and beneficial use of water in the public interest;* ■ *Facilitating social and economic development;* ■ *Protecting aquatic and associated ecosystems and their biological diversity;* ■ *Reducing and preventing pollution and degradation of water resources; and* ■ *Meeting international obligations.* The NWA presents strategies to facilitate sound water resource management; provides for water resource protection; and regulates use of water by means of Catchment Management Agencies, Water User Associations, Advisory Committees and International Water Management. As the NWA is founded on the principle of trusteeship, the government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest. Industry (including mines) can therefore only be entitled to use water if the use is permissible under the NWA.	The proposed project requires authorisation in terms of Section 21 (c) and (i) of the NWA, 1998 for the digging of a trench within 500m of a channelled valley bottom wetland. It is expected that the need for a Water Use License or GA will only be finalised after Phase 1 prospecting have been completed. The application will follow the process outlined in the Regulations Regarding the Procedural Requirements for Water Use License Applications and Appeals, March 2017 published by the Department of Water and Sanitation (DWS). No activities will occur within the regulated area of a watercourse without the necessary authorisation from DWS.
12. <u>Mineral and Petroleum Resources Development Act (Act No. 28 of 2002)</u> The MPRDA's main objective is to recognise the State as the custodian over all the mineral and petroleum resources in South Africa and promote equitable access to the country's resources. It allows for previously disadvantaged persons to enter the minerals and petroleum industry and benefit from the exploitation of the country's minerals. This is done through the focus on job creation in the mining industry for previously disadvantaged people. The MPRDA ensures that holders of existing and new mining rights contribute towards the socio-economic development in the areas in which they operate, promoting economic growth, employment and advance the social- economic welfare of all South Africans. A prospecting right is required to be granted by the DMR for prospecting activities relating to mineral resources.	The Prospecting Right Application for the proposed project was submitted by Northam to the DMRE as the CA. As an EMPR is a requirement for a Prospecting Right the DMRE does not process applications without being provided with the required environmental authorisation in terms of the NEMA. As such the granting of the Prospecting Right will depend on the issuance of the Environmental Authorisation. Part B: EMPr of this report has included regulation requirements where relevant.
13. <u>Conservation of Agricultural Resources Act, No 43 of 1998</u> ("**CARA**")	The proposed project will take place on degraded, cultivated fields and natural open area and Northam will take cognisance of the requirements of CARA, where applicable.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED
In terms of CARA, landowners are legally responsible for the control of weeds and alien vegetation. CARA makes provision for three categories of AIP species: ■ Category 1a: must immediately be removed and destroyed; ■ Category 1b: need to immediately be removed and contained; ■ Category 2: requires a permit to retain the species on site and it must be ensured that they do not spread. All category 2 plants in riparian zones need to be removed; and ■ Category 3: require a permit to retain these species. All category 3 plants in the riparian zone need to be removed. CARA is also clear in terms of the conservation of soil and states that degradation of the agricultural potential is illegal. It furthermore requires the protection of land against soil erosion and prevention of water logging and associated salinization.	
14. <u>Mine Health and Safety Act (Act No. 29 of 1996)</u> ("MHSA") The MHSA aims to provide for protection of the health and safety ("**HS**") of all employees and other personnel at RSA mines. Its main objectives are: ■ Protection of the HS of all persons at mines; ■ Requiring employers and employees to identify hazards and eliminate, control and minimise the risks relating to health and safety at mines; ■ Giving effect to the public international law obligations of South Africa that concern HS at all mines; ■ Providing for: • employee participation in matters of HS through HS representatives and the HS committees at mines; • effective monitoring of HS conditions at mines; • enforcement of HS measures at mines; • investigations and inquiries to improve HS at mines; and ■ To promote: • a culture of HS in the mining industry; • training in HS in the mining industry; and • cooperation and consultation on HS between the State, employers, employees and their representatives.	ZM already complies with the MHSA, and it will be applicable to PR Area once granted. Northam will need to ensure that the MHSA is adhered to on Proposed Prospecting Area by employees, contractors, sub-contractors and visiting personnel. This is especially pertinent during the proposed project's operational phase.
15. <u>Compensation for Occupational Injuries and Diseases Act (Act No. 130 of 1993)</u> ("COIDA") Under COIDA, employers are not held liable for compensation for injuries sustained by employees or compensation to dependants due to the death of an employee which occurred during the course and scope of their employment. Compensation is paid out of a statutory fund, administered by the Compensation Commissioner (appointed under COIDA), which is	Northam will take cognisance of the requirements of the COIDA as part of daily operations and as incidents occur.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED
set in accordance with a tariff prescribed in COIDA. The fund is a trust fund that is controlled by the Compensation Commissioner, which the employer contributes to. The Compensation Commissioner is appointed to administer the fund and approve claims lodged by employees or their dependants. The Compensation Commissioner compensates the employee or their dependants directly.	
16. Hazardous Substance Act (Act No. 15 of 1973) ("**HSA**") The HSA provides for the: ■ Control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances; ■ Control of certain electronic products; ■ Division of such substances or products into groups in relation to the degree of danger; ■ Prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances and products; and ■ Matters connected therewith.	Northam will take cognisance of the requirements of the HSA in relation to hazardous substances that may be used for the Proposed Projects.
17. Other Legislation, Policy & Guidelines Other legislation and associated regulations (where applicable) considered as part of the application process include: ■ National Road Traffic Act, 93 of 1996. ■ The National Development Plan 2030. ■ National Veld and Forest Fire Act, 101 of 1998. ■ Transvaal Nature Conservation Ordinance, 12 of 1983 (“TNCO”). ■ National Forestry Act, No 84 of 1998 (“NFA”). ■ DMR Consultation Guidelines. ■ Spatial Planning and Land Use Management Act, No 16 of 2013. ■ Traditional Leadership and Governance Framework Amendment Act, No 41 of 2003 and National House of Traditional Leaders Act, No 22 of 2009. ■ Restitution of Land Rights Act 22 of 1994. ■ Municipal Systems Act, No 32 of 2000. ■ Regulations of Gatherings Act, No. 205 of 1993. ■ Protection of Personal Information Act, No. 4 of 2013. ■ Disaster Management Act: Regulations relating to Covid-19.	Northam takes note of the requirements of the mentioned provisions and will comply with them where relevant.
18. Provincial and Municipal Bylaws The TLM, WDM and LP have developed local bylaws and various policies relating to waste disposal, water, economic development, air quality etc. The following provincial and Municipal Bylaws are applicable to the prospecting application:	Northam will ensure that such policies and bylaws are adhered to during the Proposed Project commencement and operation and its operations in general.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED
■ Limpopo Conservation Plan, 2013; ■ Spatial Development Framework, 2022: Limpopo Province; ■ Thabazimbi Local Municipality: Drainage By-Law; ■ Thabazimbi Local Municipality: Waste Management By-Laws, 2022;	
19. Guidelines In addition to the abovementioned Acts and their associated Regulations, the following guidelines and reports have been taken cognisance of during the application process: ■ TLM Integrated SDF, 2007. ■ TLM IDP, 2022-2023 ■ SANS 10103 of 2008. ■ SANS 10210 of 2004. ■ NEMA Implementation Guidelines: Sector Guidelines for Environmental Impact Assessment Regulation (published in GN 654 of GG 3333 on 29 June 2010). ■ DEA (2011): A user friendly guide to the National Environmental Management: Waste Act, 2008. South Africa, Pretoria. ■ Department of Environmental Affairs and Tourism (2004): Criteria for determining Alternatives in EIA, Integrated Environmental Management, Information Series 11. ■ Guideline for Implementation: Public Participation in the EIA Process (published in GN 807 of GG 35769 on 10 October 2012).	Northam will ensure that such policies and bylaws are adhered to during the Proposed Project commencement and operation and its operations in general.

7 Need and desirability of the proposed activities

The Applicant is an independent, fully empowered, mid-tier and integrated PGM producer. It currently has a number of operating assets, Zondereinde, Eland and Booysendal Mines respectively. All three operations are PGM mines in the South African Bushveld Igneous Complex (BIC). The proposed prospecting area is located immediately adjacent to the south of the Zondereinde Platinum Mine of Northam (the current applicant). The northern portion of the Prospecting Area is held under ZM's mining right LP37MR but for different minerals to that included in this prospecting right application.

The need and desirability for the proposed project have been identified as the following:

The prospecting activity has the potential to result in a Mining Right Application together with a Social & Labour Plan (SLP) which will contribute to Local Economic Development in the area in general. The implementation of the SLP will also benefit staff through training (skills development) and bursary programmes. The proposed project has the potential to contribute to local taxes as well as the (Gross Domestic Product) GDP. Eventually the mining of minerals will allow for continued supply to other industries who also contribute to local taxes and GDP.

Although prospecting is not seen as an activity that significantly and sustainably contributes to an area's economy, it is a precursor to possible mining activities. The activity of mining has numerous social and economic benefits in local, regional, and national context. These include:

1. Job creation
2. Skills development
3. SMME development
4. Local economic development
5. Contribution to local and national tax income (royalties, companies tax etc.)
6. Contribution to the national gross domestic product

The need to prospect is therefore a crucial step in being able to ascertain if it is feasible to investigate mining and in turn the benefits indicated in points 1-6.

The proposed prospecting activities would have a beneficial impact on the local economy, albeit of low significance, through the creation of new employment opportunities during its operational phase. Both skilled and unskilled temporary employment opportunities would be created. In a developing country, such as South Africa, following a "no-project" option would have potential adverse impacts on a local and regional employment scale.

As mentioned earlier, the proposed project could increase the mining potential of the area, which may potentially result in employment opportunities.

8 Motivation for the overall preferred site, activities and technology alternative

8.1 Preferred site

As mentioned previously, the proposed project will be located on the RE of Portion 1 of the Farm Kopje Alleen. The site selection was done primarily on the location of the ore reserves and previous operations with their existing footprints, and more specifically, by taking cognisance of the following factors:

- Location of existing disturbed footprints;
- Existing and future infrastructure and servitudes e.g., future plant upgrades etc.;
- Position in relation to other mine infrastructure;
- Distance from the Concentrator Plant;
- Area and footprint available for proposed activities;
- Environmental and social constraints;
- General topography;
- Geology of the site;
- Surface geotechnical conditions in the footprint zone;
- Geohydrological features and optimal resource locations;
- Watercourse locations;
- Land use;
- Burial and archaeological sites; and
- Proximity to settlements.

8.2 Activities

Drilling is still the most effective way and an industry norm to complete resource evaluation as required for the mine works programme to be submitted in support of a Mining Right Application.

8.3 Technology

The use of aerial geological mapping as an initial non-invasive technique to delimit areas for invasive drilling is seen as the most responsible method to reduce needless surface disturbance and reduce environmental impact footprint. Technological alternatives are therefore also not assessed further.

9 Description of the process followed to reach the proposed preferred site

The consideration of alternatives is an integral part of the impact assessment process. In terms of Regulation 50 (d) of the MPRDA Regulations R. 527 under the Mineral and Petroleum Resources Development Act, Act 28 of 2002, an environmental impact assessment report must include inter alia the following:
"(d) A comparative assessment of the identified land use and development alternatives and their potential environmental, social and cultural impacts."

The goal of evaluating alternatives is to find the most effective way of meeting the need and purpose of the proposal, either through enhancing the environmental benefits of the proposed activity, or through reducing or avoiding potentially significant negative impacts. Constraints that must be considered when identifying alternatives for the proposed project include environmental, social, and financial issues which will be discussed below. Evaluation must focus on identifying the advantages and disadvantages of the identified alternatives and indicate which alternative is considered feasible in terms of technical, financial, and environmental aspects.

Alternatives considered for the proposed project are discussed under the headings below.

9.1 The property on which or location where it is proposed to undertake the activity

No location alternatives were identified, as the location of the proposed project is determined on initial assessment of the geological data available. Existing structures and key infrastructure will be avoided. Furthermore, the proposed site was also available for prospecting (i.e., not held by another company).

9.2 The type of activity to be undertake

The activity to be undertaken is prospecting. Prospecting is an activity that is defined as a formalised process with a systematic approach to identify the presence of a mineral resource and include invasive (drilling) and non-invasive (desktop studies) activities.

9.3 The design and layout of the activity

Since no complicated surface infrastructure will be required for the proposed project, no design and layout alternatives were assessed. Numerous alternative drill sites, within the application area, are available and dependent on the site conditions. Alternatives positions may be considered to avoid disturbance of watercourses, SANBI Ecological Support Areas ("ESA"), and any potential heritage resources, as well as their applicable buffers. In instances where boreholes will have to be situated inside these buffers, the requisite authorisations will be obtained from the relevant authorities. The final layout of the drilling can only be completed once the non-invasive investigations are completed.

9.4 The technology to be used in the activity

The use of desktop studies and literature reviews are viewed as an initial non-invasive technique to delimit areas for invasive drilling prospecting and is seen as the most responsible method to reduce needless surface disturbance and reduce the environmental impact footprint. Technology alternatives are therefore also not assessed further.

9.5 The operational aspects of the activity

Diamond drilling/ core-drilling methods - Core drilling techniques uses diamond drilling methods. A hollow cylindrical drill bit, filled with industrial diamonds, is attached to a series of metal drill rods and rotated under controlled downward pressure. A circle of rock is ground away; the cutting removed by water flushing; and a cylindrical core remains in the hollow centre of the drill string. Core drilling is the only satisfactory means of obtaining representative samples of seams at depth for quality determination.

An alternative to core drilling is non-core drilling. This technique uses rotary drilling methods. In this technique, a string of metal rods is rotated axially and a bit at the base of the string is forced downward, under controlled pressure, breaking up the ground and advancing the hole's depth. Cuttings are swept away from the bit and lifted to the surface either by pumped circulating water or jets of compressed air. Logging of the hole drilled by non-core drilling methods is mainly based on the cuttings obtained as the drill progresses. In view of the difficulty and error bound logging, this drilling method was discarded and may be used only for infill drilling wherever necessary.

The preferred drilling methods will therefore be the core drilling technique, using the diamond drill.

9.6 Access route alternative

No alternatives were considered for the access roads, as the intention is to make use of existing access roads as far as possible. This will reduce the proposed project's impact / environmental footprint. There will however potentially be a need to widen these roads to allow for access.

9.7 The option of not implementing the activity

The no-go option entails that none of the proposed prospecting activities are undertaken. Should the project not be implemented, the status quo remains, and current land uses will continue unaltered with no negative impacts on the biophysical, socio economic or cultural environment. The consequences identified if the No Go Alternative is considered are listed below:

- Possible loss of commodities.
- Possible loss of temporary jobs
- No habitat disturbance associated with land clearance
- No loss of vegetation associated with land clearance
- No damage to the Channelled Valley Bottom Wetland.

In addition, not proceeding with the proposed operation would have a direct consequence in that the mineable potential of the suspected reserve would not be determined. The secondary effect of that not happening is that the community and Interested and Affected Parties (I&Aps) will have been negatively affected by this application for prospecting in that they would not have been informed (together with the prospecting Applicant) as to the future of exploiting any potential mineral reserve: this question will then not have been answered for either party and the community and IAPs will expect another round of public participation in the future when the next Applicant applies to prospect in the area. Should the government not declare the area off limits for mining and is protected, then the mining houses would continue to apply for rights over these properties. One possible mitigation mechanism is for the Applicant and the DMRE to be transparent with the community and IAPs in informing them of what the actual reasons are for the prospecting operation not proceedings.

10 Details of the Public Participation Process Followed

Public Participation is a legal requirement, where the potential exists for individuals and/or parties to be affected by a proposed activity. According to the principles of Integrated Environmental Management (IEM), these individuals and/or parties should be involved in the decision-making process from an early stage in the project, with regards to any relevant issues and concerns complementing the information on which the Regulating Authorities would base their decision. This facilitation of effective communication between the Authorities, the Public and the Applicant, forms the primary role of the Public Participation Process (PPP). Through the public participation process the Interested and Affected Parties (IAPs) are offered an opportunity to voice their opinions and concerns with regards to the application and have them formally recorded and registered as such to be considered by the Authorities in the decision-making process. The term "Public Participation" is defined by the International Association for Public Participation (IAP2) as "any process that involves the public in problem-solving or decision-making and that uses public input to make better decisions".

This application is subject to legislation stipulated in the GN R326 of NEMA with regards to public participation, and the EIA Regulations of 2014 Regulation 41-44. These regulations stipulate the PPP that must be conducted in order to provide the IAPs the opportunity to form part of the process. The focus of the public participation process is to involve the public in the decision-making process from an early stage in the project, with regards to any relevant issues and concerns complementing the information on which the Regulating Authorities would base their decision.

The following steps will be taken during the PPP to inform stakeholders and I&APs (Evidence of PPP conducted is appended under **Appendix 2** – Report on Results of Consultation (RRC):

10.1 Stakeholder identification and IAP Registration

Stakeholders were identified using the Windeed System, existing databases generated during the previous applications in the surrounding area, and a site visit to the application area. The public was invited to register with the public participation office and will continue to be given an opportunity to participate in the process and express their points of view. Additional Interested and Affected Parties (I&APs) has progressively been identified throughout the application process.

10.2 Notification

The steps that were taken to notify the public of the proposed project are detailed below.

10.2.1 Fixing a notice board on site

A2 notices notifying the public of the proposed project and EA Application process, and inviting them to register as I&APs, were placed at the following locations:

- Site Entrance of the Zondereinde Mine;
- Northam Magistrate Court;
- Southern Boundary of the PR Area; and
- Setaria Village.

10.2.2 Written notice of the proposed project

The following stakeholders were informed through a written notification:

- Neighbouring landowners;
- Surrounding communities;

- Farmers working groups;
- Ward Councillor;
- District and Local Municipalities;
- Organs of State;
- Commenting authorities.

10.2.3 Placing an advertisement

A press notice was placed in the local newspaper (***Platinum Bushvelder***) on the 14th of July 2023, notifying the public of the application. The notice also requested the public to register as an I&AP with the Public Participation Office in order to receive all future correspondence regarding this project. The notice also informed the public that the draft BAR (DBAR) will be made available for comment from the **14th of July 2023 to 14th of August 2023.**

10.3 Meetings

No meetings have been held to date.

10.4 IAP Register

A I&APs Register has been opened and will continuously be updated as necessary (i.e., with new contact details, new I&APs etc.). Such a register will be submitted to the Competent Authority as part of the FBAR in accordance with Regulation 42 of the NEMA EIA Regulations of 2014, as amended.

10.5 Access to information

The registered I&APs will receive a soft copy of the DBAR via email. Hard copies of the DBAR will be available for review and comments at the following locations:

- ZM Security Office; and
- Northam Municipality Local Library.

All comments received from the I&APs during the DBAR Phase will be incorporated into the Final BAR (FBAR).

10.6 Summary of issues raised by IAPs

The over-riding objective during this consultative process has been to create an atmosphere conducive to sharing knowledge with the stakeholders to ensure that issues identified are used in a positive and constructive manner. All parties will be given the opportunity to raise their issues – be they fact or perception. The number and frequency with which issues are raised, and the extent to which they are debated gives a direct indication of the following:

- The success of the participative process.
- The perceived significance of the issues; and
- A measure of the sustainability of the outcome/solution.

All comments received, pertaining to this application, have been summarised in the Comments and Response Table below and provides the project teams response (***Table 7***). This table will be updated with comments received on the DBAR.

Table 7: Comments and Responses

Interested and Affected Parties		Date Received	Issues raised	EAP's Response to the issues raised	Section Referenced
Affected Parties					
Landowners					
Northam is the legal owner of the property RE of Portion 1 of Kopje Alleen 422 KQ					
Lawful occupier/s of the land					
ZM is the lawful occupier of the land.					
Landowners or lawful occupiers on adjacent properties					
					Appendix 2
Portion 0 and 2 of Kopje Alleen 422 KQ &Portion 1 Witvley 423 KQ – Leon Edmund	*X*	*2023/07/13*	Notified via registered post. No comments received to date.		
Portion 3 Witvley 423 KQ - Hendrick Le Roux	*X*	*2023/07/13*	Notified via registered post. No comments received to date.		
RE Witvley 423 KQ – G.J. EHLERS BOERDERY PTY LTD	*X*	*2023/0713*	Notified via registered post. No comments received to date.		
Municipal councillor					
Ward 11 – Prospecting Area situated in this Ward. *Ms. M. Matsietsa*	*X*	*2023/07/12*	*Notified via registered post.* *No comments received to date.*		***Appendix 2***
Municipality					
Waterberg District Municipality;	*X*	*2023/07/12*	*Notified via email.* *No comments received to date.*		***Appendix 2***
Thabazimbi Local Municipality;	*X*	*2023/07/12*	*Notified via email.*		

Interested and Affected Parties		Date Received	Issues raised	EAP's Response to the issues raised	Section Referenced
			No comments received to date.		
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWS etc.					
LDEDET - Director EIA	*X*		*Notified via email.* *No comments received to date.*		***Section 6, Appendix 2 & Appendix 7***
DWS - Northwest (Hartebeespoort Dam)	*X*		*Notified via email.* *No comments received to date.*		
DMRE – Case officer	*X*		*Notified via email.* *No comments received to date.*		
SAHRA SAHRIS Case ID: 21871	*X*		*The SAHRA Development Applications Unit (DAU) requests that an application specific assessment of the impact to heritage resources must be undertaken as part of the EA process that complies with section 38(3) of the NHRA as required by section 38(8) of the NHRA. The HIA must include an archaeological component.* *The field-based archaeological component of the HIA must be conducted by a qualified archaeologist and must comply with the SAHRA 2007 Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment Reports (see www.asapa.co.za or www.aphp.org.za for a list of qualified archaeologists).* *The proposed development is located within an area of insignificant Palaeontological Sensitivity as per the SAHRIS PalaeoSensitivity map. As such, no further assessment of the impact to Palaeontological resources is required.*	*A desktop Heritage Assessment was undertaken by CTS Heritage and the report uploaded on SAHRIS along with the revised DBAR.*	

Interested and Affected Parties		Date Received	Issues raised	EAP's Response to the issues raised	Section Referenced
			Any other heritage resources as defined in section 3 of the NHRA that may be impacted, such as built structures over 60 years old, sites of cultural significance associated with oral histories, burial grounds and graves, graves of victims of conflict, and cultural landscapes or viewscapes must also be assessed. *The applicant is advised to extend the EA process in terms of section 19(1)b of NEMA in order to address this comment. Further comments will be issued upon receipt of the above requested report and a revised DBAR that incorporates the results of the HIA.*		
Dept. Environmental, Fisheries and Forestry					
Director: Environmental Authorisations	*X*		*Notified via email.* *No comments received to date.*		***Appendix 2***
Other Competent Authorities					
Department of Agriculture, Land Reform and Rural Development (DALRRL): - Land Claims Commissioner	*X*		*Notified via email.* *No comments received to date.*		***Appendix 2***
Department of Public Works Road and Transport	*X*		*Notified via email.* *No comments received to date.*		
Other Affected Parties					
				Will be included as identified.	***Appendix 2***
Interested Parties					
				Will be included as identified.	***Appendix 2***

11 Environmental attributes associated with the development footprint (Baseline Environment)

The objective of this section is to describe the type of environment that will be affected by the proposed activity. The baseline information presented below will be used to determine protection, remedial measures, and environmental management objectives. The methodology used to assess the baseline environment is described below.

An in-depth assessment of the proposed application was undertaken using the following available information:

- Available information from the existing Zondereinde EMPr(s);
- Specialist reports conducted in and around the Proposed Prospecting Area on previous applications lodged;
- South African Weather Service ("SAWS");
- South African National Biodiversity Institute ("SANBI");
- Statistics South Africa;
- TLM IDP;
- Existing information on the environmental parameters of the area; and
- Stakeholder and I&AP comments received from the BID and DBAR.

A site inspection was conducted to confirm the information obtained through the desktop study and to assess the current state of the environment as well as the need for specialist studies.

Consultation with the landowners were also utilised to determine the environmental attributes of the application area.

11.1 Regional setting

The prospecting area is located in the Western Limb of the BIC, 25km south of the town of Thabazimbi and 12km northwest of the town of Northam. The main access to the PR Area is off the main Rustenburg-Thabazimbi Road (R510) and the Thabazimbi-Brits Road (R511).

The PR Area falls within the jurisdiction of the TLM (which is under the jurisdiction of the Waterberg District Municipality of the LP (Refer to ***Figure 3*** **and** ***Figure 4*** **above**).

Neighbouring communities in proximity to the PR Area include Setaria Village, Northam Town Amandelbult Mine Town and Thabazimbi. The PR Area is located within Ward 11 of the TLM, and forms part of the platinum mining region, established along the Western Limb of the BIC which includes several mining complexes (i.e., Northam-Zondereinde Mine, Anglo-Amandelbult, Rustenburg Platinum Mines, etc.)

11.2 Socio economic environment

The PR Area is located within the TLM which falls within the jurisdiction of the WDM. Platinum and iron ore mining are major contributors to the economy of the TLM (TLM, 2020). According to Stats SA, the 2021 projection shows that there are ± 104 781 people residing within the area of the TLM, which amounts to ± 38 175 households (TLM, 2022). A 13% growth rate was experienced from 2011 to 2016, and 15% from 2016 to 2020. According to 2022 IDP the following demographics for the TLM was observed:

Table 8: Demographics for the TLM

Demographic	Description
Population size	96 232
Population Density	7.26 persons/ km2
Number of Households	35 463
Average Household size	2.7 per/household
Unemployment rate	20.6 %
Gender ration	146.9 males per 100 females
Education breakdown	Higher Education: 6.2%
	Matric: 31.8%
	No Schooling: 3.7%
Age Population age breakdown	Age 0-14: 24.3%
	15-64: 73.5%
	65+: 2.2%

Three mining villages are associated with the immediate PR Area, namely Setaria (Zondereinde' s mine village), Amandelbult (Anglo Platinum's mine village) and Swartklip (RPM Union Section Mine village).

11.3 Climate

11.3.1 Temperature

The PR Area is located in a semi-arid rainfall region, which is characterised by cool, dry winters (May to August) and warm , wet summers (October to March). Summer temperatures are high, and infrequent frost occurs in winter. The average monthly maximum and minimum temperature vary from 31,8 °C to 19.4 °C in summer months to 23,7 °C to 2,7 °C in Winter months. Minimum, mean and maximum temperatures and humidity for the area are provided in ***Table 9*** below.

Table 9: Minimum, maximum and mean temperature and humidity (Prism, 2017

MONTH	AVERAGE RAINFALL (mm)	MAX RAINFALL IN 24HRS mm (date)	MEAN MONTHLY TEMP °C	AVERAGE DAILY TEMPERATURES °C		MEAN MONTHLY EVAPORATION (mm)
				MAX	MIN	
Jan	110.0	69	25.0	31.3	18.8	247.3
Feb	95.5	75	24.3	31.0	17.7	213.1
Mar	80.5	73	22.8	29.3	16.4	195.7
Apr	36.4	46	19.6	27.6	11.6	182.6
May	9.39	32	15.6	25.0	6.2	152.6
Jun	6.45	31	12.6	22.6	2.6	152.6
Jul	2.59	14	12.8	23.1	2.6	146.1
Aug	4.14	21	16.5	27.3	5.8	220.9
Sep	10.6	38	20.4	29.1	11.7	219.4
Oct	51.9	62	23.4	31.2	15.7	276.5
Nov	86.3	185	24.0	31.2	16.9	217.5
Dec	109.8	133	24.4	31.1	17.8	254.8

11.3.2 Wind

The wind direction is predominantly from south-west to northeast (Prism, 2020). The wind speed generally varies between 7 km/h at night to 9.2 km/h in the day (GCS, 2013) The wind rose for the Town of Thabazimbi is provided below (Refer to ***Figure 7***).

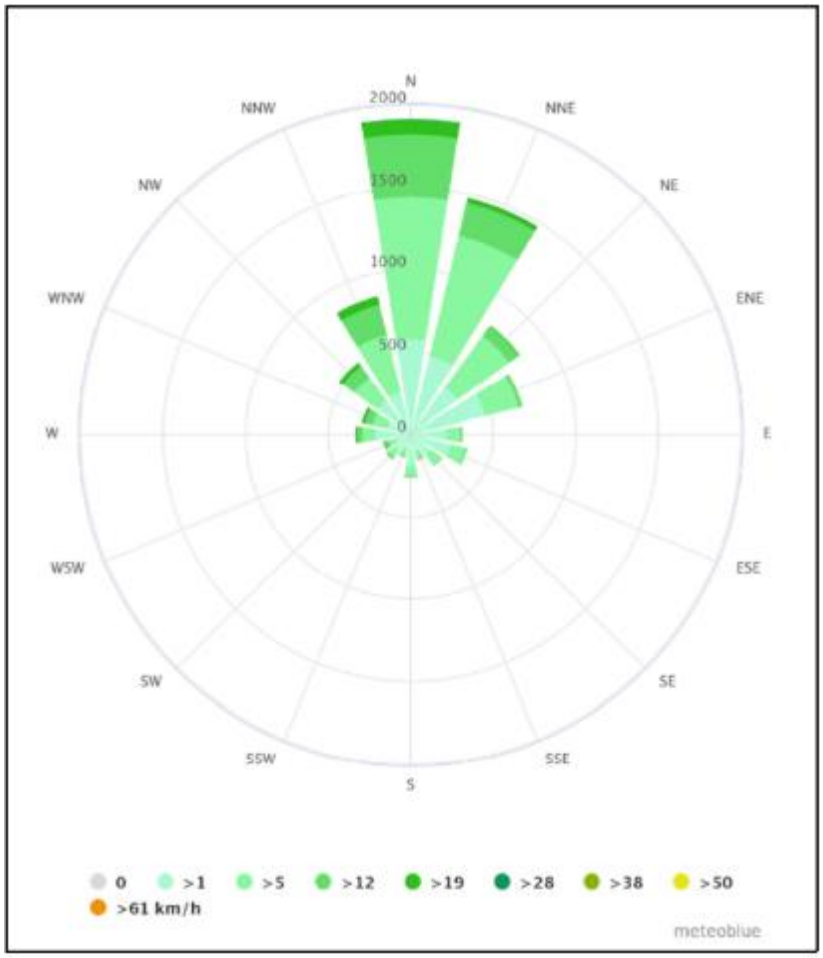

Figure 7: Wind rose for the Thabazimbi Weather Station (Prism, 2020)

11.3.3 Regional Climate Rainfall

The study area falls within a summer rainfall region, rainfall is usually in the form of convectional thunderstorms, which are usually accompanied by thunder and lightning, high winds, heavy rainfall and the occasional hail. Rainfall varies significantly over short distances because of uneven surface heating and upward atmospheric streams (Refer to ***Table 9***).

11.3.4 Evaporation

Evaporation data for the area is recorded at the Thabazimbi Weather Station, which is located approximately 35km north of Zondereinde Mine. Gross annual 'A' pan evaporation is 2479.1mm/a. If this is compared with the average annual rainfall, the PR Area is located in an extreme water deficit area, with average evaporation exceeding rainfall 4.4 times. A summary of the climate data for the Zondereinde Mine and surrounding areas is presented in ***Table 9***.

11.4 Topography

The topography of the PR Area is relatively flat with low hills and koppies to the West. The PR Area is located on the catchment divide of the Bierspruit and the Crocodile River. The highest elevation point is 1030 mamsl near the Western side of the PR Area to the lowest elevation on the PR area at 965 mamsl to the East (Refer to ***Figure 8***). The average slope for the PR area is 1.9%.

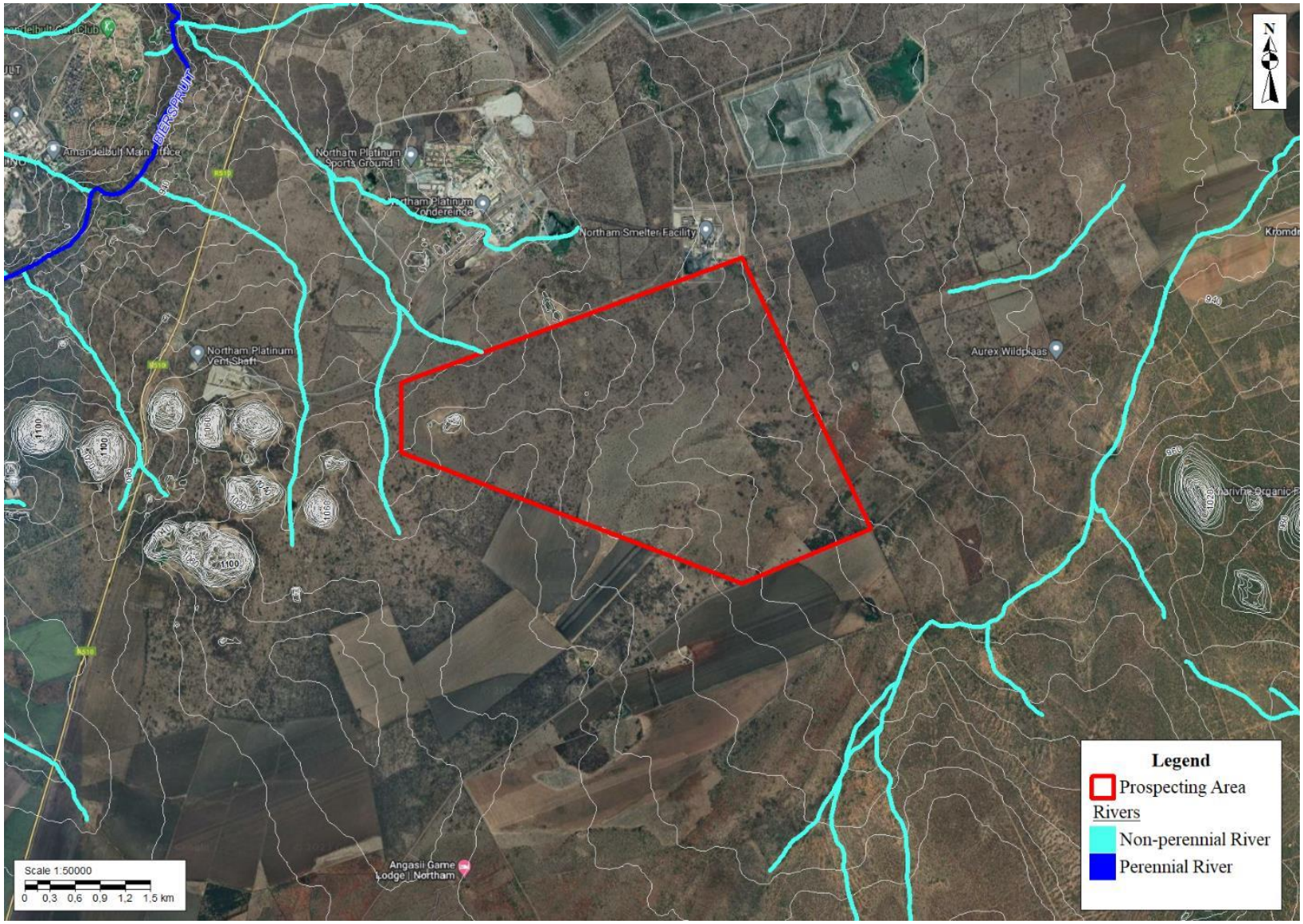

Figure 8: Topography and Drainage for the PR Area

11.5 Geology

11.5.1 Regional geology

The PR Area is located in the Western Limp of the BIC. The BIC comprises of volcanic rocks (Rooiberg Group); a mafic layered suite (Rustenburg Layered Suite); and sheeted granite (Lebowa Granite Suite) emplaced onto and within sediments of the Transvaal Supergroup.

The ultramafic / mafic rocks of the BIC are collectively referred to as the Rustenburg Layered Suite and are divided, from the lower to the upper layers, into the Marginal, Lower, Critical, Main and Upper Zones. The Critical Zone is the host to all Platinum Group Metals (PGM) mineralisation within the BIC.

The Upper Critical Zone of the western lobe of the Rustenburg Layered Suite of the BIC hosts the Zondereinde Mine and surrounding area (Future Flow, 2017). The PR Area is located north of the Pilanesberg and is comprised of the Swartklip Facies which is characterised by the much smaller UG2-Merensky separation (Future Flow, 2017).

A generalized local stratigraphy of the PR Area is provided in ***Figure 9*** below.

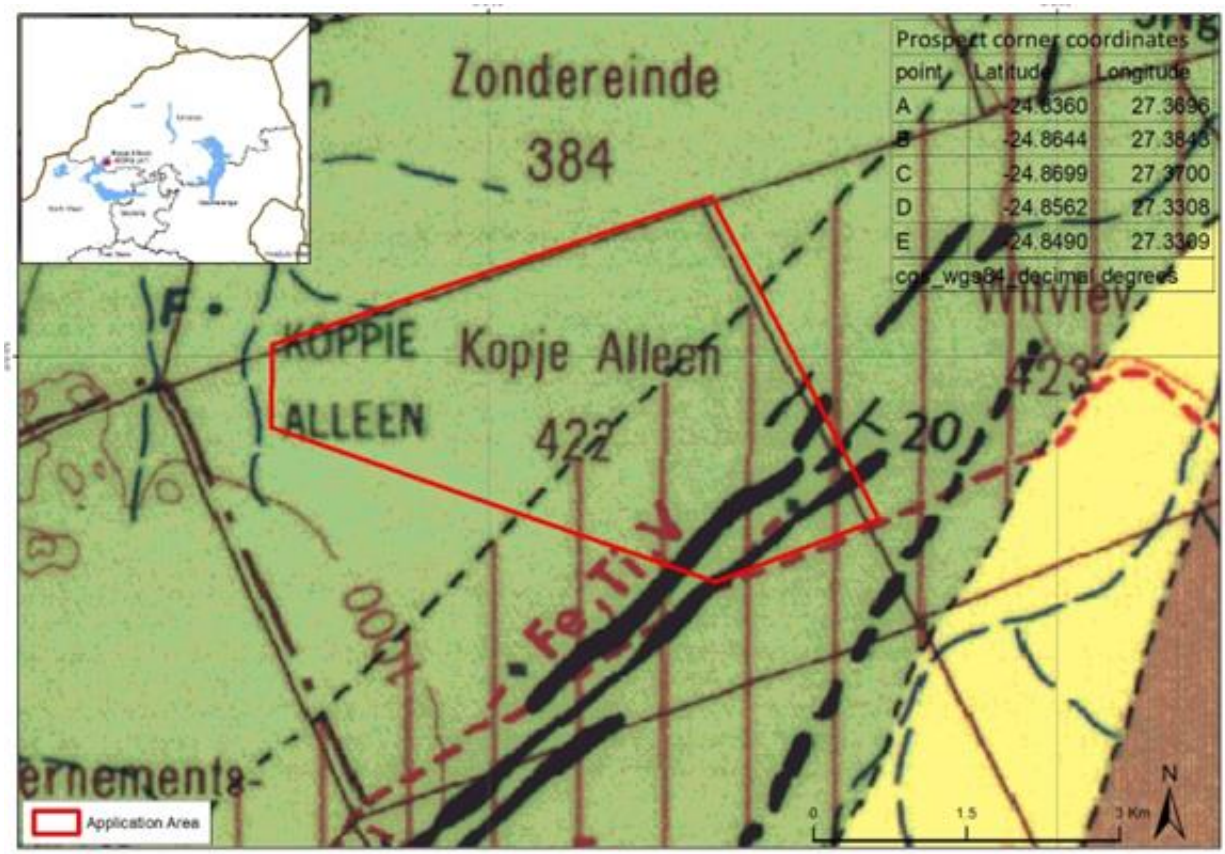

Figure 9: Regional Geology for the PR Area

11.5.2 Local geology

The PR Area is underlain by the magnetite seams located at the base of the upper zone of the Bushveld Rustenburg Layered Suite.

The magnetite seams of the Bushveld Complex are located at the base of the upper zone of the Rustenburg Layered Suite. The base of the upper zone is purported to lie upon the Prospecting Area. The magnetite seams are known resources of Iron, Vanadium and Titanium bearing heavy minerals.

11.6 Soils, land capability, and use

A soil and land capability assessment had been undertaken by over the PR Area for the Zondereinde Mine and solar application. The results of the assessment have been incorporated in this DBAR.

11.6.1 Soils

Soils are a significant component of most ecosystems. As an ecological driver, it is the medium in which most vegetation grows and a range of vertebrates and invertebrates exist.

The main soil forms associated with the PR Area is Mispah, Glenrosa, Shortlands, Hutton and Swartland forms (Terra Africa, 2013). The soil forms in this area have a sandy clay-loam texture. The geology underlying this land type is mainly norite and pyroxenite of the Upper zone, Rustenburg Layered Suite, Bushveld Complex.

Strongly structured cracking soils, mainly dark coloured, dominated by swelling clays (vertic soils). They may occur associated with one or more of melanic and red structured soils (BGIS, 2023).

11.6.2 Land Capability

Land capability classes are interpretive groupings of land with similar potential and limitations or similar hazards. It is considered by many land use planning practitioners as one of the only methods to describe the potential of land for development. The evaluation involves consideration of:

- Difficulties in land use, owing to physical land characteristics;
- The risks of land damage from erosion and other causes; and
- Climate.

The proposed project area consists of two different land capability classes according to the land capability data (DALRRD, 2016). The largest part of the area consists of land with Moderate (Class 08) land capability, while the south-western and south-eastern corners have slightly lower land capability (Class 07 or Low-Moderate). The surrounding land consists of the same two land capability classes.

11.6.3 Land Use

The Prospecting Area is surrounded by agricultural land and is used for cattle and game farming. There is no crop production – irrigated or rainfed - within the project area or on land directly surrounding this area. No irrigation infrastructure was observed within the project area and soil and terrain conditions indicate that the area has not recently been used for crop production.

Land surrounding the PR area is mainly vacant land with signs of previous livestock grazing and dryland crop production agriculture activities. Northam has recently received an approval for the development of a renewable power/ solar project on a portion of the PR Area. Northam has an existing mining right on a section of the PR Area for other commodities.

11.7 Hydrology

A Hydrology study has been undertaken for the Zondereinde Mine situated directly north of the PR Area. The results of the assessment have been incorporated in the DBAR.

The PR area is located in the Lower Crocodile sub-management area of the Limpopo Water Management Area (Water Management Area 3). The Lower Crocodile has two large tributaries, namely the Sand River and the Bierspruit which join the Crocodile River west of the town of Thabazimbi.

The PR Area is located on the catchment divide of the Bierspruit and the Crocodile River over two quaternary catchment A24C and A24F. The desktop integrity of the A24C reach of the Crocodile River is moderately modified. The Ecological Importance (EI) of the reach is moderate. The Ecological Sensitivity (ES) for the reach is rated low (DWS, 2021). The Bierspruit reach (A24C) is rated as largely modified (class D). This is predominately due to modifications to instream habitat continuity and modifications, large flow modifications, and serious modifications to water quality within the reach.

There are no perennial rivers on the PR Area (Refer to ***Figure 8***). A channelled Valley Bottom Wetland was identified over the centre of the PR Area (Refer to Figure).

Surface water sampling is conducted for ZM on set points in the non-perennial streams and watercourses surrounding the PR Area.

11.8 Wetlands

A Biodiversity and Wetland Impact Assessment was conducted by The Biodiversity Company over the PR Area for the Zondereinde Mine and solar application. The results of the assessment have been incorporated in this DBAR.

11.8.1 National Freshwater Ecosystem Priority Area Status

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

No NFEPA wetlands were identified within the PR area.

11.8.2 South African Inventory of Inland Aquatic Ecosystems (SAIIAE)

The South African Inventory of Inland Aquatic Ecosystems (SAIIAE) was released with the NBA 2018. Ecosystem threat status (ETS) of river and wetland ecosystem types are based on the extent to which each river ecosystem type had been altered from its natural condition. Ecosystem types are categorised as CR, EN, VU or LT, with CR, EN and VU ecosystem types collectively referred to as 'threatened' (Van Deventer et al., 2019; Skowno et al., 2019).

The PR area does not overlap with any designated units.

11.8.3 Wetlands classification and extent

One (1) wetland belonging to the channelled valley bottom wetland hydrogeomorphic (HGM) unit was identified and delineated in the study area (***Figure 10***). A photograph of the identified wetland is presented below.

Photo Plate 2: Channelled valley bottom wetland in PR Area

The delineated drainage feature formed due to anthropogenic activities. The systems are associated with black turf soils, with the Arcadia form and the Rensburg form dominant with the terrestrial landscape and wetlands respectively. The wetland system is largely seasonal to temporary, and the G horizon is feint and slightly calcareous.

The level 1-4 classification for the HGM unit, as per the national wetland classification system (Ollis et al., 2013), is presented in ***Table 10***. A map showing the extent of this wetland is shown in ***Figure 10*****.**

Table 10: Wetland classification as per SANBI guideline (Ollis et al. 2013)

Wetland System	Level 1	Level 2		Level 3	Level 4		
	System	DWS Ecoregion/s	NFEPA Wet Veg Group/s	Landscape Unit	4A (HGM)	4B	4C
HGM 1	Inland	Bushveld Basin	Central Bushveld Group 2	Valley Floor	Channelled valley bottom	N/A	N/A

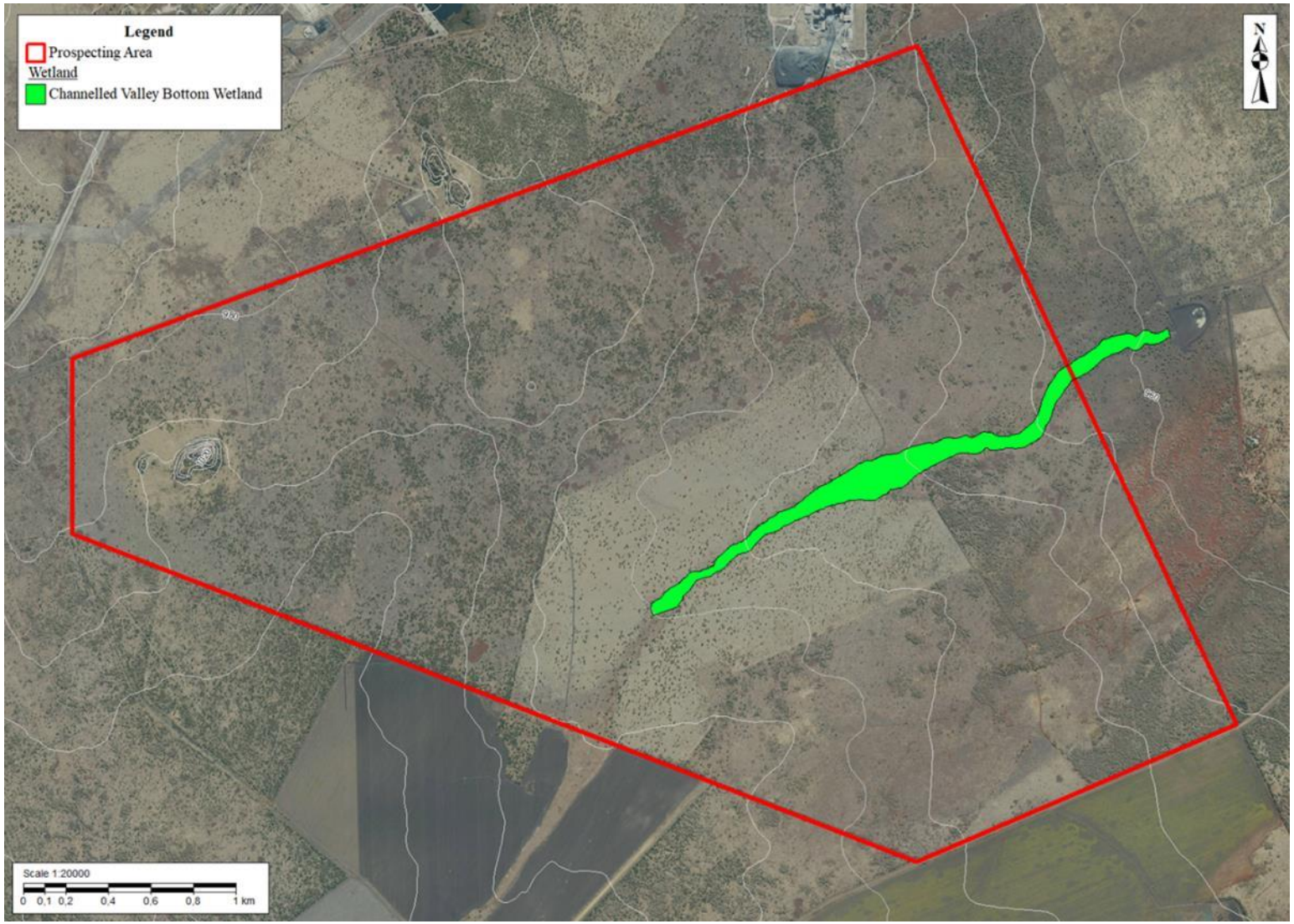

Figure 10: Map of the Channelled Valley Bottom Wetland identified on the PR Area

11.8.4 Functional assessment

The ecosystem services provided by the wetland identified within the PR area were assessed and rated using the WET-EcoServices method (Kotze et al. 2008) (***Table 11***). The channelled valley bottom wetland (HGM 1) scored Moderately High. The wetland is considered relatively important for regulating and supporting benefits, such as flood attenuation and water quality enhancement. Due to the largely natural state of HGM 1, it is considered important from biodiversity maintenance perspective.

Table 11: Summary of the ecosystem services scores

				Wetland Unit	HGM 1
Ecosystem Services Supplied by Wetlands	Indirect Benefits	Regulating and supporting benefits		Flood attenuation	2.0
				Streamflow regulation	1.5
			Water Quality enhancement benefits	Sediment trapping	2.4
				Phosphate assimilation	2.3
				Nitrate assimilation	1.8
				Toxicant assimilation	2.0
				Erosion control	2.0
				Carbon storage	1.3
	Direct Benefits			Biodiversity maintenance	3.0
		Provisioning benefits		Provisioning of water for human use	1.1
				Provisioning of harvestable resources	2.4
				Provisioning of cultivated foods	2.4
		Cultural benefits		Cultural heritage	1.5
				Tourism and recreation	2.1
				Education and research	1.5
				Overall	29.5
				Average	2.0

11.8.5 Present Ecological State

The present ecological state (PES) of the channelled valley bottom wetland identified within the PR area is provided in ***Table 12*****.** Overall, HGM 1 is rated as being in a Largely Natural state (class: B). The site in general, although largely natural bush is still heavily encroached by weedy annual alien invasive species due to intensive cattle farming.

Table 12: Summary of the scores for the wetland PES

Wetland	Hydrology	Geomorphology	Vegetation	Overall
HGM 1	B: Largely Natural (1.5)	C: Moderately Modified (2.0)	B: Largely Natural (1.7)	B: Largely Natural (1.7)

11.8.6 Importance and sensitivity

The results of the ecological importance and sensitivity (IS) assessment are shown in ***Table 13***. At a regional scale, the NFEPA Wetveg database recognises channelled valley bottom wetland types within the Central Bushveld Group 2 as Critically Endangered and Not Protected (Nel and Driver,

2012). As mentioned above, the wetland identified in the PR area is not recognised as NFEPA wetland. The following was also considered for the EIS description, the project area:

- Is not located in a Strategic Water Source Area;
- Does not overlap any CBAs; and
- Does not overlap any ESA

Table 13: The ecological Importance and Sensitivity results for the wetland areas

Aspect	HGM 1
Ecological Importance & Sensitivity	Very High

11.9 Geohydrology

Groundwater is a valuable resource and is defined as water which is located beneath the ground surface in soil / rock pore spaces and the fractures of lithological formations. A number of geohydrological studies have been undertaken for the Zondereinde Mine situated directly north of the PR Area. The results of these assessments have been incorporated in the DBAR.

11.9.1 Hydrogeology of the area

The Zondereinde area is characterised by three aquifers, namely (Future Flow, 2017):

- **Alluvial aquifer material**

The alluvial aquifer is composed of unconsolidated layers of sand and silt deposits. The aquifer is unconfined and laterally discontinuous, localised within the immediate vicinity of the river banks and the floodplains, and therefore does not extend regionally throughout the total study area. These aquifers are usually fairly high yielding due to their interaction with the surface water bodies, coupled with the relatively high storage capacity of the unconsolidated sediments. The interaction between the alluvial aquifer and the river depends on the differences between the surface water and groundwater levels and the presence or absence of an impervious streambed which would affect the hydraulic connection.

- **Shallow weathered fractured material**

The upper aquifer forms due to the vertical infiltration of recharging rainfall through the weathered material being retarded by the lower permeability of the underlying competent rock material. Groundwater collecting above the weathered / unweathered material contact migrates down gradient along the contact to lower lying areas.

Based on data collected from previous drilling programs performed in the area it is estimated that the upper 2 m of the soil consists of the semi-confining black turf layer. The BIC norite weathers to form a dark brown to black, very clayey vertisol soil horizon. During dry weather the soil forms deep open fissures or shrinkage cracks, while the soil becomes sticky and slow draining during wet weather. This results in varying hydraulic conductivities in the expansive clay layer. When saturated the clays are highly impermeable but allows for infiltration and recharge through the surface cracks during dry conditions.

The borehole yields in this aquifer are seasonally variable due to the strong dependence on rainfall recharge. The groundwater quality in undisturbed areas is good due to the dynamic recharge from rainfall. This aquifer is, however, more likely to be affected by contaminant sources situated on surface.

- Underlying competent and fractured rock material.

Although the lower permeability of the unweathered rock material will retard vertical infiltration of groundwater, a percentage of the water in the shallow aquifer will recharge the fractured rock aquifer. The ultramafic / mafic Rustenburg Layered Suite consists of relatively low permeability sediments that have been subjected to extensive faulting associated with the intrusion of the Bushveld sediments.

Groundwater flows in the fractured rock aquifer are associated with the secondary fracturing in the competent rock and as such will be along discrete pathways associated with the fractures. Faults and fractures in the competent rock can be a significant source of groundwater depending on whether the fractures have been filled with secondary mineralisation. ZM have an extensive groundwater monitoring network. Any reduced groundwater quality is actively identified through the groundwater monitoring programme.

11.10 Ecology

An Ecological Assessment have been undertaken by Zondereinde Mine for the proposed solar application situated on the PR Area by The Biodiversity Company. The results of the assessment have been incorporated in the DBAR. ***Table 14*** below and ***Figures 11 - 14*** contain data accessed as part of the desktop assessment.

Table 14: Summary of the conservation characteristics for the PR Surface Area (Biodiversity Company,2021)

DETAILS OF THE PR AREA IN TERMS OF MUCINA & RUTHERFORD (2012)		**DESCRIPTION OF THE VEGETATION TYPE(S) RELEVANT TO THE PR SURFACE AREA (MUCINA & RUTHERFORD 2012)**	
Biome	The PR Area is situated within the **Savanna Biome.**	**Vegetation Type**	**Dwaalboom Thornveld**
Bioregion	The PR Area is located within the **Central Bushveld Bioregion**	**Climate**	Summer rainfall with very dry winters
Vegetation Type	The PR Area is situated within the **Dwaalboom Thornveld**	**Altitude (m)**	900-1200
NATIONAL WEB BASED ENVIRONMENTAL SCREENING TOOL (2020)		**Conservation**	Least Threatened. Approximately 6% conserved. Conservation target is 19%.
Terrestrial Sensitivity	The Terrestrial Sensitivity for the entire PR Area is considered to have a Low sensitivity.	**Distribution**	North-West and Limpopo Provinces
Animal Species	For the Animal Species theme, most of the PR Area is considered to have a Medium sensitivity with only a small section in the south west of the study area considered to be of Low Sensitivity due to the potential presence of sensitive species 5.	**Vegetation & landscape features (Dominant Floral Taxa)**	Landscape features include plains with a layer of scattered, low to medium high, deciduous microphyllous trees and shrubs with a few broad-leaved tree species. There is almost a continuous herbaceous layer dominated by grass species.
Plant Species	For the Plant Species theme, the entire PR Area is located in a Low sensitivity.	**Geology & Soils**	Most of the area underlain by mafic intrusive rocks of the Rustenburg Layered Suite of the BIC. Rocks include gabbro, norite, pyroxenite and anorthosite. The shales and quartzites of the Pretoria Group (Transvaal Supergroup) also contribute. Mainly vertic melanic clays with some dystrophic or mesotrophic plinthic catena's and some freely drained, deep soils.
Aquatic Biodiversity	The aquatic Biodiversity for the north east of PR Area is very high with the remaining south west section considered to be low.		
CONSERVATION DETAILS PERTAINING TO THE PR AREA (VARIOUS DATABASES)			
IBA (2015) ***Refer to Figure 11***	The PR Area is located in the Northern Turf Thornveld IBA. This is a triangular IBA situated just south of Thabazimbi, bounded to the east by the Crocodile River, to the west by the Bierspruit and to the south by the railway line. This IBA is recognised for supporting the core of the remaining South African resident population of Yellow-throated Sandgrouse (*Pterocles gutturalis*). The species frequents open fallow croplands in the area. This habitat is, however, lacking, at present, within the project area.		
SAPAD (2022); SACAD (2019, Q4); NPAES (2009) ***Refer to Figure 14****Error! Reference source not found.*	According to the protected area spatial dataset from SAPAD (2022), the proposed project does not occur within any protected area. The nearest protected area is however approximately 3 km away from the study area, which means the area does fall within the 5 km protected area buffer area. The project area is within the 5 km buffer for the Sharme Private Nature Reserve.		
National Biodiversity Assessment (2018) –	**The PR Area falls within a least concerned vegetation type (Dwaalboom Thornveld).** Ecosystem types are categorised as "not protected", "poorly protected", "moderately protected" and "well protected", based on the proportion of each ecosystem type that occurs within a protected area recognised in the NEMPAA and compared with the biodiversity target for that ecosystem type. The ecosystem protection level status is assigned using the following criteria: i. If an ecosystem type has more than 100% of its biodiversity target protected in a formal protected area either A or B, it is classified as Well Protected;		

DETAILS OF THE PR AREA IN TERMS OF MUCINA & RUTHERFORD (2012)	DESCRIPTION OF THE VEGETATION TYPE(S) RELEVANT TO THE PR SURFACE AREA (MUCINA & RUTHERFORD 2012)
	ii. -When less than 100% of the biodiversity target is met in formal A or B protected areas, it is classified it as Moderately Protected; iii. - If less than 50% of the biodiversity target is met, it is classified it as Poorly Protected; and iv. - If less than 5% it is Hardly Protected. **The proposed project overlaps with a moderately protected ecosystem.**
MINING AND BIODIVERSITY GUIDELINES (2013) Refer to *Figure 12*	
Highest Biodiversity Importance	The western portion of the PR Area is situated within an area considered of highest biodiversity importance. No physical disturbance will be undertaken in this area.
High Biodiversity Importance	Majority of the PR Area is located within an area considered of high biodiversity importance. The proposed physical disturbance will be within largely transformed areas. Mining implications: Mining options may be limited in these areas and red flags for mining projects are possible. Authorisations may set limits and specify biodiversity offsets that would be written into licence agreements and/or authorisations.
LIMPOPO CONSERVATION PLAN, VERSION 2 (LEDET, 2018) *Refer to Figure 13*	
Critical Biodiversity Area (CBA)	**No CBAs are situated over the PR Area.** CBAs are terrestrial and aquatic areas of the landscape that need to be maintained in a natural or near-natural state, to ensure the continued existence and functioning of species and ecosystems and delivery of ecosystem services.
Ecological Support Area (ESA)	**No ESAs are situated over the PR Area.** ESAs are terrestrial and aquatic areas that are not essential for meeting biodiversity representation targets (thresholds), but which nevertheless play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration.
No Natural Remaining (NNR)	**The project area overlaps with an NNR area.** Areas with NNR are areas in poor ecological condition that have not been identified as CBAs or ESAs. They include all irreversibly modified areas (such as urban or industrial areas and mines), and most severely modified areas (such as cultivated fields and forestry plantations).
Other Natural Area (ONA)	**The project area overlaps with an ONA area.** ONAs consist of all those areas in good or fair ecological condition that fall outside the protected area network and have not been identified as CBAs or ESAs.
STRATEGIC WATER SOURCE AREAS FOR SURFACE WATER (2017)	
Name and Criteria	The PR Area is not within 10 km of a Strategic Water Source Area.

NBA = National Biodiversity Assessment; SAPAD = South African Protected Areas Database; SACAD = South African Conservation Areas Database; NPAES = National Protected Areas Expansion Strategy; IBA = Important Bird Area; MAP = Mean annual precipitation; MAT = Mean annual temperature; MAPE = Mean annual potential evaporation; MFD = Mean Frost Days; MASMS = Mean annual soil moisture stress (% of days when evaporative demand was more than double the soil moisture supply)

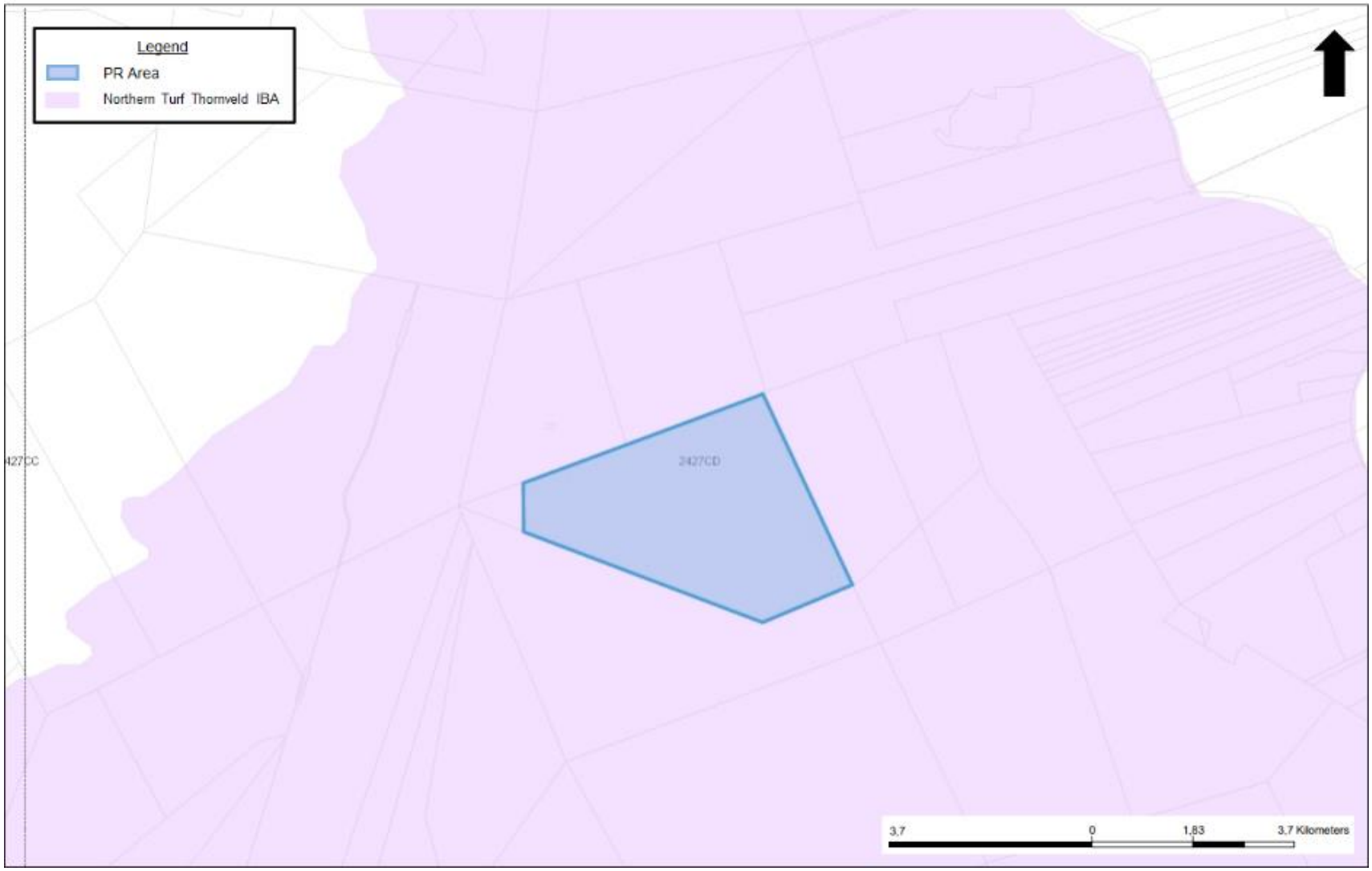

Figure 11: Important Bird Area Map

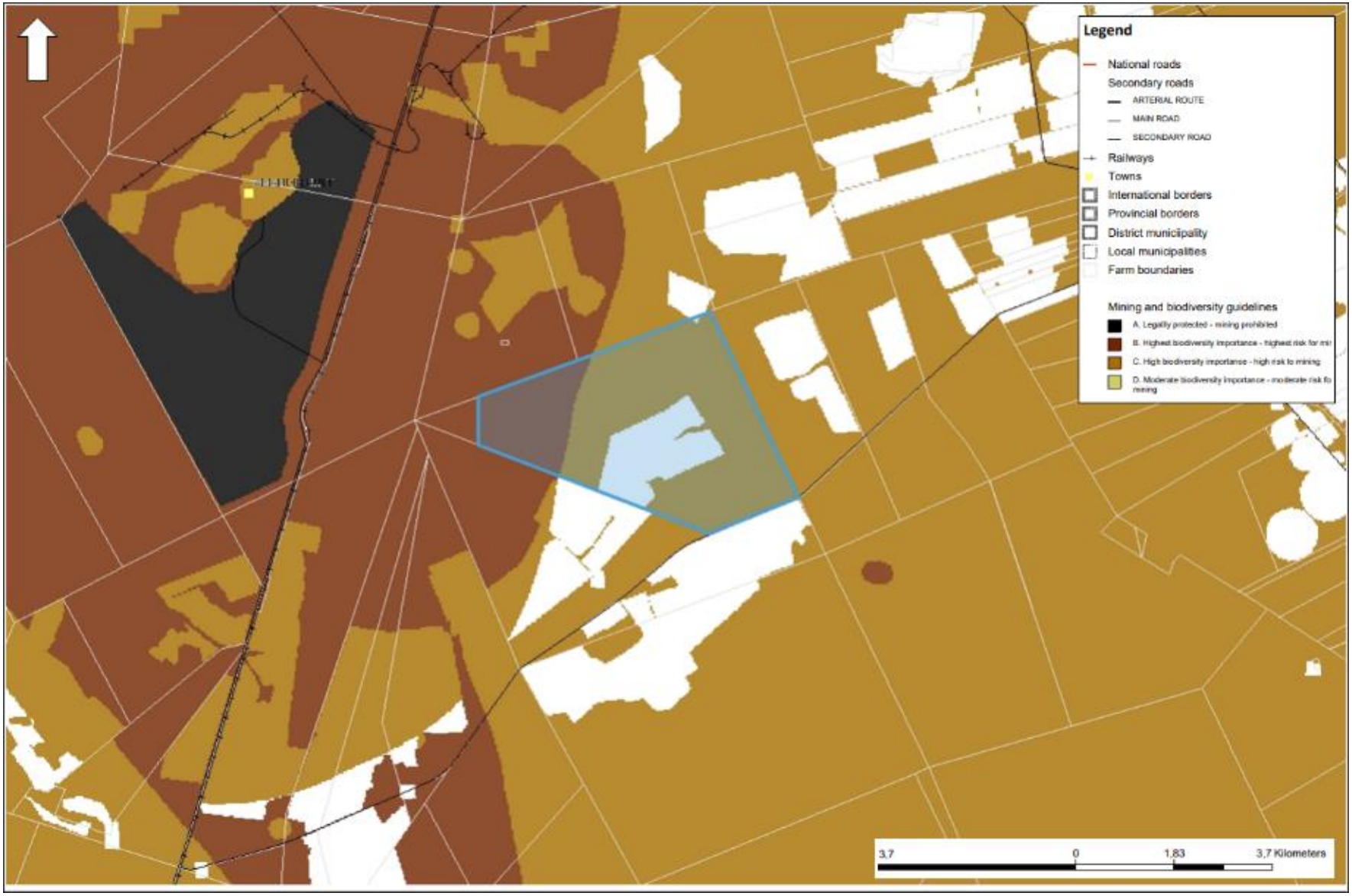

Figure 12: Mining and Biodiversity Guidelines Map

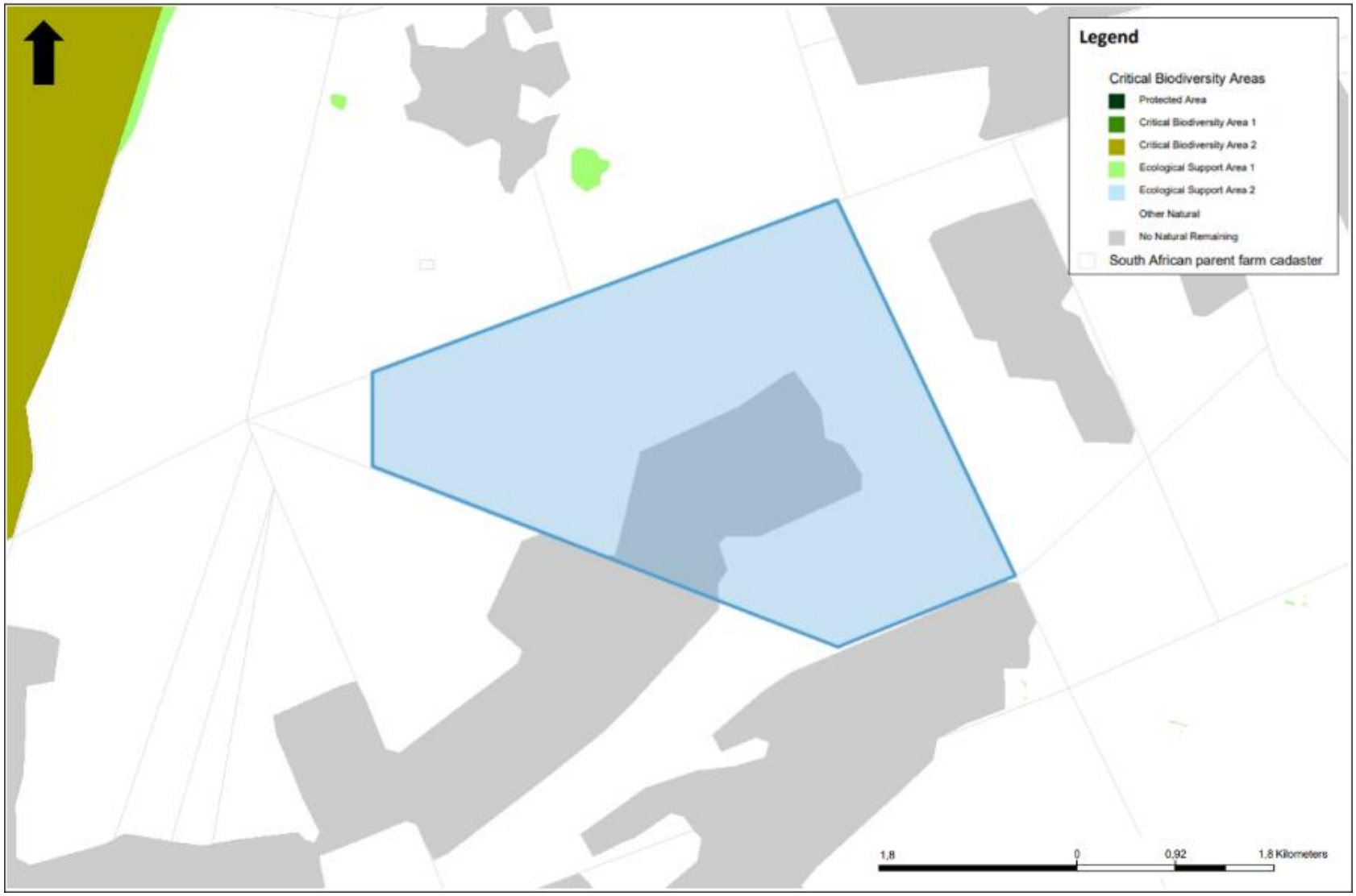

Figure 13: Limpopo Conservation Plan (LEDET, 2018)

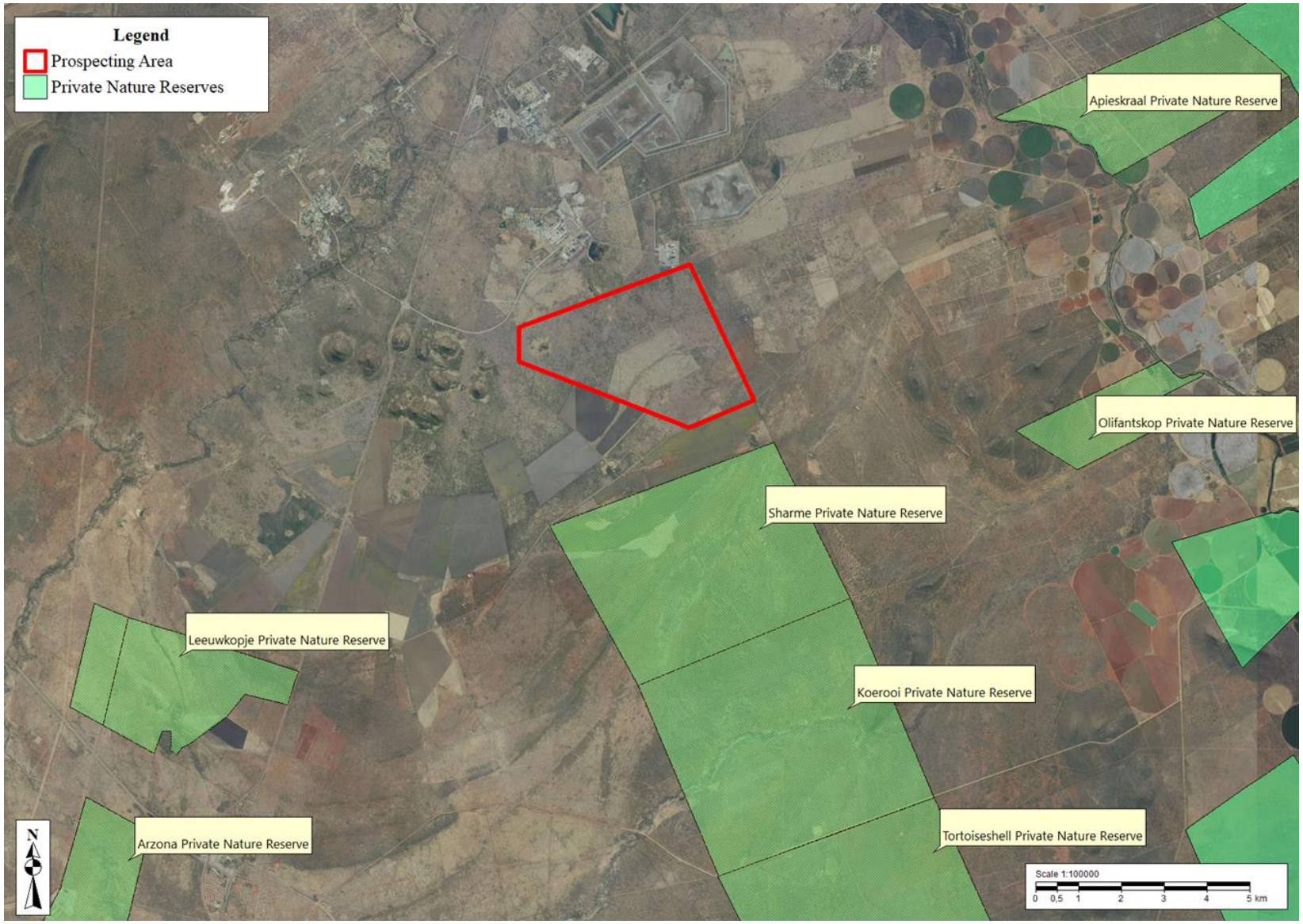

Figure 14: Nature Reserves situated in close proximity to the PR Area

11.11 Terrestrial Biodiversity

Based on the Biodiversity Assessment that was undertaken by The Biodiversity Company the following terrestrial habitats were identified (Biodiversity Company, 2021):

- **Degraded Bushveld**

This habitat is the remainder of the bushveld that has not been as disturbed by the historic grazing and impacts. This habitat type is regarded as semi-natural bushveld, but slightly disturbed due to some grazing by livestock, the adjacent mining land use and human infringement. The current ecological condition of this habitat regarding the main driving forces, are intact, which is evident in the amount and importance of the species recorded in the faunal assessment; and the high species diversity and number of plant species recorded. Current human infringement still occurs throughout, especially in areas close to roads. The difference between this habitat and the disturbed bushveld is the extent of the disturbance in the disturbed bushveld being more severe.

The unit acts as remaining greenlands, which supports viable plant species populations and is also used for foraging. The unit also serves as a movement corridor for fauna within a landscape fragmented. The habitat sensitivity is regarded as medium sensitivity due to the role of this intact habitat to biodiversity within a very fragmented local landscape.

- **Disturbed bushveld**

This habitat is regarded as areas that have been impacted more by historic overgrazing, mismanagement and land use. These habitats aren't entirely transformed but in a constant disturbed state, as they can't recover to a more natural state due to ongoing disturbances and impacts received from grazing and mismanagement. This habitat can be found in different conditions of disturbance, but in many cases has either been encroached on by alien and invader plants. These areas are considered to have a low sensitivity, as they may be used as a movement corridor and in many cases form a barrier between the more degraded bushveld and the transformed areas.

- **Rocky Koppie**

A single large rocky hill consisting of rocks and boulders of different sizes. It is situated to the western boundary of the PR area. Considered a unique habitat within the landscape and used by faunal species as a fine-scale unique habitat and should be avoided for placement of the infrastructure. This habitat was a hotspot for the protected tree species recorded on site. Rock Hyrax was found only in this habitat.

- **Transformed**

This habitat unit represents all areas that have been cleared of natural vegetation, access roads, perimeter fences, etc.

- **Rock Outcrops**

Rocky outcrops occur in small portions within the disturbed Bushveld habitat and consist of bedrock protruding from the soil layer, with the associated boulders and large rocks. A number of rocky outcrops are present in the project area. The habitat is used by faunal species as fine-scale habitats and is important to consider for mitigation actions when an area is cleared for invasive prospecting activities. These habitats are also hotspots for the protected tree species recorded on site.

11.11.1 Flora

A number of Flora field assessments have been undertaken on the ZM area and the PR Area. The most recent assessment was undertaken in 2021 for the Northam Solar Project that overlapped into the PR Area.

Based on the field assessment undertaken in 2021 a total of 84 tree, shrub and herbaceous plant species were recorded in the study area. Two (2) species of protected trees were observed: *Sclerocarya birrea.* subsp*. caffra* (Marula) and *Combretum imberbe* (Leadwood). The protected trees observed are protected by the List of Protected Tree Species under the National Forests Act, 1998 (Act No. 84 of 1998) (NFA). In terms of the NFA, no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate, or in any other manner acquire or dispose of any protected tree or any product derived from a protected tree, except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated. Four (4) Invasive Alien Plants (IAP) species were recorded within the study area. These species are listed under the Alien and Invasive Species List 2020, Government Gazette No. GN1003 as Category 1b.

11.11.2 Fauna

A number of Fauna field assessments have been undertaken on the ZM area and the PR Area. The most recent assessment was undertaken in 2021 for the Northam Solar Project that overlapped into the PR Area. As part of the field Assessment the following Amphibians/Reptiles, Mammals and Avifauna were identified:

Amphibians/Reptiles

Four (4) species of reptile and one species were recorded within the study area during the survey period. However, there is the possibility of more species being present, as certain reptile species are secretive and require long-term surveys to ensure capture. None of the species recorded are regarded as threatened, albeit all are protected under provincial legislation. The use of the rocky outcrops by these species on the fine-scale habitats is important to consider for mitigation actions when an area is cleared for placement of the infrastructure. A number of rocky outcrops are present in the PR area.

Mammals

Thirteen (13) mammal species were observed during the survey of the study area based on either direct observation or the presence of visual tracks and signs. None of the species recorded are regarded as threatened. The use of the rocky outcrop in the project area by these species on the fine-scale habitats is important to consider for mitigation actions when an area is cleared for placement of the infrastructure.

Avifauna

A total of 102 bird species were recorded within the PR Area. No Species of Conservation Concern (SCC) were detected within the PR Area during the field assessment. However, there are areas within the PR Area that represents possible habitats for SCC. However, no nests of SCC raptors were observed during the field assessment. One of the key target species for this assessment was Yellow-throated Sandgrouse (*Pterocles gutturalis*), due to the site's position within the core of the South African resident breeding population's range, as defined by the small Northern Black Turf Thornveld IBA. However, the species frequents shortly cropped open grassland and, particularly, fallow croplands in this area, a habitat that was distinctly lacking within the project area. Instead, the project area was comprised of a dense tangle of previously cattle impacted, underutilised and moribund grassland between a dense thornveld which, in places, resembled woodland. Consequently, this species is considered moderately likely to occur, but unlikely to breed within the project area, in its current state.

The wetland / watercourse areas deemed important for avifauna were assigned a very high importance and sensitivity. The koppies were assigned a High sensitivity and the flat rocky outcrops a Medium Sensitivity. All other areas were assigned a Low sensitivity.

11.12 Air Quality

The Thabazimbi Region is one of the major Iron and Platinum producing areas in the LP. The PR Area is located within the Waterberg-Bojanala National Priority Area, as contemplated in section 18(1) of NEM:AQA, 2004. The Waterberg-Bojanala National Priority Area was established due to the exceedance of the ambient air quality standards or alternatively that a situation exists within the Area which is causing or may cause a significant negative impact on air quality in the area and the area requires specific air quality management action to rectify the situation.
Existing key sources of air pollution surrounding the PR Area include:

- Mining activity (Zondereinde Mine and Amandelbult);
- Vehicle dust entrainment on unpaved roads (surrounding areas);
- Commercial agricultural activities (surrounding areas);
- Domestic fuel burning at informal settlements.

11.13 Noise

The general noise climate in the area and surrounds can be described as industrial / semi-rural. The area is characterised by mining operations, farms and vacant land. Existing sources of noise include:

- Traffic (heavy and light vehicles) on the new R510, R511 and mining roads
- Various mining operations Zondereinde and Amandelbult; and
- Farming activities.

11.14 Visual Aesthetics

Data on the visual resource was collected from topographical maps and available satellite imagery for the Proposed Prospecting Area.

The PR Area is located directly south of the ZM Smelter Area and the established mine. Mining forms an integral part of the current landscape of the area. Furthermore, the people living within the surrounding living quarters are mining employees and farmers within the MRA lease out the properties. The PR Area is situated in a relatively remote area amongst other mines and is only visible from the internal mining road.

11.15 Heritage and cultural resources

A desktop Heritage Assessment was undertaken by CTS Heritage. The results of the assessment have been incorporated below.

11.15.1 Background

The broader area assessed is located immediately adjacent to the town of Thabazimbi and the existing Northam Platinum Mine. The area immediately surrounding both the town and the mine largely consists of agricultural lands used for crop cultivation. The name Thabazimbi means mountain of iron because of the large iron ore reef that was discovered in 1919 by J. H. Williams. The mine boasts one of the largest mining shafts in Africa. More than 2 million tons of ore are mined every year and hauled by train to Mittal's iron and steel works. The railway line from Rustenburg reached the area in the 1930s and full scale iron and steel production began. The town was proclaimed in 1953 and its history is intimately linked with that of the mines in the area. Much of the central landscape of the North West Province is defined by bushveld and grasslands scattered with trees and shrubs; the mountains, deep valleys, rivers and dams of the northeast; the flat and arid semi-deserts plains of the west; and the lush vegetation of areas bordering the Vaal River in the south.

11.15.2 Cultural Landscape

A broad history of the area is included in Murimbika (2010) and is referred to here. According to Murimbika (2010), the broader region has also yielded some significant Iron Age Sites such as the Mzonjani facies Broederstroom site (AD 430 to AD 780). According to Murimbika (2010), the broader region was subject to a number of instances of migration and settlement from 450 AD. Evidence indicates that Sotho-Tswana groups migrated in and out of the Magaliesberg region, and such groups are responsible for the many early stone-walled settlements in this region. One of the most documented migrations is the Mfecane (forced migration or scattering) which was a period of widespread chaos and warfare among indigenous ethnic communities in southern Africa during the period between 1815 and about 1840. During this time, the Ndebele under Mzilikazi reached the Magaliesberg region and are responsible for introducing the Doornspruit-type walled settlements that are known from this region (the Doornspruit River drains into the project area). According to Murimbika (2010) this type of stone-walled settlement represents "typical Nguni-Sotho-Tswana acculturation". Murimbika (2010) further explains that one of the most acculturated groups in the region is known as the "Po", whose Chief Mogale lends his name to the Magaliesberg Mountains and the Mogale City Municipality. By the mid-1800's, Voortrekkers had begun to settle in the foothills of the Magaliesberg mountains and in so doing, clashed with Mzilikazi's Ndebele in 1837. These early colonial battles forced the Ndebele north of the Limpopo River and effectively ended the independence of African Chiefdoms in the area. The Voortrekkers went on to establish the Republic of the Transvaal. As articulated by Murimbika (2010), it is in this context that the Magaliesberg area, in which the proposed development is located, is an important cultural landscape.

11.15.3 Archaeology

Previous Heritage Impact Assessments conducted in the immediate vicinity of the proposed study area (Von Vollenhoven, 2013 and van der Walt 2019) have identified a number of significant archaeological sites in the vicinity of the study area, dated to the Late Iron Age (**Figure 15, 16 and 17**). Van Vollenhoven (2013) noted three clusters of Late Iron Age sites consisting of a number of individual features of stone walling of a variety of heights and diameters. Similarly, Van der Walt (2019) identified clusters of stone packed kraals up to 20m in diameter and deflated middens. According to Van der Walt (2019), a number of Late Iron Age middens and stone-walled enclosures were identified as having high local significance (Grade IIIA). Van der Walt (2019) also identified individual artefacts outside of these kraal locations such as upper grindstones and undecorated ceramics. Two main heritage complexes were recorded within the study area (refer to ***Figure 18***), namely:

- Rocky Outcrop complex; and
- Koppie complex.

The smaller rocky outcrop complex (site 4) was disturbed when a large water reservoir was built through the middle of the site somewhere between 2000 and 2013 in service of the mining in the area in the early 2000s (CTS, 2021). Further impacts have been made to this site by the construction of a shooting range along the southwestern end of this site complex.

The Koppie Complex (Site 5) has fortunately had very low impacts limited to a jeep track and no additional infrastructure has been built there (CTS, 2021).

As mitigation against impacts to the identified Iron Age sites, Van der Walt (2019) recommended the implementation of buffer zones of 30m around the identified sites; however, CTS Heritage is of the view that this may not be sufficient for conservation of the broader cultural landscape.

In 2021, an archaeological assessment of the area proposed for development was completed by CTS Heritage. This assessment sought to clarify the extent of sites 4 and 5 in more detail and to

provide guidance as to the areas that should be avoided by development activities. The distribution of artefactual material was noted on the ground, and this was found in large numbers surrounding sites 4 and 5 in an among extensive stone walling enclosures and ruined remains. A more detailed photographic record was taken of the koppie complex lying just to the southeast of the study area along with the outcrops containing sites 4 and 5 previously recorded by Van Vollenhoven (2013). This has significantly improved the appreciation of the sense of place and nature of the area containing an extensive Late Iron Age settlement that the specialist believe should be conserved and carefully managed for the remaining period of mining in the area (CTS, 2021).

11.15.4 Palaeontology

According to the SAHRIS Palaeosensitivity Map (**Figure 20**), the area proposed for PR Application is underlain by sediments that have zero palaeontological sensitivity. The broader study area is underlain by Pyramid Gabbro-Norite which has zero palaeontological sensitivity.

As such, no palaeontological resources will be impacted by the proposed PR Application and no further specialist palaeontological assessment is recommended.

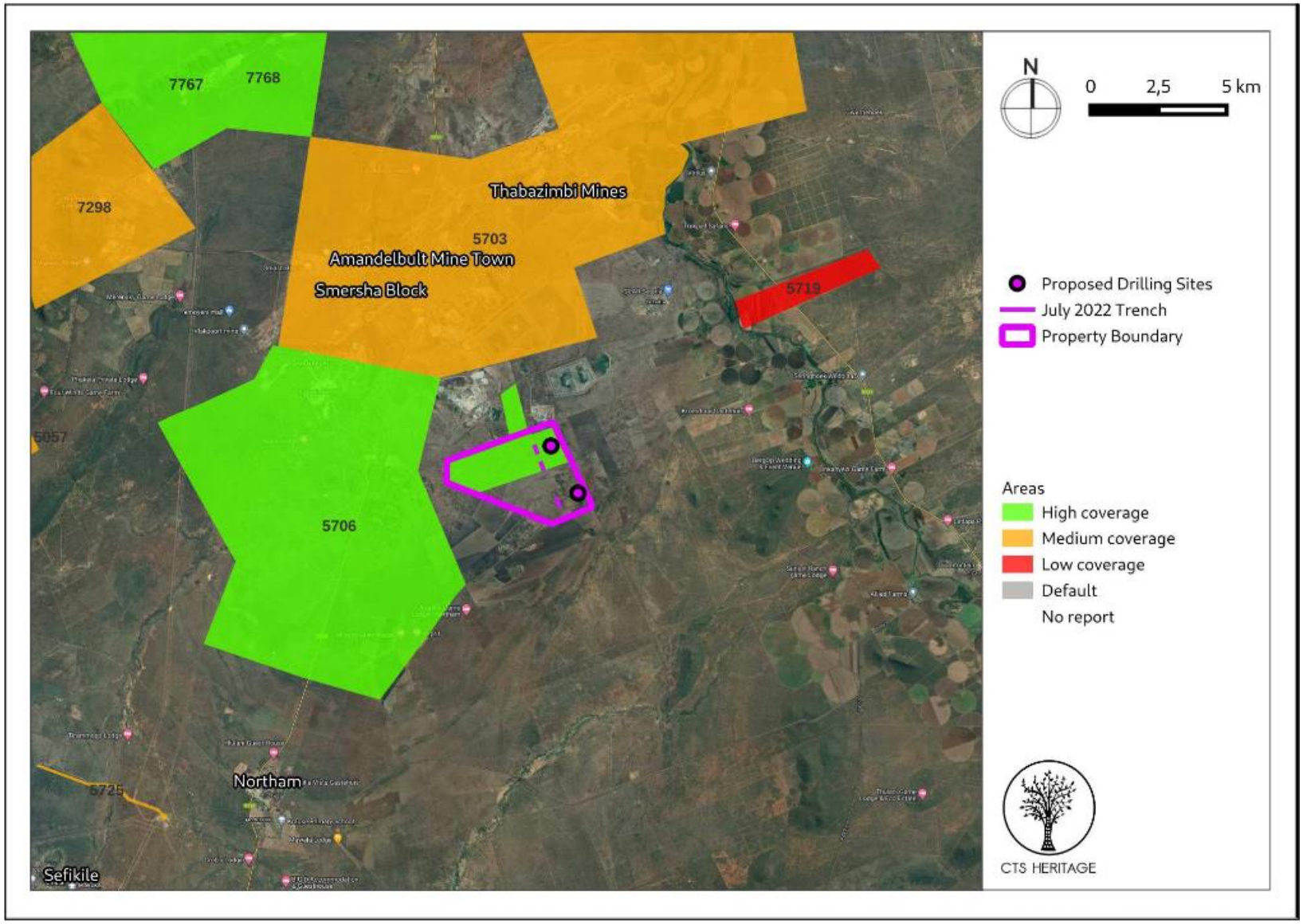

Figure 15: Previous Heritage Impact Assessments surrounding the proposed development area within 15km, with SAHRIS NIDS indicated

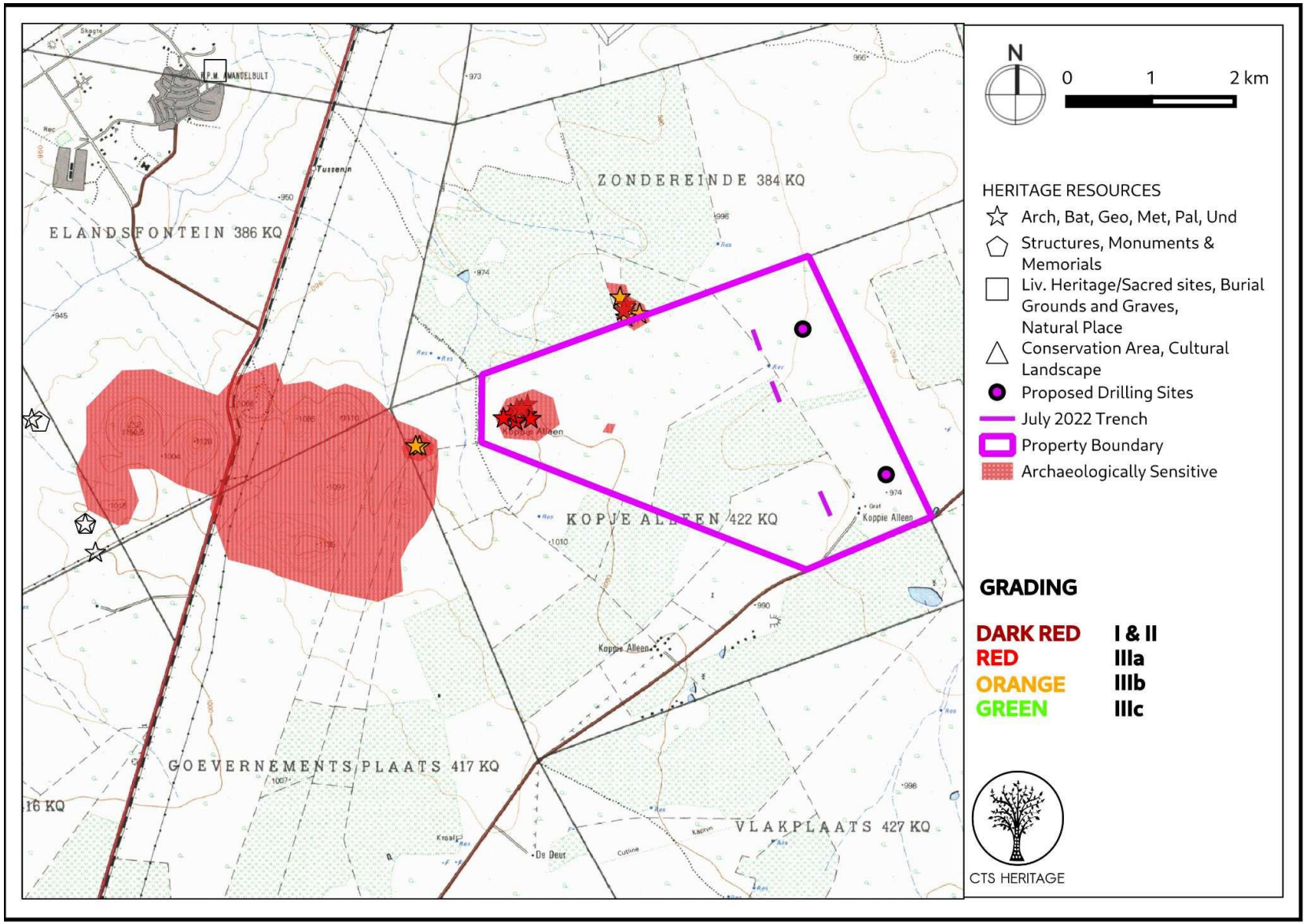

Figure 16: Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated within 15km

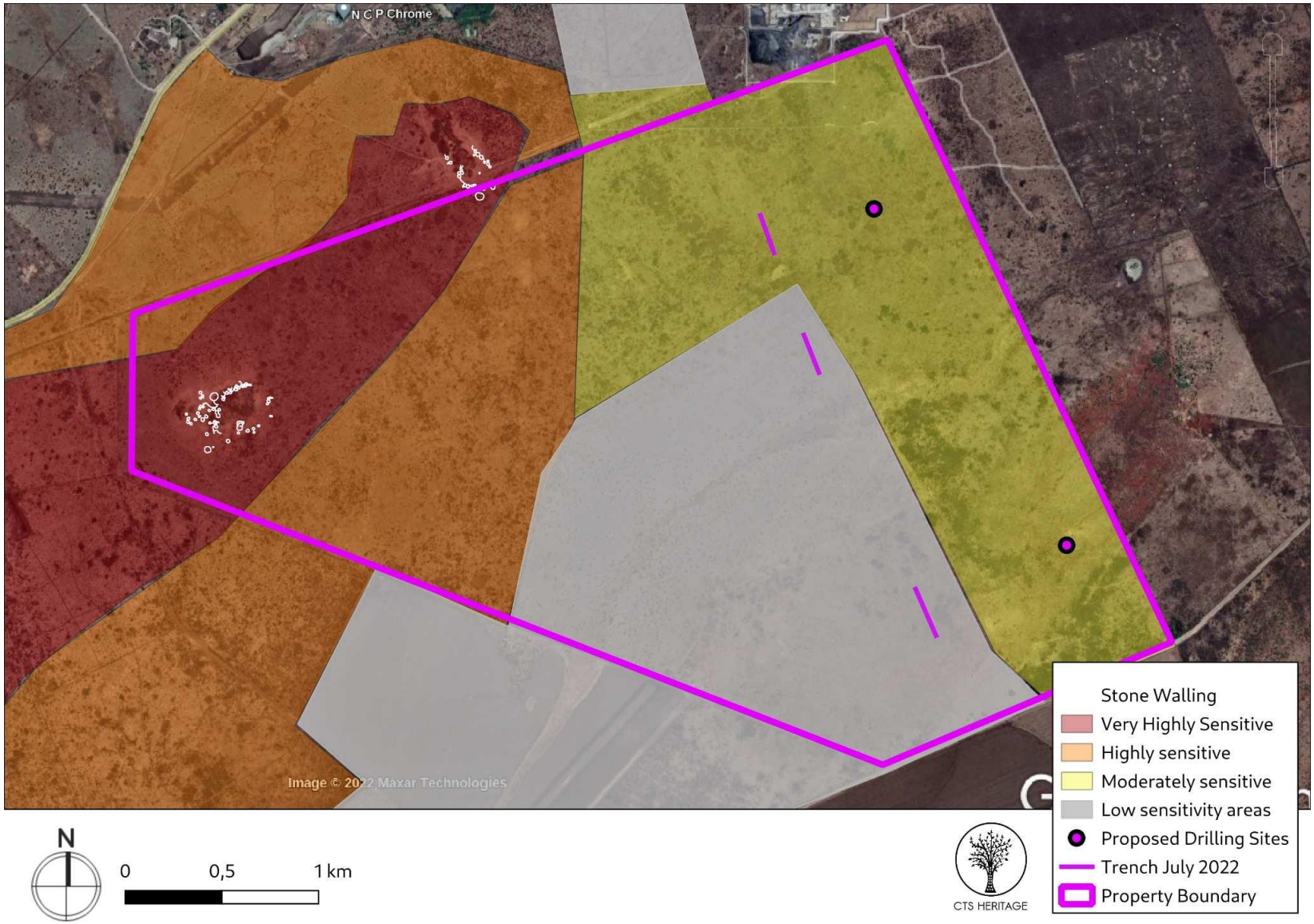

Figure 17: Map of heritage resources identified during previous field assessment, relative to the development area

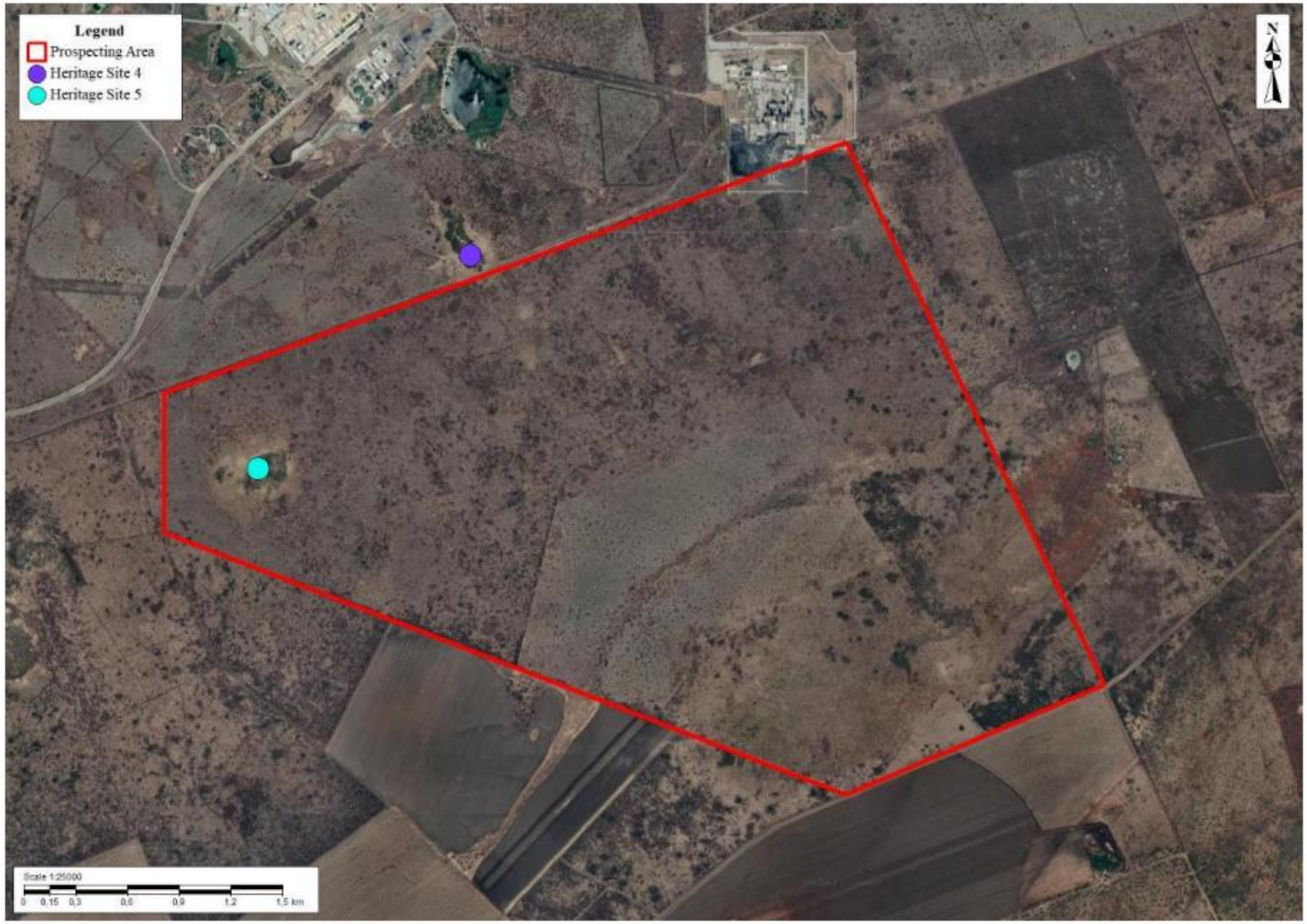

Figure 18: Map indicating the location of Heritage Site 4 and 5 area (CTS, 2021)

Figure 19: Detailed maps of the stone walling evident at Site 4 (Left) and Site 5 (right) from satellite imagery (CTS, 2021)

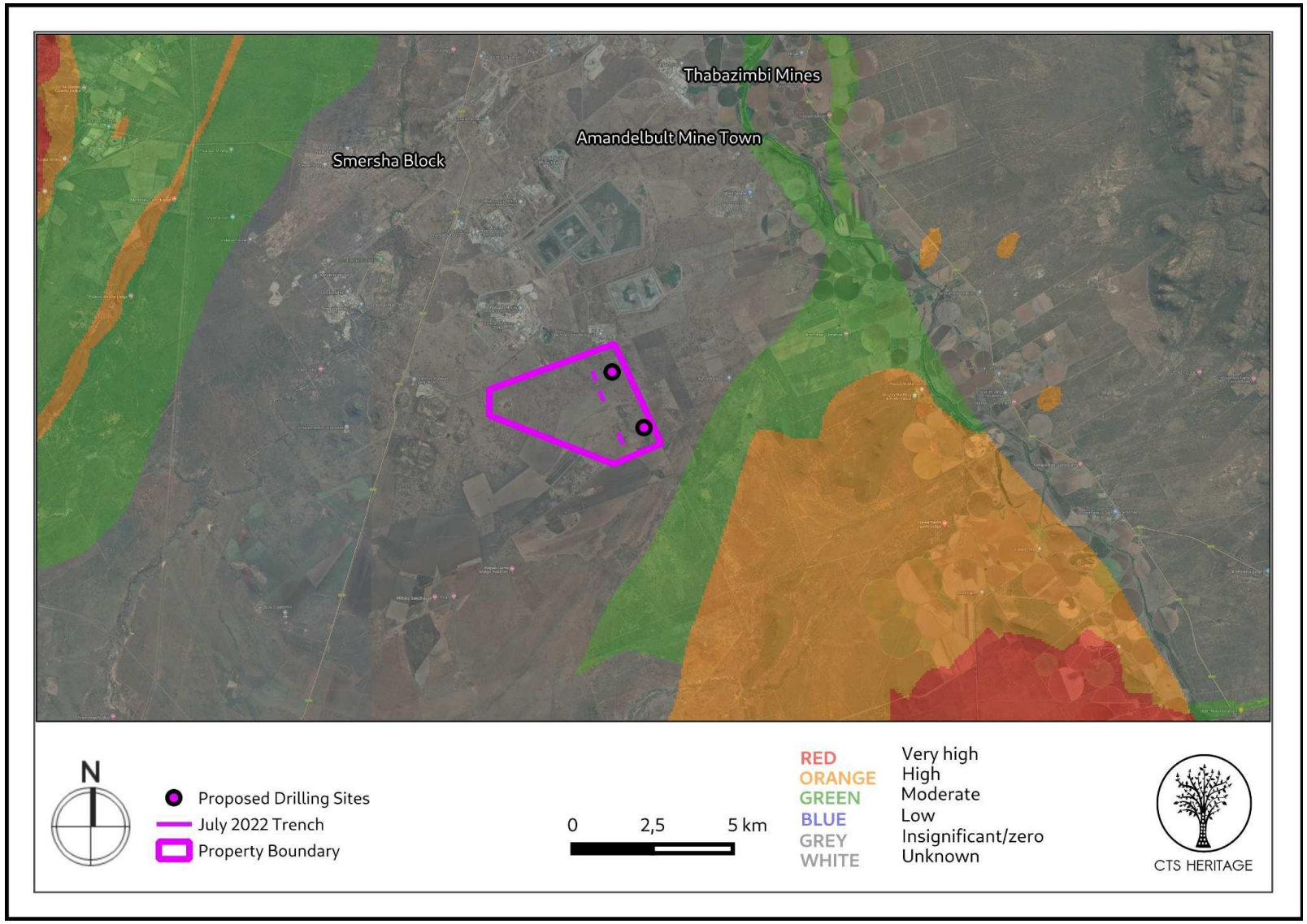

Figure 20: Palaeosensitivity Map indicating zero fossil sensitivity underlying the development area

11.16 Specific environmental features and infrastructure occurring on site which may require protection, remediation, management or avoidance

The following specific environmental features and infrastructure have been identified that my require protection, remediation, management or avoidance:

- Channelled Valley Bottom Wetland.
- Rocky outcrops and Koppies;
- Protected trees;
- Heritage resources.
- Cultivated fields.
- Powerlines.
- Smelter infrastructure.
- Fences and gates surrounding game farms/camps.

Prospecting will allow for enough flexibility in drilling to avoid the environmental features and infrastructure identified above. If there is a need to conduct activities in any of these areas, then the necessary applications and/or landowner agreements will be sought and approved prior to conducting activities in these areas. In instances where boreholes/trenches will have to be situated inside the regulated area of a watercourse the requisite authorisations will be obtained from the DWS.

11.17 Description of the current land uses

Northam is the property owner of the proposed PR Area. Majority of the PR Area comprise of vacant grass land with Koppies and distributed outcrops, cultivated fields are located in the centre of the PR Area (Refer to ***Figure 18***). A section of the Zondereinde Smelter Infrastructure is located over the PR Area.

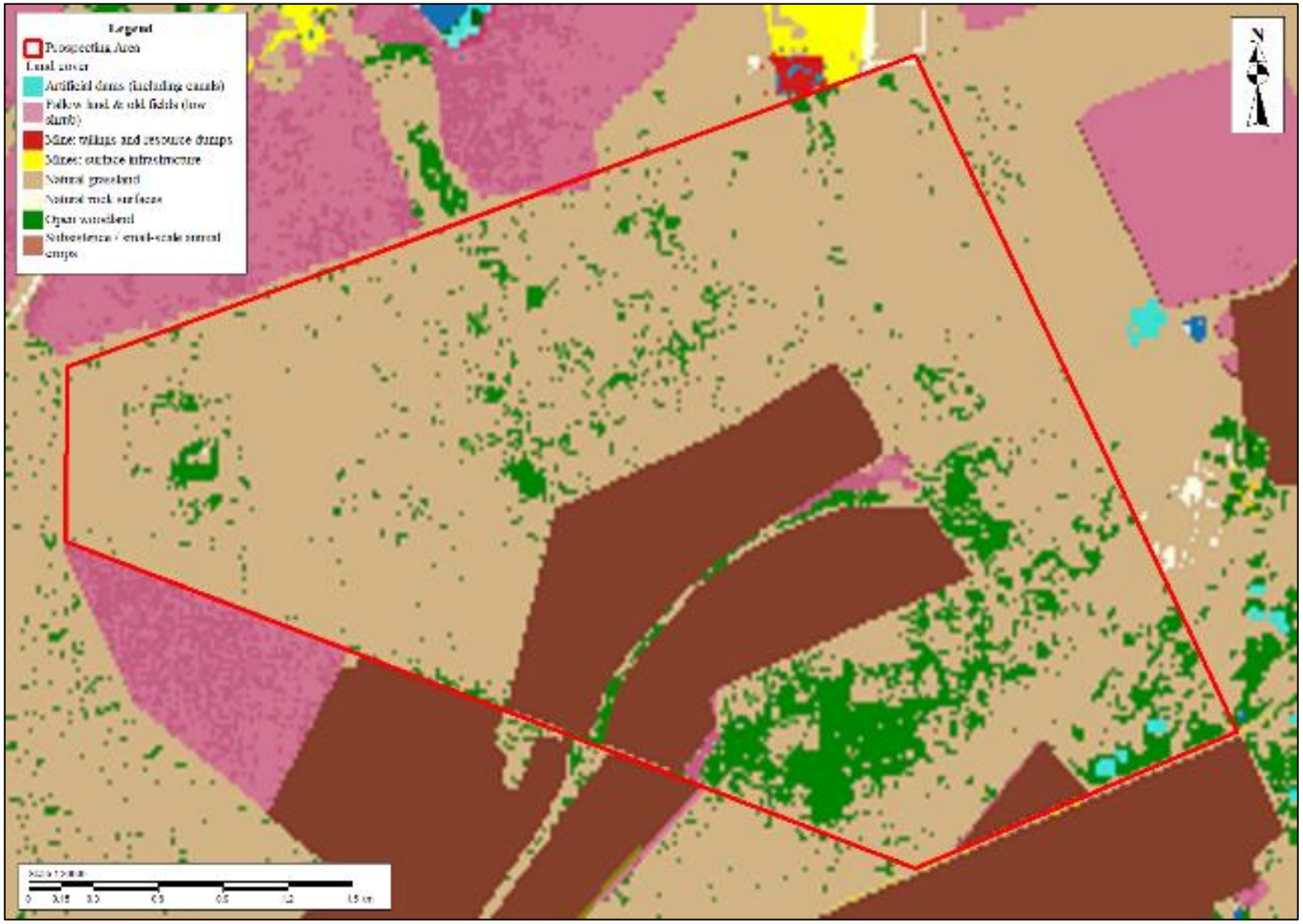

Figure 21: Land-use Map of the PR Area

12 Activities, impacts, and risks identified

This part of the document focuses on the identification of the major potential impacts and risks the activities, processes and actions may have on the surrounding environment. It indicates the major impacts that these activities may have on the environmental components associated with Proposed Prospecting Area, as required in terms of Regulation 19(3) of GN R982.

12.1 Project phases and activities to be undertaken

For the purposes of this impact identification, the proposed project's timeframe will be subdivided into the following four phases:

- Pre-construction Phase.
- Construction Phase.
- Operational Phase.
- Decommissioning Phase.
- Post-closure Phase.

12.1.1 Pre-Construction Phase

Risk and impacts that have been identified as part of the consultation phase will need to be substantiated by further consultation and specialist verification as part of the pre-construction phase. The following activities will need to be undertaken prior to the commencement of the construction phase:

- Wetland Verification and Water Use Risk Assessment in terms of GN509 by a specialist (including the submission of a General Authorisation in terms of the NWA, 1998); and
- Final site selection based on inputs by the Heritage Specialist, and Biodiversity Specialist.

12.1.2 Construction Phase

The following activities will be undertaken as part of the construction phase:

- Site Establishment;
- Vegetation clearing;
- Dust mitigation measures; and
- Hydrocarbon management.

12.1.3 Operational Phase

Activities that will be conducted in the Operational Phase include the following:

- Drilling of diamond core prospecting holes and digging of the sampling trenches;
- Dust Mitigation measures; and
- Removal of cores and storing at the core yard for analysis.

12.1.4 Decommissioning Phase

Activities that will be conducted in the Decommissioning Phase include the following:

- Site break down;
- Plugging of core hole;
- Dust mitigation measures;
- Rehabilitating the area by:
  a. Removal and rehabilitation of contaminated soil;
  b. Re-vegetating;
  c. Levelling the area; and
- Controlling invasive plants.

12.1.5 Post-Closure Phase

Monitoring and rehabilitation of the area will continue.

12.2 Impacts and risks identified

The main potential impacts identified for the proposed project are listed in ***Table 15*** below. The approach adopted includes a document collection/review of the existing specialist studies over the PR Area, site inspection, identification of typically known impacts of the activities listed in **Section 12.1.1** above, and possible concerns raised by I&APs. These impacts have been further refined and assessed according to the quantitative impact assessment methodology described in **Section 13** below and the results, including the nature, significance, consequence, extent, duration, reversibility, and probability of the impacts are presented in **Section 14.**

Table 15: List of the potential impacts associated with the proposed activities

Feature	Impact	Timing
Air Quality	Dust emissions within the site due to movement of vehicles and operation of equipment	Construction, Operational, Decommissioning Closure
Surface water and Aquatic Habitat	Deterioration in surface water quality due to hydrocarbon, sewage, process water from sumps or other waste spillages ending up in surrounding watercourses.	Construction, Operational, Decommissioning and Post Closure.
	Disturbance to the bed and banks of watercourses if the activity proceeds indiscriminately.	
	Exposure of soils, causing increased runoff from cleared areas and erosion of the freshwater features, and thus increased potential for sedimentation, leading to changes in instream habitat and potentially altering surface water quality.	
Groundwater	Contamination of the groundwater resources through hydrocarbons, process water and wastes seeping into the groundwater table in the event of leaks/spills.	Construction, Operational Decommissioning
Noise	Increased ambient noise levels due to the following activities: - Movement of vehicles, drilling equipment and site clearing equipment to the proposed PR area. - Drilling activities - Rehabilitation activities once drilling has been completed.	Construction, Operational, Decommissioning
Fauna and Flora	Loss of indigenous natural vegetation during site preparation and establishment.	Planning and Construction, Operational, Decommissioning and Post Closure
	Establishment and spread of declared weeds and alien invader plants.	
	Habitat transformation (limited to the prospecting sites and parking footprint).	
	Loss or damage to protected tree species	
Waste	Generation and poor management of general (non-hazardous) industrial waste materials, resulting in environmental pollution.	Construction, Operational, Decommissioning
Socio-economic	Impact on the surrounding landowners and users. Impact includes: - Property damage - Trespassing on private property - Nuisance - Disturbance of day-to-day activities	Construction, Operational and Decommissioning

Feature	Impact	Timing
Socio-Economic (Positive)	Creation of temporary jobs.	Construction and Operational
Soil and Land Capability	Land clearing, causing physical disturbance to the soil.	Construction, Operational, Decommissioning and Post Closure.
	Soil contamination	
	Soil compaction	
	Soil erosion	
	Loss of topsoil	
Heritage	Loss or damage to sites, features, or objects of cultural heritage significance.	Planning, Construction, and Operational
Visual	Change in the visual characteristics of the immediate area around the drill sites and its surrounds	Construction and Operational
Topography	Localised dips in topography if boreholes collapse after material is replaced.	Post Closure

12.2.1 Cumulative impacts

The potential cumulative impacts identified are presented in ***Table 16*** below.

Table 16: Proposed potential cumulative impacts

Aspects originating to the Cumulative Impacts	Cumulative impacts
Biodiversity	
- Invasive and alien plant establishing on disturbed areas.	Aspects will likely result in habitat degradation, which will likely reduce the fauna and flora species distribution and diversity.
Soils and Land Capability	
- Soil compaction on stockpiles and un-vegetated areas.	Aspects could result in the loss of soil resource which will likely reduce the land capability of the area
Socio-economic (positive)	
Skills development and training	Improved individual skills and training
Environmental Awareness training	Application and implementation of individual environmental awareness and skills.

12.3 Alternative 2

No technology, layout and route alternatives were considered, refer to **Sections 8 & 9**.

13 Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks

13.1 DFFE screening tool

As discussed in the legislative table above, the submission of a Screening Report generated from the DFFE Screening Tool is compulsory for the submissions of EA applications. Refer to **Appendix 5** for the Screening Report generated for the proposed project. The table below provides a summary of the specialist assessments that the Screening Tool identified and a motivation as to why some of these identified specialist studies were not considered necessary.

Table 17: DFFE Web Based Screening Tool Sensitive Rating and motivation for studies undertaken

Specialist Assessment	Sensitive Rating as per the Screening Tool (relating to the need for the study)	Motivation
Agricultural Impact Assessment	High	A Soil and Land Capability Assessment was recently undertaken over the proposed PR Application Area for a Solar Project by ZM. The findings of the assessment were incorporated in the DBAR.
Archaeological and Cultural Heritage Impact Assessment	Low	A Desktop Heritage Assessment was undertaken by CTS Heritage.
Palaeontology Impact Assessment	Medium	
Terrestrial Biodiversity Impact Assessment	Low	A number of separate Terrestrial Assessments have been undertaken over the larger ZM Mining Right Area. In addition, a Terrestrial Assessments was undertaken recently over the PR Area for the Solar Project by ZM. The findings of the assessment were incorporated in the DBAR.
Aquatic Biodiversity Impact Assessment	Very High	A Biodiversity and Wetland Assessment was undertaken recently over the PR Area for the Solar Project by ZM. The findings of the assessment were incorporated in the DBAR. Also, it is recommended that a Wetland Verification and Water Use Risk Assessment in terms of GN509 by a specialist (including the submission of a General Authorisation in terms of the NWA, 1998) be conducted during the pre-construction phase.
Noise Impact Assessment	Not provided	The proposed project will not generate excessive noise over a prolonged period of time therefor no Noise Assessment was deemed necessary.
Radioactivity Impact Assessment	Not provided	The proposed project will not store any chemicals on site, perform activities of radioactive nature or generate hazardous waste of radioactive nature therefor no Radioactivity Assessment was deemed necessary.
Plant Species Assessment	Low	A number of separate Terrestrial Assessments have been undertaken over the larger ZM Mining Right Area. In addition, a Terrestrial Assessments was undertaken recently over the PR Area for the Solar Project by ZM. The findings of the assessment were incorporated in the DBAR.
Animal Species Assessment	Medium	

13.2 The positive and negative impacts that the proposed activity alternatives will have on the environment and the community that may be affected

No activity alternatives are considered except for the No Go Option.

Should the project not be implemented, the status quo remains, and current land use activities will continue unaltered with no negative impacts on the biophysical, socio economic or cultural environment. On the other hand, not proceeding with the proposed operation would have a direct consequence in that the mineable potential of the suspected reserve would not be determined.

13.3 Issues raised by I&APs

As part of the PPP for the proposed project an Issues and Response Report will be compiled. This document records the issues of concern, questions and suggestions contributed by stakeholders during the EA Process. This report also includes the responses provided by relevant parties. The final BAR will be updated with comments and issues raised during the commenting period which will be used to refine the impact assessment.

13.4 The possible mitigation measures that could be applied and the level of risk

The EIA process is based on impacts and risks identified being mitigated with measures that are necessary to avoid, minimize or offset predicted adverse impacts and, where appropriate, to incorporate these into an environmental management plan or system (DEAT, 2004). The following **objectives/ criteria** will be kept in mind while mitigation measures are identified to:

- Find more environmentally sound ways of undertaking specific activities;
- Enhance any environmental and social benefits of a proposed activity;
- Avoid, minimise, or remedy negative environmental impacts;
- Apply a lifecycle approach to resources and products (cradle to cradle); and
- Ensure that any residual negative environmental impacts are environmentally acceptable.

Identifying appropriate mitigation measures will be conducted in a hierarchal manner:

1. Preventative measures will be identified to avoid, where possible, negative impacts that may arise due to the proposed activity;
2. Measures will be identified to minimise and/or reduce the negative impacts to *"as low as practicable"* levels; and
3. Measures will be identified to compensate or remedy residual negative impacts that are unavoidable and cannot be minimised or reduced any further (DEA, 2006).

Refer to **Section 14** for the mitigation measures identified to reduce and/or minimize potential impacts and risks where they are unavoidable. It is anticipated that the mitigation measures envisaged in this report and the EMPr (Part B) will be adequate to manage the potential negative impacts on the biophysical and societal environment.

13.5 Process used in determining the significance of environmental impacts

The potential impacts were determined by evaluating the different phases associated with the proposed project establishment and development . These phases were determined to be as follow:

- Pre-Construction Phase (I);
- Construction Phase (C);
- Operational Phase (O);
- Decommissioning (D); and
- Post-Closure Phase (P).

Different impacts are associated with the different phases of the proposed project. Potential impacts that may be caused were identified, using input from the following:

- Views and inputs from the I&APs (local knowledge);
- Existing information and studies;
- Specialist investigations;
- Site visit with the project team; and
- Regulatory requirements.

The 2014 EIA Regulations requires that all identified potential impacts associated with the proposed project be assessed in terms of their overall potential significance on the biophysical and socio-economic environment. The 2014 EIA Regulations' criteria include the following:

- Nature of the impact;
- Extent of the impact;
- Duration of the impact;
- Probability of the impact occurring;
- Degree to which impact can be reversed;
- Degree to which impact may cause irreplaceable loss of resources;
- Degree to which the impact can be mitigated;
- Cumulative impacts; and
- Residual Impacts.

The impact assessment methodology used to determine the significance of impacts prior and after mitigation is presented below.

The significance was determined by calculating the impacts' extent (i.e., physical extent affected by the potential impact); duration (i.e., timeframe that the potential impact will be in effect); intensity (i.e., expected amplitude of the impact); and reversibility (severity of the impact). Once the impact's significance has been determined, the quantifiable likelihood of the impact is given a percentage value that represents the probability of the impact occurring. The environmental and socio-economic risk is determined by multiplying the significance with the probability of the impact occurring.

A description of the parameters used in this impact assessment is given in ***Table 18*** and the environmental risk and impact significance matrix is provided in ***Table 19*** below.

Table 18: Impact Assessment Parameters

Parameter	Description
Extent:	Physical extent affected by the potential impact: • Direct – Actual footprint of the activity (weight value – 1) • Onsite – Within specific mine/development boundary (weight value – 2) • Local – Within municipal boundary (weight value – 3) • Regional – Outside municipal boundary (weight value – 4) • National/International – Two or more provinces and ultimately outside the RSA (weight value – 5)
Duration:	Timeframe that the potential impact will be in effect: • Immediate - 1 Year or less (weight value – 1) • Short-term – 1-2 Years (weight value – 2) • Medium-term – 2-5 Years (weight value –3) • Long-term – 5 Years to Life of Operation (weight value – 4) • Permanent – 15 years and beyond (weight value – 5)
Intensity:	The expected amplitude of the impact: • Minor - The activity will only have a minor impact on the affected environment in such a way that the natural processes or functions are not affected (weight value – 1) • Low – The activity will have a low impact on the affected environment (weight value – 2) • Medium – The activity will have a medium impact on the affected environment, but function and process continue, albeit in a modified way (weight value – 3) • High – The activity will have a high impact on the affected environment, which may be disturbed to the extent where it temporarily or permanently ceases (weight value – 4) • Very High - The activity will have a remarkably high impact on the affected environment, which may be disturbed to the extent where it temporarily or permanently ceases (weight value – 5)
Reversibility	The reversibility of an impact is the severity of the impact. • Completely reversible - The impact is reversible without any mitigation measures and management measures (weight value -1) • Nearly completely reversible - The impact is reversible without any significant mitigation and management measures. Some time and resources required - (weight value -2) • Partly reversible - The impact is only reversible with the implementation of mitigation and management measures. Substantial time and resources required (weight value -3) • Nearly irreversible - The impact can only marginally be reversed with the implantation of significant mitigation and management measures. Significant time and resources required to ensure impact is on a controllable level (weight value -4) • Irreversible - The impact is irreversible - (weight value -5)
Significance of Impact / Consequence	Significance is determined through a combination of the various impact characteristics and represents the combined effect of the Extent, Duration, Intensity and Reversibility Significance = Extent + Duration + Intensity+ Reversibility
Probability:	The likelihood of an impact occurring: • Improbable - 0 – 25% chance (weight value – 1) • Low – 26 – 50% chance (weight value – 2) • Medium – 51 – 75% chance (weight value – 3) • High – 76 – 100% chance (weight value – 4)
Environmental Risk Refer to the table below	Multiplication of the significance of the impact by the probability of the impact occurring produces a conclusion of the overall risk that an impact poses to the surrounding environment. Significance of Impact X Probability = High/Medium/Low Environmental Risk

Table 19: Environmental risk and impact significance matrix

Significance of Impact				
		Low Impact (4-8)	**Medium Impact (9-15)**	**High Impact (16-20)**
Probability	**Definite / Highly Likely 4**	16-32	36-60	64-80
	Medium 3	12-24	27-45	48-60
	Low 2	8-16	18-30	32-40
	Improbable/ Unlikely 1	4-8	9-15	16-20

Environmental Risk	**Guidelines for Control Strategies**
(H) – High	Proactively reduce risk level, short-term response.
(M - H) - Medium to High	Proactively reduce risk level, short-term response.
(M) – Medium	Management strategies to reduce risk level, short to medium-term response.
(L - M) - Low to Medium	Management strategies to reduce risk level, short to medium-term response, operational control, and housekeeping.
(L) – Low	Operational control and housekeeping.

14 Assessment of each identified potentially significant impact pre- and post-mitigation

The impacts were assessed according to the methodology described in **Section 13.5 above**. The assessment methods proved adequate to determine the significance and environmental risk of all impacts that the proposed operation may have on the natural, social, and economic environments. Based on the findings of the impact assessment, a comprehensive Environmental Management Programme (EMPr) has been developed to prevent, reduce, or contain the impacts of the proposed prospecting operation – see **Part B EMPR - Section 5** of this report.

Table 20: Impact and Environmental Risk Assessment

Impact	Phase	Extent	Duration	Intensity	Reversibility	Significance	Probability	Environmental Risk	Proposed Mitigation Measures	Extent	Duration	Intensity	Reversibility	Significance	Probability	Environmental Risk
	Before Mitigation									After Mitigation						
11.1 Geology																
Cracks and disruption to geological layers.	O	1	3	2	3	9	2	18	• Plan location of invasive prospecting sites properly to avoid sensitive geological features. • Start with fewer boreholes to verify non-invasive prospecting followed by more extensive drilling in areas indicating adequate resources.	1	3	2	3	9	1	9
11.2 Biodiversity																
Loss of indigenous natural vegetation during site preparation and establishment.	P, C, O, D	1	2	2	3	8	3	24	• Prior to the commencement of the Proposed Project a Biodiversity specialist must be appointed to undertake final drilling site locations, and the most suited location of temporary access roads. • Avoid unnecessary impacts on natural vegetation. Impacts should be contained, as much as possible, within the footprint of the drilling and trenching areas.	1	2	1	2	6	2	12
Loss or damage to protected tree species	P, C, O, D	1	2	3	3	9	3	27	• Plan location of drill sites properly to avoid sensitive features such as watercourses and rocky outcrops. • Survey prospecting sites in areas with natural vegetation for any protected species known to occur in the region and either keep species in situ with 50m buffer zone to prevent inadvertent damage to these species or obtain permits to remove / destroy protected species. • Don't remove or damage protected trees without consulting a specialist.	1	2	2	2	7	1	7
Establishment and spread of declared weeds and alien invader plants.	P, C, O, D	2	3	3	3	11	3	33	• Rehabilitate disturbed areas as quickly as possible following completion of prospecting activities in an area. • Do not translocate soil stockpiles from areas with alien plants. • Control any alien plants immediately, to avoid establishment of a soil seed bank that would take decades to remove. • Establish an on-going monitoring programme to detect and quantify any aliens that may become established.	1	2	2	2	7	2	14
Habitat transformation (limited to the prospecting sites and parking footprint).	P, C, O, D	1	2	2	3	8	3	24	• No access roads may cross or encroach any wetlands, drainage lines or streams. • Keep disturbance of vegetation surrounding drilling areas to a minimum. • Make use of existing access roads where possible. • Rehabilitate and re-vegetate the disturbed areas as per the ZM rehabilitation plan.	1	2	1	2	6	2	12
11.3 Soils and Land Capability																
Land clearing, causing physical disturbance to the soil.	P, C, O, D	1	2	2	3	8	3	24	• Impacts must be contained, as much as possible, within the footprint of the drilling and trenches area.	1	2	1	2	6	2	12
Soil compaction	C, O, D	2	3	2	3	10	3	30	• Keep disturbed area as small as possible.	1	2	2	2	7	2	14

Impact	Phase	Extent	Duration	Intensity	Reversibility	Significance	Probability	Environmental Risk	Proposed Mitigation Measures	Extent	Duration	Intensity	Reversibility	Significance	Probability	Environmental Risk
	Before Mitigation									After Mitigation						
									• Rip compacted soils. • Remain in designated roads / routes / activity areas. Where not possible, routes must be properly planned to reduce disruption to soil as far as possible.							
Soil erosion	C, O, D, P	1	3	3	3	10	3	30	• Adequate drainage and erosion protection in the form of cut-off berms or trenches shall be provided where necessary. • Effective managing of the topsoil by covering or reseeding the stockpiles to avoid erosion. • Any erosion gullies must be remediated immediately.	1	2	2	2	7	2	14
Soil contamination	C, O, D	1	2	2	2	7	3	21	• Follow the equipment's operation and maintenance procedures and all vehicles must undergo periodic maintenance and inspection. • Equip vehicles on site with drip trays and place drip trays under leaky equipment. • Spill kits must be available on site in the event of a spillage. • Adhere to safe work procedure when refuelling vehicles and machinery. • Inspect, repair, and replace any damaged toilets. • Appoint the necessary reputable contractor to manage portable toilets. • Implement proper housekeeping and hygienic practices.	1	1	2	2	6	1	6
Loss of topsoil	C, O, D, P	1	4	3	4	12	3	36	• Implement mitigation measures under soil compaction, erosion and contamination above. • Rehabilitate disturbed areas as quickly as possible following completion of prospecting activities in an area. • Rehabilitate and re-vegetate the disturbed areas as per the ZM rehabilitation plan. • Do not translocate soil stockpiles from areas with alien plants.	1	3	2	3	9	2	18
11.4 Air Quality																
Dust emissions within the site due to movement of vehicles and operation of equipment.	C, O, D	2	2	1	2	7	3	21	• Dust suppression mitigation measures, such as wetting of roads, must be implemented to limit and / or minimise/control airborne dust. • Control the speed of operational vehicles. • The drill rig must remain on site as far as possible. • Ensure that a complaints register is kept at ZM entrance to capture any complaints from surrounding land users. • The construction activities must be kept to a small footprint. • Adequate Personal Protective Equipment ("PPE") must be used.	1	2	1	1	5	2	10
11.5 Noise																
Increased ambient noise levels.	C, O, D	2	2	1	1	6	2	12	• Establish, implement and maintain an effective vehicle maintenance system.	1	2	1	1	5	1	5

Impact	Phase	Extent	Duration	Intensity	Reversibility	Significance	Probability	Environmental Risk	Proposed Mitigation Measures	Extent	Duration	Intensity	Reversibility	Significance	Probability	Environmental Risk
	Before Mitigation									After Mitigation						
									• Prospecting activities must be undertaken during weekdays between 6:00am and 18:00pm. • Adequate PPE must be used. • Complaints register must be kept at the security office.							
11.6 Waste																
Generation and poor management of general (non-hazardous) industrial waste materials, resulting in environmental pollution.	C, O, D	1	2	1	2	6	3	18	• Provide suitable containers and temporary storage areas as close to the point of generation as practical possible. • Implement the waste management hierarchy principles, where practical possible. • Separate waste at source and recycle wherever possible. The waste bins must be marked clearly indicating what waste must be disposed of in what bin. • Ensure unusable waste is disposed of in an environmentally responsible manner at licensed disposal facilities only (“cradle to grave” responsibility). • No burning of domestic waste may be done on site.	1	2	1	1	5	2	10
11.7 Surface Water and Aquatic Habitat																
Deterioration in surface water quality due to hydrocarbon, sewage, process water from sumps or other waste spillages ending up in surrounding watercourses.	C, O, D	3	3	2	3	11	3	33	• Remove any spills as soon as it occurs along with the polluted soil and dispose of it at a registered waste site. • Follow the equipment’s operation and maintenance procedures and all vehicles must undergo periodic maintenance and inspection. • Leaky vehicles will not be parked over bare ground; where unavoidable, drip trays will be placed under the equipment to collect leaks. The leaky vehicles will be discontinued until repairs are made. • Use biodegradable lubricants and fluids/polymers.	1	2	2	2	7	14	12
Disturbance to the bed and banks of watercourses if the activity proceeds indiscriminately.	C, O	2	2	3	3	10	2	20	• The location of all activities and infrastructure should be outside of the specified zones and/or flood lines of watercourses. If this is unavoidable, the necessary exemptions / approvals will be obtained. • Plan drill sites properly to avoid watercourses.	1	2	2	3	8	1	8
Exposure of soils, causing increased runoff from cleared areas and erosion of the freshwater features, and thus increased potential for sedimentation, leading to changes in instream habitat and potentially altering surface water quality.	C, O	3	3	2	3	11	3	33	• No access roads may cross or encroach any wetlands, drainage lines or streams. • A Wetland Assessment must be undertaken prior to the commencement of the proposed project. • Maintain buffer zones recommended by the wetland specialist around watercourses as ecological corridors and refuges.	2	2	2	2	8	2	16
11.8 Groundwater																
Contamination of the groundwater resources through hydrocarbons, process water and wastes seeping into the groundwater table in the event of leaks/spills.	C, O, D	1	2	3	3	9	3	27	• The Applicant must identify boreholes on the proposed PR Area and monitor the groundwater quality prior to commencement of the activities to establish the baseline. • It is recommended that quarterly monitoring samples be taken	1	2	2	2	7	2	14

Impact	Phase	Extent	Duration	Intensity	Reversibility	Significance	Probability	Environmental Risk	Proposed Mitigation Measures	Extent	Duration	Intensity	Reversibility	Significance	Probability	Environmental Risk
	Before Mitigation									After Mitigation						
									of boreholes. • Equipment and vehicles must be maintained. • Inspect, repair, and replace any damaged toilets. • Appoint the necessary reputable contractor to manage portable toilets. • Potential pollution must be managed by implementing the following processes: ➢ education and training of workers (permanent and temporary); ➢ appropriate management of hazardous materials and waste; ➢ the required steps to enable containment and remediation of pollution incidents; and ➢ specifications for post rehabilitation audit criteria to ascertain whether the remediation has been successful and, if not, to recommend and implement further measures.							
11.9 Socio Economic																
Impact on the surrounding landowners and users. Impact includes: • Property damage (private roads, fences, gates, etc.). • Trespassing on private property. • Nuisance. • Veld fires. • Disturbance of day-to-day activities.	C, O, D	2	2	3	3	10	3	30	• Prospecting activities must only be undertaken during weekdays from 6:00 to 18:00. • Remain in designated roads /routes. • The drilling team must always close the farm gates after entering. • Damage caused as a result of prospecting activities must be repaired to the reasonable satisfaction of the landowner. • Vehicles will be in roadworthy condition with reflective strips to make them clean and visible for other road users. • Intersections with main tarred roads will be clearly signposted. • No employee will be allowed to loiter around farms. • The drill contractor must monitor the whereabouts of the drill team. • No employees will be allowed to make any open fires on the farms or adjacent land. • Cigarette butts may not be thrown in the veld but must be disposed of correctly. • Contractors must ensure that basic fire-fighting equipment and suitably qualified/experienced personal are always available on site. • Fire extinguishers shall be placed at working areas and all areas where hazardous substances are kept.	2	1	2	2	7	2	14
11.10 Socio Economic (Positive)																
Creation of employment opportunities, skills development, and training.	C, O, D	2	2	3	2	9	3	27	• It is recommended that local contractors are used to maximise the opportunities made available to the local labour force. • Training and skills development programmes should be initiated prior to the commencement of the operation phase.	2	2	3	2	9	3	27

Impact	Phase	Extent	Duration	Intensity	Reversibility	Significance	Probability	Environmental Risk	Proposed Mitigation Measures	Extent	Duration	Intensity	Reversibility	Significance	Probability	Environmental Risk
	Before Mitigation									After Mitigation						
									• Develop a database of local BEE service providers and ensure that they are informed of economic opportunities.							
11.11 Heritage																
Loss or damage to sites, features, or objects of cultural heritage significance.	P,C, O, D	1	2	2	3	8	3	24	• A heritage specialist must be appointed to provide inputs on the final prospecting locations. • On discovery of heritage resources, the operations must be stopped. Do not further disturb the area before the below is undertaken. • Notify the ECO. The ECO must arrange an assessment of the resource. If confirmed significant, the ECO must liaise with National, Cultural and History Museum. P.O. Box 28088 SUNNYSIDE 0132 • Work must only recommence when cleared by ECO. • Avoid the heritage features identified, namely Site 4 and 5.	1	2	1	2	6	2	12
11.12 Visual																
Change in the visual characteristics of the immediate area around the drill and trench sites	C, O, D, P	2	2	2	2	8	3	24	• Keep disturbed areas as small as possible. • Keep the sites neat, clean, and organised in order to maintain a tidy appearance. • Remove waste off site as soon as possible or place it in closed bins in order to keep the site free from additional unsightly elements. • Rehabilitation must be on-going.	1	2	1	2	6	2	12
11.13 Topography																
Localised dips in topography if boreholes collapse after material is replaced.	P	1	2	2	2	7	2	14	• Inspect and take immediate action to repair any dips by levelling and grading the disturbed area.	1	2	1	2	6	1	6

14.1 Summary of specialist reports

A desktop Heritage Assessment was undertaken by CTS Heritage. Refer to the specialist's recommendation in **Table 21** below. No other specialist studies were undertaken as part of the proposed PR Application because sufficient information was available from existing reports. Refer to **Section 13.1** above.

Table 21: Summary of specialist reports

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE BAR REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
Desktop Heritage Assessment	On condition that the prospecting is limited to the proposed three trenches and two boreholes as proposed and mapped herein, there is no objection to the prospecting activities from a heritage perspective. Should a mining application be investigated, it is strongly recommended that a full HIA is completed at an appropriate time of year to map the significant Iron Age resources evident here. It is also recommended that a detailed Heritage Conservation Management Plan be developed for the significant archaeological resources to ensure their ongoing conservation and management for the life of the mine.	X	Part A Section 6 & 18.1.2

15 Environmental impact statement

15.1 Summary of the key findings of the environmental impact assessment

Refer to **Table 21** below for a summary of the impact assessment findings. Twenty one (21) negative impacts are anticipated with all the phases of the proposed project, and one (1) positive impact was identified.

No "fatal flaws" were identified.

Environmental impacts will occur due to the proposed project's pre-construction, construction, operational and decommission phases but will be kept to a minimum by following the recommended processes and mitigation measures outlined in the existing EMPr.

The proposed project is considered the preferred alternative by the EAP.

Table 22: Summary of the Environmental Risk before and After Mitigation for every phase of the development

Phase	Environmental Risk									
	Before Mitigation					After Mitigation				
	High	Medium to High	Medium	Low to Medium	Low	High	Medium to High	Medium	Low to Medium	Low
Negative										
Overall Construction Operational Decommission and Closure			7	12	2				1	20
Total			7	12	2				1	20
Positive										
Overall Construction Operational Decommission and Closure			1					1		
Total			1					1		

The seven (7) negative impacts that has a Medium Environmental Risk Rating before mitigation and the one (1) positive impact are further discussed below.

15.1.1 Key positive impacts

A positive medium impact was identified relating to the proposed project's economic benefits. The proposed project has local socio-economic benefits from job creation and capital expenditure on contractors, materials, and equipment, which will have a knock-on effect in terms of employment opportunities and economic benefits for South Africa should a Mining Right application be approved in the future due to increased mineral extraction and production.

15.1.2 Key negative impacts

All the negative impacts can be mitigated to a Risk Level of Low except for the loss of topsoil which can be mitigated to a Risk Level of Low-Medium. The key negative impacts are discussed below:

1. **<u>Loss or damage to protected tree species</u> –**
   It is estimated that the total area disturbed for the Proposed Project will be approximately +/- 2500 m^2. The proposed project will be temporary. It will not compromise habitat connectivity

and the drill sites will be rehabilitated after the proposed project has been completed. Existing roads and tracks will be used as far as possible to access prospecting drilling sites and existing disturbed areas will be utilised as far as possible. The following recommendations are provided:

- Avoid the CVB Wetland, rocky outcrops and Koppies;
- Protected trees must not be damaged or cut down; and
- The final site selection be determined by a third-party Biodiversity Specialist.

2. **Establishment and spread of declared weeds and alien invader plant**

The moving of soil and vegetation resulting in opportunistic invasions after disturbance and the introduction of seed in building materials and on vehicles. Invasions of alien plants can impact on hydrology, by reducing the quantity of water entering a watercourse, and outcompete natural vegetation, decreasing the natural biodiversity. Once in a system alien invasive plants can spread fast and easily colonise the surrounding area. The impact can be mitigated through the implementation of the EMPr.

3. **Loss of topsoil**

No irrigation infrastructure, such as centre pivots or drip irrigation, are present within the project area and irrigated agricultural is currently not practiced in the area. There is also no evidence of recent crop production or livestock farming in project area. Hydrocarbon spills are a possibility during the proposed project; working machinery and storage facilities bear a risk for spillages and the impact thereof may result in soil pollution. The location of the drill sites will be rehabilitated once the proposed project has been completed.

4. **Deterioration in surface water quality**

The proposed project could result in the deterioration in surface water quality due to hydrocarbon, sewage, process water from sumps or other waste spillages ending up in surrounding watercourses. The impact can be mitigated through the implementation of the EMPr.

5. **Exposure of soils, causing increased runoff from cleared areas and erosion of the freshwater features, and thus increased potential for sedimentation**

Changing the amount of sediment entering water resource and associated change in turbidity (increasing or decreasing the amount). Prospecting activities will result in soil disturbance as well as the removal of natural vegetation. This could result in the loss of topsoil, sedimentation of the watercourses and increase the turbidity of the water. Should changes be made to the bed or banks of the watercourses unstable channel conditions may result causing erosion, meandering, increased potential for flooding and movement of bed material. The location of all activities and infrastructure should be outside of the specified zones and/or flood lines of watercourses. If this is unavoidable, the necessary exemptions / approvals will be obtained. It is recommended that a Wetland Assessment is undertaken prior to the commencement of the proposed project and that the buffer zones recommended by the wetland specialist be implemented around the delineated watercourses as ecological corridors and refuges.

6. **Contamination of the groundwater resources through hydrocarbons, process water and wastes seeping into the groundwater table in the event of leaks/spills**

The proposed project will make use of non-intrusive drilling NQ (75 mm diameter) core drilling and will highly unlikely have a groundwater impact. The potential impact of prospecting related surface water and fluids reaching the groundwater has been addressed in the EMPr.

Cognisance will be taken of the boreholes of surrounding land users and owners to prevent possible damage or impacts.

7. **Impact on the surrounding landowners and users**

The proposed project will unlikely have an intrusive impact on the current land-use taking place on the PR Area due to the limited amount of physical footprint disturbance anticipated with the proposed invasive prospecting activities and the fact that it will be located adjacent to the existing Zondereinde Mine and Processing Operations. It may have a potential economic impact on surrounding landowners and agricultural activities as a result of disturbance to the day-to-day activities undertaken by the landowner. Mitigation measures have been provided in the EMPr to mitigate possible impacts to surrounding land users.

15.2 Final Site Map

Refer to ***Figure 19*** below for the final site map, which is also attached under **Appendix 3**.

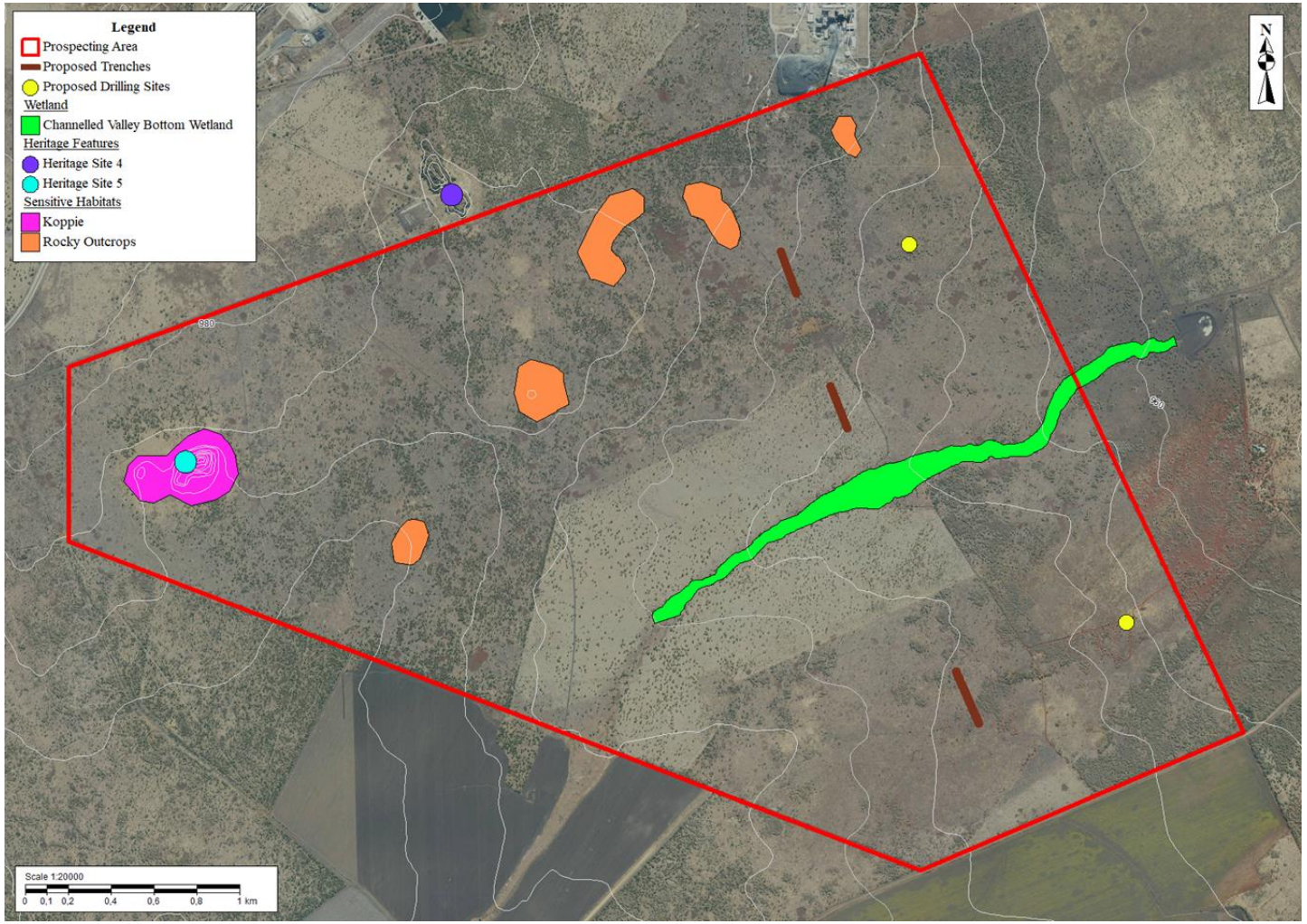

Figure 22: Final Site Map

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

15.3.1 Proposed Alternative 1:

The proposed project has the following associated negative and positive impacts:

15.3.1.1 Negative:

The negative risks and impacts identified were associated with the surrounding and direct environmental aspects. The negative risks and impacts associated with the proposed alternative are relative to the following environmental aspects:

- Air Quality;
- Noise;
- Waste;
- Groundwater;
- Surface water and Aquatic habitat;
- Biodiversity;
- Soils;
- Heritage;
- Socio-Economic;
- Visual; and
- Topography.

No “fatal flaw” adverse impacts or adverse impacts that cannot be adequately mitigated are anticipated with the proposed project. The other negative impacts will be managed and mitigated to a reasonable level, with the provisional mitigation measures made important.

15.3.1.2 Positive:

The positive and or benefits associated with the proposed project are mainly due to the socio-economic opportunities in the form of temporary employment.

15.3.2 Alternative 2 (No site alternatives):

No alternatives have been considered.

15.3.3 No-Go Alternative

The No-Go option entails that the Proposed Project is not undertaken. The consequences of the no go alternative are listed below

- Possible loss of commodities.
- Possible loss of temporary jobs
- No habitat disturbance associated with land clearance
- No loss of vegetation associated with land clearance
- No damage to the Channelled Valley Bottom Wetland.

15.4 Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr

The overall Environmental Management objective is to minimize the potential negative environmental and societal impacts and maximise the positive socio-economic impacts of the proposed operation. The main impact management objectives and outcomes to guide and control all phases of the prospecting operation are presented below. These objectives must be attained and/ or maintained to ensure satisfactory environmental (social, economic, and biophysical) management of the operation. Environmental impact management objectives and outcomes are listed below:

- Conduct prospecting activities responsibly and ensure operation is compliant with legislative requirements.
- The drilling sites must be positioned by a geologist to ensure that it is not above any weak geological strata.
- Protect the biophysical environment as far as possible, specifically the depression wetlands and rocky outcrops and any protected species observed on site.
- To keep, as far as possible, water of differing qualities separate within a prospecting area, so as to minimise contamination of clean run-off and surface water.
- Prevent groundwater contamination through seepage.
- Reduce compaction of soil and maintain existing arable land capability by prohibiting movement of machinery outside the designated areas.
- Preserve protected flora and fauna species.
- Ensure atmospheric and noise pollution is kept to a minimum.
- Ensure adequate rehabilitation to allow continued land use.
- Prevent damage to private property and existing / future land uses (solar farm, filling stations etc.).
- Enhance project benefits and minimise negative impacts through continuous consultation with stakeholders.
- Prioritise the sourcing of local labour and share in gender equality.
- Ensure an atmosphere of equality and non-discrimination among the workforce.
- Develop skills that will equip employees to obtain employment in other sectors of the economy.
- Protect historical and cultural sites if they are observed on site.
- Attain "cradle to grave" management of waste on site.
- Maintain high safety standards on site with reduced safety risks.
- Leave site without any incidents, safety risks, damage to infrastructure and theft to surrounding farmers.
- Comply with SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements to reduce the risk of hydrocarbon spillages.

The specific management objectives for each potential impact identified is described in **Part B: EMPr Section 5.** The EMPr will seek to achieve an essential end state and describe how activities that could have an adverse environmental impact will be mitigated and monitored. It will address the environmental impacts during the proposed project's pre-construction, construction, operational, decommissioning and post-closure phases. Specific environmental recommendations will therefore be made to be achieved by a certain date. The environmental and social objectives will be set to allow prospecting in an environmental and socially responsible manner, while ensuring that sustainable closure can be achieved.

15.5 Aspects for inclusion as conditions of Authorisation

The impact assessment focussed on the project scope as described in **Section 5** which was compiled using the information provided by the Applicant. The mitigation measures identified to manage the potential impacts during the prospecting operation are contained in the EMPr. The implementation of the EMPr is a requirement in terms of NEMA and will be a condition of the Environmental Authorisation. The EMPr should form an integral part of the contract documents to ensure compliance with environmental specifications and management measures. The EMPr is not a static document and most undergo regular monitoring and auditing as key factors and processes may change through the life of the project which could alter the proposed mitigation measures. The Applicant must ensure compliance with all relevant legislation including but not limited to:

- MPRDA, 2002 (Act 28 of 2002)
- NEMA, 1998 (Act 107 of 1998)
- Northern Cape Nature Conservation Act, Act 9 of 2009
- National Environmental Management: Waste Act (No. 59 of 2009) GNR 921 (9 November 2013)
- National Water Act ,1998 (Act No.36 of 1998)
- National Environmental Management: Air Quality Act (Act No. 39 of 2004) GNR 893 (22 November 2013)
- Noise Control Regulations (GN R154 of 1992)
- National Environmental Management: Biodiversity (Act No.10 of 2004)
- National Forest Act (No. 84 of 1998)
- National Veld and Forest Fire Act, Act 101 of 1998
- National Heritage Resources Act, Act (NHRA), 1999 (Act No. 25 of 1999)
- Hazardous Substances Act (No. 15 of 1973)
- Conservation of Agricultural Resources Act (No. 43 Of 1983)
- Mine Health and Safety Act (No. 29 of 1996)

In addition, the following conditions should be included as part of the Environmental Authorisation:

(a) <u>Site Selection</u>

- Prior to the commencement of the prospecting activities the following specialist inputs must be obtained for final site selection:
  - Wetland verification;
  - Biodiversity Survey; and
  - Heritage survey.
- A water use risk assessment in terms of GN 509 must be undertaken prior to the commencement of the prospecting activities and a General Authorisation in terms of NWA, 1998 registered at the DWS for prospecting sites within 500m of a watercourse.
- No activity is to occur within the regulated area of a watercourse without the necessary authorisation under NEMA and NWA.
- Protected species must remain in situ until the necessary permits are obtained under NEM:BA.

(b) <u>Responsibility</u>

- The affected environment shall be maintained in a stable condition that will not: (i) be detrimental to humans and animals' safety and health; and (ii) pollute the environment or lead to the degradation thereof.

- It must be the applicants responsibility to ensure that the site manager and the employees are capable of complying with all the requirements which must be met in order to prospect (being the implementation of the EMPr).
- Rehabilitation must be applied on an on-going basis and no sites must be left exposed for more time than necessary to obtain the necessary data.
- Appoint an Environmental Control Officer with the appropriate training and experience to monitor the implementation of the EMPr.

c) Demarcation

- The Proposed Prospecting Area must be clearly demarcated (e.g., barrier tape and signboards).
- Prospecting activities shall only take place within the demarcated area. The applicant must ensure this.

(c) Site Establishment

- Any site offices which may be required shall be established on an already disturbed area. Offices should be of modular design, so that these can be easily dismantled and relocated.
- The area chosen for these purposes shall be the minimum reasonably required and which will involve the least disturbance to vegetation.
- No site office shall be located closer than 32 m from a stream, river, spring, dam or pan.
- No fires are allowed inside the Proposed Prospecting Area.
- Noise disturbance or any other form of disturbance shall be kept to a minimum.

(d) Ablution facilities

- As a minimum requirement, the applicant must provide chemical toilet facilities or other DMRE and DWS approved toilet facilities for employees.
- Proper hygiene measures must be established for toilet and / or change house facilities (if required), such that they do not cause water or other pollution.

(e) Rehabilitation of the prospecting site

- Areas containing ablution facilities must be restored and covered with a layer of topsoil.
- The site must be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.

(f) Topsoil Management

- Topsoil must be removed from areas where physical disturbance of the surface will take place.
- All available topsoil must be removed prior to the commencement of any operations.
- Topsoil shall be kept separate from overburden and not be used for building or maintenance of access roads.
- The topsoil stored in the bund wall area shall be adequately protected from being blown away or being eroded.

(g) Access to the Proposed Prospecting Area

- Utilise existing access roads as far as possible.
- Consult and agree on routes with landowners and private landowners.
- Any new access roads that will be established must not exceed four (4) meters in width.
- Access roads may not cross or encroach any wetlands, drainage lines or streams.
- If a portion of the access road needs to be newly constructed, it must be done in a manner that causes minimal vegetation disturbance. Drainage and erosion protection in the form of cut-off berms or trenches should be provided where necessary.
- Only designated routes will be used by vehicles or personnel to gain access to the Proposed Prospecting Area.

(h) Maintenance of Access Roads

- Access roads shall be adequately maintained to minimise dust and erosion.
- Damage on private roads as a result of the Proposed Project will be repaired.

(i) Waste Management

- Suitable covered receptacles shall be placed within the Proposed Prospecting Area for waste disposal.
- Oil and fuel spills must be cleaned up immediately to the satisfaction of the ECO by removing the spillage and polluted soil; and disposing of them at a licenced waste management facility.

(j) Monitoring and Reporting

- Regular monitoring of all the environmental management measures and components must be carried out by the applicant.
- Various points of compliance must be identified relating to the Proposed Project's various environmental impacts.

(k) Compliance Reporting/ Submission of information

- Reports confirming compliance with various points identified in the EMPr must be submitted to the DMRE Regional Manager on a regular basis.
- Emergencies or unforeseen impacts must be reported as soon as possible.

(l) Closure

- An environmental risk report must accompany the application for closure.
- A closure plan must be compiled and accompany the application for closure.

15.6 Description of any assumptions, uncertainties and gaps in knowledge

15.6.1 Assumptions

The following assumptions and limitations are applicable to the studies undertaken within this basic assessment process:

- The information provided by the applicant and I&APs to the environmental team was correct and valid at the time it was provided.
- It is assumed that the borehole drill sites area identified by the Applicant represent technically suitable sites for the prospecting.
- This report and its investigations are project-specific and consequently the environmental team did not evaluate any other alternatives.
- A desktop study was undertaken of existing specialist studies and it is assumed these studies are correct.
- Final site selection will be verified by specialist inputs (i.e. heritage, biodiversity and wetland).

15.6.2 Uncertainties and gaps in knowledge

The following uncertainties and gaps in knowledge are applicable:

- The baseline environment was described through a desktop assessment as well as a once of site inspection.
- It was not always possible to involve all IAPs individually, however every effort has been made to involve as many affected stakeholders as possible.

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

The likely negative impacts and risks associated with the proposed project will be short term and in a reasonably small footprint. There exist no highly significant impacts and or risks after mitigation therefor it is the consideration of the EAP that authorisation of the activity should be granted, with the understanding that legal commitment and strict adherence to the EMPr are agreed to by the Applicant.

15.7.1 Conditions that must be included in the authorisation

Please refer to **Section 15.5** above.

15.8 Period for which the Environmental Authorisation is required

EAs are usually granted for a period of five years for construction activities to be undertaken from the date of issue. Should a longer period be required, the Applicant / EAP is requested to provide a detailed motivation on what the period of validity should be.

The proposed project will take place over a period of 5 years, it is however recommended that the EA be valid for 10 years. Detailed motivation by the EAP will be provided, if necessary, to apply for a longer period.

16 Financial Provision

The DMRE Closure Quantum methodology was used as per the guideline document "Guideline document for the evaluation of the quantum of closure-related financial provision provided by a mine" (Department of Minerals and Energy, 2005). The closure components and size of disturbed areas provided by Northam in the Prospecting Work Program (PWP) was used to estimate the financial provision (Refer to **Appendix 4**). The cost was calculated based on the quantities of each deliverable and the DMRE master rate. Based on these calculations the preliminary environmental liability is **R86 826.09 including VAT and Contingencies**.

16.1 Explain how the aforesaid amount was derived

The DMR Guideline format makes use of a set template for which defined rates and multiplication factors are used. The Master rates for the different components were obtained from the DMR guideline (2005) which have been escalated based on inflation rates. The multiplication and weighting factors which ultimately define the rate to be used are determined by, amongst others, the topography, classification of the mine according to mineral mined, risk class of the mine; and its proximity to built-up or urban areas. Refer to **Part B: EMPr Section 6.5** for more detail.

16.2 Confirm that this amount can be provided for from operating expenditure

The Applicant has confirmed that the finances are available, refer to the **Appendix 4**.

17 Undertaking

The undertaken has been fully signed and completed at the end of Part B: EMPr.

18 Specific Information required by the competent Authority

18.1 Compliance with the provisions of sections 24(4) (a) and (b) read with section 24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of 1998)

18.1.1 Impact on the socio-economic conditions of any directly affected person

Impact is seen as minimal if EMPr is applied to prospecting activities and prospecting sites. Impacts such as nuisance, property damage, disturbance of day-to-day activities can be managed/mitigated through the correct implementation of the EMPr. The proposed prospecting activities is not anticipated to result in a change in character of the site and due to the limited footprint of invasive prospecting activities the current land use can continue concurrently.

18.1.2 Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act

The proposed prospecting activities include the excavation of three trenches and two boreholes as mapped in this report. No other proposed interventions are anticipated at this stage.

In order to provide recommendations regarding the proposed prospecting activities to ensure minimal impacts on heritage resources, sensitivity of the area from a heritage perspective was determined by CTS Heritage.

Two low sensitivity areas were identified during the study where it is recommended that the prospecting should take place. Areas of high and moderate sensitivity from a visual, heritage and archaeological perspective have been identified within the study area. These are indicated in **Figure 17** above (orange and yellow). The area identified as having Moderate Sensitivity has been previously impacted by development in the form of two farm roads running through it and has already been assessed in detail archaeologically. There are no known archaeological resources located here despite two previous archaeological surveys. Any development located within this moderately sensitive and low sensitivity areas are located sufficiently far from the sensitive heritage zone. The proposed boreholes and trenches are located in areas of low and moderate sensitivity.

There is a large section of the broader study area that is highly sensitive for impacts to very significant archaeological resources. Although these significant archaeological resources have been previously identified by Van Vollenhoven (2013) and Van der Walt (2019), little proactive conservation interventions seem to have taken place. Although the exposed stone walling associated with these LIA sites is located on top and immediately surrounding the granite koppies, it is clear that these sites were historically connected and as such form part of a complex of sites that stretches east-west. It is therefore very likely that archaeological evidence of this connection is located in the spaces between these granite koppies however this was not able to be verified by CTS Heritage. Despite this, the areas located between the granite koppies are as archaeologically sensitive as the koppies themselves and therefore any prospecting activities in these areas is likely to negatively impact on significant archaeological heritage.

On condition that the prospecting is limited to the proposed three trenches and two boreholes as proposed and mapped in this report, there is no objection to the prospecting activities from a heritage perspective. Should a mining application be investigated, it is strongly recommended that a full HIA is completed at an appropriate time of year to map the significant Iron Age resources

evident here. It is also recommended that a detailed Heritage Conservation Management Plan be developed for the significant archaeological resources to ensure their ongoing conservation and management for the life of the mine.

18.2 Other matters required in terms of sections 24(4) (a) and (b) of the Act

This BAR compiled in accordance with the NEMA, GN R982 and MPRDA. The EAP managing the application confirms that this BAR is being submitted for an EA in terms of the NEMA in respect of listed activities that have been triggered by an application in terms of the MPRDA. Should the DMRE require any additional information, this will be provided upon request.

Section 24(4) (b) (i) of the Act requires the EAP to conduct an investigation of the potential consequences of impacts of alternatives to the activity on the environment and assessment of the significance of those potential consequences. This has been addressed in **Section 10** above. As stipulated above, no reasonable or feasible alternatives exist for the Prospecting Right Application and, as such, motivation for no alternatives has been provided.

19 References

- *Archaetnos CC, 2013. A Report on a Cultural Heritage Impact Assessment for the Proposed Photovoltaic Power Plant & EMP Amendment for the Northam Platinum Zondereinde Mine Close to Northam.*
- *Biodiversity Company, 2021. Proposed Northam PV Site– Avifaunal Baseline & Impact Assessment.*
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- *CTS Heritage, 2021. Proposed development of the Northam PV facility near Thabazimbi.*
- *Department of Environmental Affairs, 2009.National Environmental Management: Waste Act (59/2008): List of waste management activities that have or are likely to have a detrimental effect on the environment. Government Gazette 37083, Government Notice 921 of 29 November 2013, Government Printer, Pretoria.*
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- *Department of Environmental Affairs, 2014. National Environmental Management Act, 1998 (Act 107 of 1998). Listing Notice 1: List of activities and competent authorities identified in terms of Section No. 24(2) and 24D. Government Gazette 38282, Government Notice R 983 of 4 December 2014, Government Printer, Pretoria.*
- *Department of Environmental Affairs, 2014. National Environmental Management Act, 1998 (Act 107 of 1998). Listing Notice 2: List of activities and competent authorities identified in terms of Section No. 24(2) and 24D. Government Gazette 38282, Government Notice R 984 of 4 December 2014, Government Printer, Pretoria.*
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- *Department of Environmental Affairs, 2015. National Environmental Management: Waste Act, Act No 59 of 2008: Amendments to the list of waste management activities that have, or are likely to have, a*

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- *GCS, 2013. Northam Platinum Limited Zondereinde Division EMP Amendment and Consolidation Report.*
- *GEEC, 2013. Integrated Water And Waste Management Plan (IWWMP) for Northam Platinum – Zondereinde Division.*
- *IUCN, 2013. IUCN Red List. [Online] Available at: http://www.iucnredlist.org/*
- *Mucina, L. & Rutherford, M., 2006. The Vegetation of South Africa, Lesotho and Swaziland., Pretoria: South Africa National Biodiversity Institute.*
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- *South Africa, Republic, 1998. National Environmental Management Act: Waste Act, Act No. 107 of 1998. Government Gazette 32000, Government Printer, Pretoria.*
- *South Africa, Republic, 1998. National Water Act, Act No. 36 of 1998. Government Gazette 19182, Government Printer, Pretoria.*
- *South Africa, Republic, 2008. Mineral and Petroleum Resources Development Amendment Act, Act No 49 of 2008. Government Gazette 32151, Government Printer, Pretoria.*
- *University of Witwatersrand, 2013. Palaeontological Scoping Report – Proposed Zondereinde Mine.*

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

A BAR Process was followed according to GNR 326 Regulation 19 of the NEMA EIA Regulations 2014, as amended, in support of the Prospecting Right and Environmental Authorisation application and the EMPr is thus subject to the requirements of **Appendix 4** of the NEMA EIA Regulations of 2014.

The implementation of this EMPr is a requirement in terms of NEMA and will be a condition of the Environmental Authorisation, issued by the Competent Authority. The Applicant and contractors must therefore familiarise themselves with the contents of this document because failure to comply with the commitments made will constitute an offence which can lead to penalties and/or legal action.

The EMPr should form an integral part of the contract documents to ensure that the biophysical, cultural and socio-economic environment is not adversely affected by the potential impacts resulting from the different aspects of the proposed prospecting operation. It should further be noted that the EMPr is not static, as allowances have been made for it to evolve in the future.

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Tables

Figures

1 Details of EAP

Northam Platinum Limited ("**Northam**") appointed uKhozi Environmentalists (Pty) Ltd ("**uKhozi**")in association with JEMS (Pty) Ltd ("**JEMS**") as an independent environmental consultant, to facilitate the Environmental Authorisation process. This EMPr was compiled by Mr Thomas Olivier and reviewed by Mr Stephan Barkhzuien. Refer to ***Table 1*** for the project team's details.

Table 1: Details of Project Team

Designation	Name	Qualification	Registration	Experience
Project Manager/reviewer and Sponsor	GS Barkhuizen	BTech Landscape Technology Hons. BSc Environmental Monitoring and Modelling	Certified Natural Scientist in the Environmental Sciences Field (Registration number: 115982), with SACNASP EAP registration pending with EAPASA	15 Years
Lead EAP	Tommy Olivier	BSc (Honours) Environmental Analysis & Management	Registered Environmental Assessment Practitioner: Number 2020/1162	13 Years

2 Description of the Aspects of the Activity

The prospecting schedule will be for Iron, Vanadium and Titanium and related metals over over the Remaining Extent (RE) of Portion 1 of the Farm Kopje Alleen 422 KQ situated in the in the Thabazimbi Local Municipality of Limpopo Province. The prospecting schedule will comprise the following activities over the Prospecting Right (PR) area:

- a desktop study,
- collation of existing data and project planning,
- surface geological mapping,
- geochemical sampling,
- geophysical sampling and analysis,
- borehole drilling and sampling (two boreholes),
- trenching and sampling, and ultimately (three trenches)
- modelling/ore resource estimation.

collectively referred to as the "PR Application".

In terms of NEMA and its EIA Regulations the abovementioned activities trigger the listed activities presented in ***Table 2*** below and is thus subject to a Basic Assessment ("BA") and EMP.

Table 2: Applicable listed activities

APPLICABLE LISTING NOTICE (GNR 324, GNR 325 or GNR 327, AS AMENDED JUNE 2021)	ACTIVITY NO.	DESCRIPTION OF ACTIVITY
GNR 327 (LISTING NOTICE 1)	20	*Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the MPRDA, including-* *(a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource*

2.1 Project phases and activities to be undertaken

For the purposes of this impact identification, the proposed project's timeframe will be subdivided into the following four phases:

- Pre-construction Phase.
- Construction Phase.
- Operational Phase.
- Decommissioning Phase.
- Post-closure Phase.

2.1.1 Pre-Construction Phase

Risk and impacts that have been identified as part of the consultation phase will need to be substantiated by further consultation and specialist verification as part of the pre-construction phase. The following activities will need to be undertaken prior to the commencement of the construction phase:

- Wetland Verification and Water Use Risk Assessment in terms of GN509 by a specialist (including the submission of a General Authorisation in terms of the NWA, 1998); and
- Final site selection based on inputs by the Heritage Specialist, and Biodiversity Specialist.

2.1.2 Construction Phase

The following activities will be undertaken as part of the construction phase:

- Site Establishment;
- Vegetation clearing;
- Dust mitigation measures; and
- Hydrocarbon management.

2.1.3 Operational Phase

Activities that will be conducted in the Operational Phase include the following:

- Drilling of diamond core prospecting holes and digging of the sampling trenches;
- Dust Mitigation measures; and
- Removal of cores and storing at the core yard for analysis.

2.1.4 Decommissioning Phase

Activities that will be conducted in the Decommissioning Phase include the following:

- Site break down;
- Plugging of core hole;
- Dust mitigation measures;
- Rehabilitating the area by:
  a. Removal and rehabilitation of contaminated soil;
  b. Re-vegetating;
  c. Levelling the area; and
- Controlling invasive plants.

2.1.5 Post-Closure Phase

Monitoring and rehabilitation of the area will continue.

2.2 Size and scale of disturbance

Two (2) drill sites which will cover an approximate area of 25m x 25m each and three (3) trenches measuring 30 x 4 x 3 meters each are planned. Thus, 625m^2 per drill site (x2) and 120m^2 per trench (x3) resulting in a total area of disturbance of 1 610m^2.

Farm roads will be used as far as possible. Temporary access roads (if required) will not exceed 3.5m in width.

Portable chemical toilets and bins will be used.

3 Composite Map

Refer to ***Figure 1*** below which shows the preliminary location of the three (3) prospecting boreholes and two (2) trenches in relation to the identified channelled valley bottom wetland, heritage features and sensitive habitats.

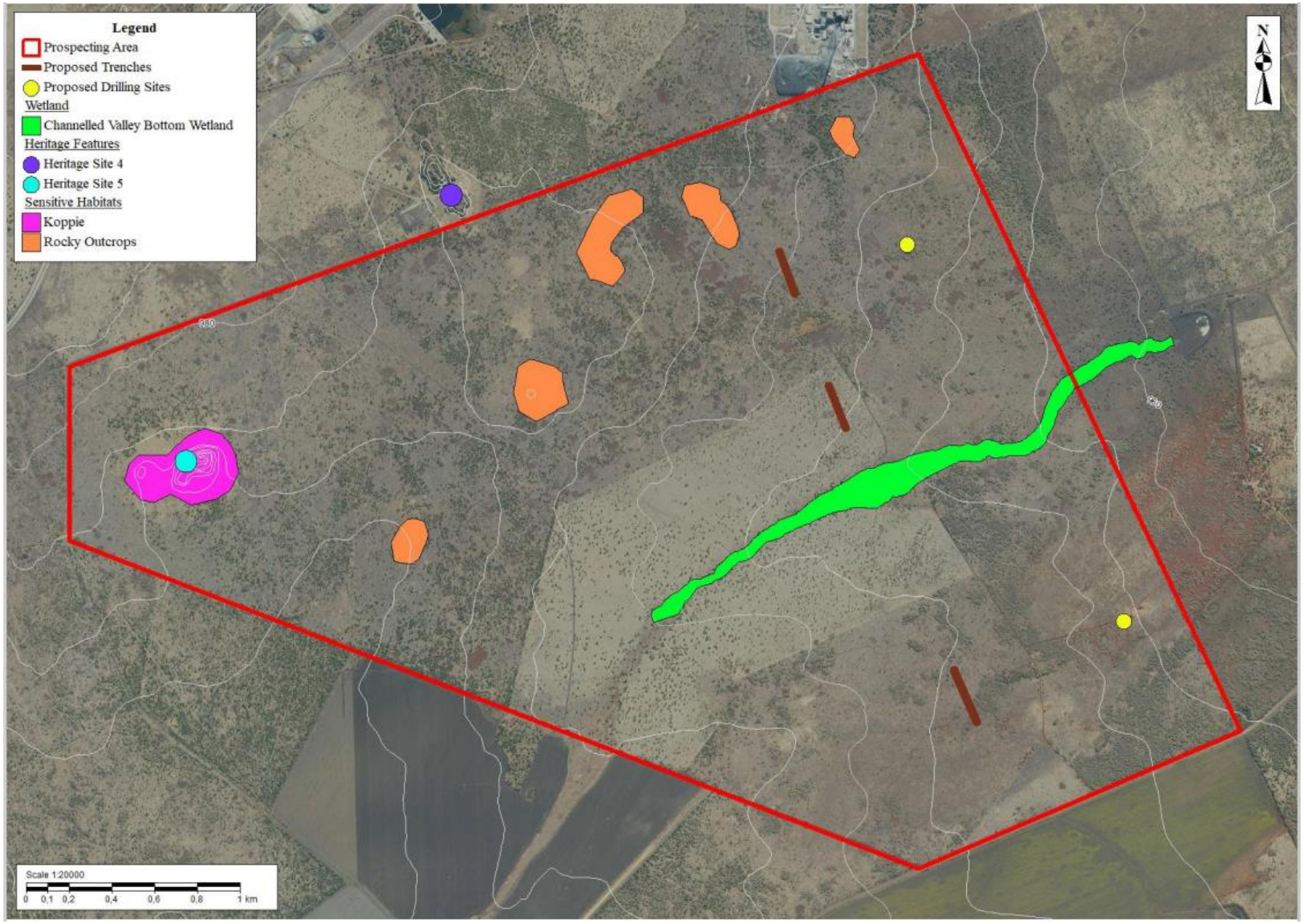

Figure 1: Composite Map

4 Description of impact management objectives including management statements

The following EMPr has been structured in such a manner as to provide a basis for an Environmental Management Systems (EMS) for the prospecting operation. The purpose of this Environmental Management Programme Report (EMPr) is to serve as an action plan for implementation of mitigation and management measures to ensure satisfactory environmental (biophysical, cultural and socio economic) management. More specifically, the objectives of the EMPr are to guide and control the invasive prospecting activities and should be to ensure that appropriate environmental management measures and monitoring requirements are implemented by Northam.

4.1 Determination of closure objectives

Post-closure land use must continue as prior to prospecting. The specific closure objectives for each environmental aspect that must be met are presented in ***Table 3*** below.

Table 3: Closure objectives per environmental aspect

Environmental aspect	Closure objective
Geology	All boreholes must be sealed and the disturbed area stabilised.
Topography	The final elevation of drill and trenching site areas must be free draining.
Soils	Topsoil must be replaced over the disturbed area to restore vegetation growth and limit the risk of erosion.
Land capability and use	The disturbed areas must return to self-sustaining veld suitable for animal breeding and feeding practices.
Vegetation	Prevent the establishment and spreading of alien plant species on the disturbed areas.
Animal life	A non-aggressive environment, suitable to the natural re-habitation of indigenous animal life.
Surface water and aquatic ecosystems	Ensure that the surface water leaving the site is of acceptable quality, and enable through landscaping, as much as possible of the storm water runoff to flow off the rehabilitated areas without undue delay, to minimise infiltration without causing unacceptable erosion.
Groundwater	Ensure no contamination of the local ground water systems. Where water strikes are encountered the boreholes can be equipped as abstraction boreholes by the landowner if the necessary authorisations are obtained where required.
Air quality	To have rehabilitated the disturbed areas such that dust levels return to pre-drilled state through adequate vegetative cover.
Noise	The noise levels must return to the pre-drilled situation, typically in the region of 40 dB for rural areas.
Visual	The rehabilitated areas must resemble the pre-drilled landscape and sense of place.

4.2 Process to manage environmental impacts

Significant environmental aspects and their associated environmental impacts were identified for the proposed prospecting operation as part of the impact assessment. Consideration was given to the Impact Mitigation Hierarchy in terms of the impact management objectives. The main objective is to focus on avoiding/preventing the impact from occurring and where this is not possible to minimize the significance of the impact. Where the impact cannot be avoided and or minimized, measures have been included that focusses on the repair/restore of the environmental aspect. The identified impacts will be mitigated by implementing the measures outlined in **Section 5** below. The mitigation measures aim is to prevent emergencies and minimise environmental risks and impacts as far as possible.

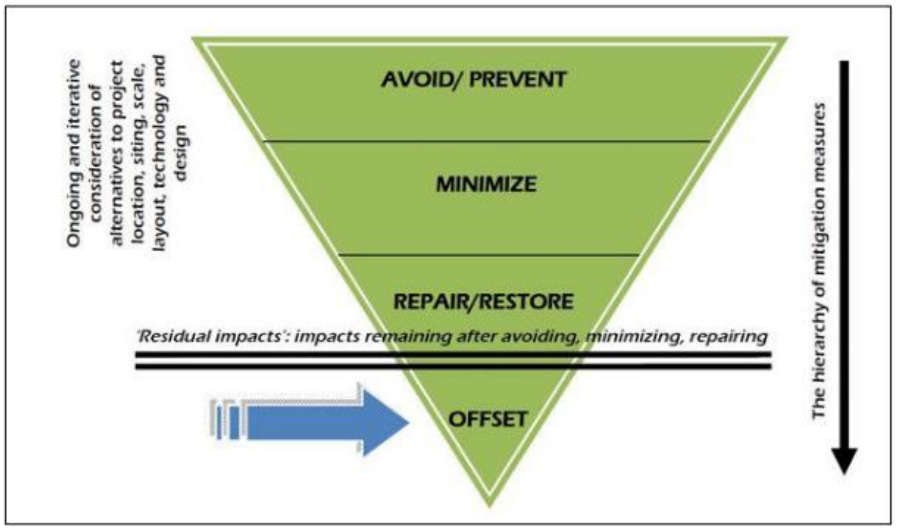

Figure 2: Schematic representation of the Mitigation Hierarchy process

4.3 Volumes and rate of water use required for the operation

Approximately 10 000 litres of water will be used per day for the prospecting operation. Water will be sourced off site from existing lawful water users or water service providers. Water will also be brought onto site for potable use, this is estimated at 20 litres per crew/day.

4.4 Has a water use licence has been applied for?

No water use licence or water use registration has been applied for to date. The proposed project requires authorisation in terms of Section 21 (c) and (i) of the NWA, 1998 for the digging of a trench within 500m of a channelled valley bottom wetland. It is expected that the need for a Water Use License or GA will only be finalised after Phase 1 prospecting have been completed. The application will follow the process outlined in the Regulations Regarding the Procedural Requirements for Water Use License Applications and Appeals, March 2017 published by the Department of Water and Sanitation (DWS).

5 Impacts to be Mitigated, Management Actions, Outcomes and Standards to be Achieved

The full impact assessment with associated mitigation and management measures are presented in Part A: Section 14. This section outlines the specific standards and limitations applicable to the project and provides mitigation/management measures to deal with key impacts associated with all the phases of the proposed project as well as a description of the roles and responsibilities.

5.1 Roles and responsibilities

Northam and all Northam's employees and contractors are responsible for the correct implementation of the EMPr. A description of each party's roles and responsibilities is provided in the table below.

Table 4: Roles and Responsibilities

Party	Description	Roles and responsibilities
Applicant	The holder of the Prospecting Right and Environmental Authorisation (EA) to which this EMPr relates, holds legal responsibility for compliance with this EMPr and any other arrangements must be entered into between such holder and such other party.	• Be fully conversant with the conditions of the EA. • Ensure that all stipulations within the EMPr are communicated and adhered to by the Contractor(s). • Monitor the implementation of the EMPr throughout the project by means of site inspections and meetings. • Overall management of the project and EMPr implementation. • Ensure that periodic environmental performance audits are undertaken on the project implementation; and • Ensure all permits, authorisations and licenses are obtained, monitored, and adhered to.
Project Manager	The Project Manager will be employed by Northam and be responsible to coordinate and manage the construction and operational phases of the proposed project. Any activity, which may result in adverse environmental consequences and for which mitigation and management measures are not provided in the EMPr must first be approved by the Project Manager before commencement.	• Familiarise him/herself with the EMPr and ensure compliance with the relevant legislation. • Communicate with the ECO regarding Environmental compliance issues. • In consultation with the Applicant order the removal of person(s) and/or equipment which are in contravention of the specifications of the EMPr and EA. • Assisting in the resolution of conflicts. • Maintenance, update, and review of the EMPr in consultation with ECO and relevant stakeholders. • Communication of all modifications to the EMPr to the relevant stakeholders.
Safety, Health, and Environmental (SHE) Manager	The SHE Manager will act as in-house officers who will be responsible for managing all safety, health and environmental aspects on behalf of the Project Manager and Applicant. In this respect, the SHE Managers is to conduct periodic site inspections, attend regular site meetings, pre-empt problems and suggest mitigation and be available to advise on incidental issues that arise. The contractors are also answerable to the SHE Manager for non- compliance with the Performance Specifications as set out in the environmental authorisation and EMPr. The SHE Managers provides feedback to the Project Manager, who in turn reports back to Applicant, Competent Authority and I&AP's, as required.	• Be aware of the findings and conclusions of the Impact Assessment and the conditions stated within the Record of Decision. • Be familiar with the recommendations and mitigation measures of this EMPr. • Be conversant with relevant environmental legislation, policies, and procedures, and ensure compliance with them.

Party	Description	Roles and responsibilities
		• Ensure that the aspects/impacts in the EMPr which relates to safety, health and environmental issues are explained to the employees. • Monitor the implementation of the EMPr and EA throughout the project, by means of site inspections, internal audits and meetings. • Compilation and administration of an environmental monitoring plan to ensure that the environmental management measures are implemented and are effective. • Liaison between the Applicant, Contractors, authorities and other key stakeholders on all environmental concerns.
Environmental Control Officer (ECO)	The ECO should be employed by Northam to act as an independent auditor assessing the level of compliance to the commitments made in the EMPr and conditions set out in the Environmental Authorisation.	The ECO must, as specified by the Environmental Authorisation, submit external audit reports to the to the DMRE as and when required.
Contractors	The contractors have the overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contracts are in line with the EMPr. The Contractors are answerable to the Project Manager for all environmental issues associated with the project.	• Implementation and compliance with recommendations and conditions of the EA and EMPr, including providing the Contractor's Environmental Protection Policy and the specific Method Statements for the project. • Be on site throughout the duration of the project and be dedicated to the project. • Ensure all their staff are aware of the environmental requirements, conditions and constraints with respect to all of their activities on site. • Attend the Environmental Site Meeting. • Undertaking corrective actions where non-compliances are registered within the stipulated timeframes. • Report back formally on the completion of corrective actions. • Assist the SHE Manager in maintaining all the site documentation and with the preparing of the audit report.

5.2 Environmental Management Programme

Table 5 lists the potential impacts per environmental aspect which require mitigation. It outlines the specific standards and limitations applicable to the project and provides mitigation/management measures to deal with key impacts associated with all the phases of the proposed project as well as a description of the roles and responsibilities. The information contained in this section forms an integral part of this EMPr and must be adhered to at all times.

Table 5: Environmental Management Program

Potential Environmental Impacts/Risks	Mitigation Measures	Phase	Time period for implementation	Responsible Person	Performance criteria (compliance with standards)	Standards to be achieved
Geology						
Cracks and disruption to geological layers during drilling and digging of sampling trenches	Plan location of invasive prospecting sites properly to avoid sensitive geological features. Start with fewer boreholes to verify non-invasive prospecting followed by more extensive drilling in areas indicating adequate resources.	Operation	Once-off sign-off of drill sites or amendments to these plans before any activities take place for the duration of prospecting operations.	Applicant	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation. Standard industry practises.	The drilling sites must be positioned by a geologist to ensure that it is not above any weak geological strata.
Biodiversity						
Loss of indigenous natural vegetation as a results of vegetation clearance	Prior to the commencement of the Proposed Project a Biodiversity specialist must be appointed to undertake final drilling site locations, and the most suited location of temporary access roads. Avoid unnecessary impacts on natural vegetation.	Construction Operation	Weekly inspections of the contractor's camp and surrounding area for the duration of prospecting activities.	Applicant/Project Manager	General duty of care in terms of NEMA, NWA, and NFA and must be applied when necessary.	Impacts should be contained, as much as possible, within the footprint of the drilling and trenching areas.
Loss or damage to protected tree species as a result of vegetation clearance	Plan location of drill sites properly to avoid sensitive features such as watercourses and rocky outcrops. Survey prospecting sites in areas with natural vegetation for any protected species known to occur in the region and either keep species in situ with 50m buffer zone to prevent inadvertent damage to these species or obtain permits to remove / destroy protected species. Don't remove or damage protected trees without consulting a specialist.	Construction Operation	Once-off sign-off of drill and trench site locations or amendments to these plans before any activities take place for the duration of prospecting operations.	Applicant/SHE Manager/Contractor	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation.	Preservation of protected species.
Establishment and spread of declared weeds and alien invader plants over disturbed areas	Control any alien plants immediately, to avoid establishment of a soil seed bank that would take decades to remove. Establish an on-going monitoring programme to detect and quantify any aliens that may become established.	Construction Operation	Monthly once invasive prospecting commences for the duration of prospecting.	Applicant/SHE Manager	Alien invasive floral species must be controlled in terms of the Alien and Invasive Species Regulations (2020).	Immediate eradication of alien invasive species.
	Rehabilitate disturbed areas as quickly as possible following completion of prospecting activities in an area. Do not translocate soil stockpiles from areas with alien plants.	Decommissioning Post Closure	Once-off inspection of rehabilitated sites after substantial rainfall.	Project Manager		
Habitat transformation (limited to the prospecting sites and parking footprint).	No access roads may cross or encroach any wetlands, drainage lines or streams. Keep disturbance of vegetation surrounding drilling areas to a minimum. Make use of existing access roads where possible.	Construction Operation	Once-off sign-off of drill and trench site locations or amendments to these plans before any activities take place for the duration of prospecting operations.	Project Manager/Contractor	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation.	Direct and indirect disturbance of high and intermediate sensitivity floral habitat must be avoided.
	Rehabilitate and re-vegetate the disturbed areas as per the ZM rehabilitation plan.	Decommissioning Post Closure	Once-off inspection of rehabilitated sites after substantial rainfall.	Project Manager/SHE Manager		

Potential Environmental Impacts/Risks	Mitigation Measures	Phase	Time period for implementation	Responsible Person	Performance criteria (compliance with standards)	Standards to be achieved
Soils and Land Capability						
Land clearing, causing physical disturbance to the soil	Impacts must be contained, as much as possible, within the footprint of the drilling and trenches area.	Construction Operation	Weekly inspections of the drill site, contractor's camp, and surrounding area for the duration of prospecting activities	Project Manager/SHE Manager	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation.	Retain soil microbiology and the nutrient cycles as far as possible.
Soil compaction	Keep disturbed area as small as possible. Rip compacted soils.	Construction Operation Decommissioning		Project Manager/SHE Manager		Reduce compaction of soil and maintain existing land capability.
	Remain in designated roads / routes / activity areas. Where not possible, routes must be properly planned to reduce disruption to soil as far as possible.	Construction Operation	Once-off sign-off of route plans or amendments to these plans before any activities take place for the duration of prospecting operations.	Project Manager/Contractor		Prohibit movement of machinery outside designated areas.
Soil erosion	Adequate drainage and erosion protection in the form of cut-off berms or trenches shall be provided where necessary. Effective managing of the topsoil by covering or reseeding the stockpiles to avoid erosion. Any erosion gullies must be remediated immediately.	Construction Operation Decommissioning	Weekly inspections of the drill site, contractor's camp and surrounding area for the duration of prospecting activities	Project Manager/SHE Manager	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation.	Reduce erosion of soil and maintain existing arable land capability.
Soil contamination	Remove any spills as soon as it occurs along with the polluted soil and dispose of it at a registered waste site. Spill kits must be available on site and personnel trained to utilize these to clear spills immediately.	Construction Operation Decommissioning	Weekly inspections of the vehicles and storage area for the duration of prospecting activities.	SHE Manager/Contractor	General duty of care in terms of NEMA & NEMWA	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements.
	Follow the equipment's operation and maintenance procedures and all vehicles must undergo periodic maintenance and inspection.			Contractor		
	Equip vehicles on site with drip trays and place drip trays under leaky equipment.			SHE Manager		
	Inspect, repair, and replace any damaged toilets. Appoint the necessary reputable contractor to manage portable toilets. Implement proper housekeeping and hygienic practices.	Construction Operation Decommissioning	Weekly inspections of portable toilet facilities for the duration of prospecting activities.	Contractor/SHE Manager	General duty of care in terms of NEMA & NEMWA	Reduced bacterial contamination and associated health effects on neighbouring areas.
Loss of topsoil	Implement mitigation measures under soil compaction, erosion, and contamination above. Rehabilitate disturbed areas as quickly as possible following completion of prospecting activities in an area. Rehabilitate and re-vegetate the disturbed areas as per the ZM rehabilitation plan. Do not translocate soil stockpiles from areas with alien plants.	Operation Decommissioning and Post Closure	Monthly once invasive prospecting commences for the duration of prospecting. Once-off inspection of rehabilitated sites after substantial rainfall.	Applicant/SHE Manager	General duty of care in terms of NEMA and MPRDA rehabilitation standards.	Promote aeration, water infiltration and the establishment of vegetation.

Potential Environmental Impacts/Risks	Mitigation Measures	Phase	Time period for implementation	Responsible Person	Performance criteria (compliance with standards)	Standards to be achieved
Air Quality						
Dust emissions within the site due to movement of vehicles and operation of equipment.	Dust suppression mitigation measures, such as wetting of roads, must be implemented to limit and / or minimise/control airborne dust. Control the speed of operational vehicles. The drill rig must remain on site as far as possible. Ensure that a complaints register is kept at ZM entrance to capture any complaints from surrounding land users. The construction activities must be kept to a small footprint. Adequate Personal Protective Equipment ("PPE") must be used.	Construction Operation Decommissioning	Weekly inspections of the drill site, contractor's camp and access roads for the duration of prospecting activities.	SHE Manager	General duty of care in terms of NEMA.	Dust fallout will be managed to not exceed 600mg/m^2/day.
Noise						
Increase in ambient noise levels	Establish, implement, and maintain an effective vehicle maintenance system. Prospecting activities must be undertaken during weekdays between 6:00am and 18:00pm. Adequate PPE must be used. Complaints register must be kept at the security office.	Construction Operation Decommissioning	Weekly inspections of the drill site, contractor's camp, and access roads for the duration of prospecting activities	Project Manager/Contractor	General duty of care in terms of NEMA.	Prevent nuisance noise to nearby landowners / users.
Waste						
Generation and poor management of general (non-hazardous) industrial waste materials, resulting in environmental pollution.	Provide suitable containers and temporary storage areas as close to the point of generation as practical possible. Implement the waste management hierarchy principles, where practical possible. Separate waste at source and recycle wherever possible. The waste bins must be marked clearly indicating what waste must be disposed of in what bin. Ensure unusable waste is disposed of in an environmentally responsible manner at licensed disposal facilities only ("cradle to grave" responsibility). No burning of domestic waste may be done on site.	Construction Operation Decommissioning	Weekly inspections of the drill site, contractor's camp, and access roads for the duration of prospecting activities	SHE Manager/Contractor	Dispose waste generated by the project according to good practise waste management principles.	Attain "cradle to grave" management of waste on site.
Surface Water and Aquatic Habitat						
Deterioration in surface water quality due to hydrocarbon, sewage, process water from sumps or other waste spillages ending up in surrounding watercourses.	Remove any spills as soon as it occurs along with the polluted soil and dispose of it at a registered waste site. Follow the equipment's operation and maintenance procedures and all vehicles must undergo periodic maintenance and inspection.	Construction Operation Decommissioning	Weekly inspections of the vehicles and storage area for the duration of prospecting activities.	SHE Manager/Contractor	General duty of care in terms of NEMA & NWA.	To keep, as far as possible, water of differing qualities separate within prospecting area, so as to minimise the contamination of clean run-off and surface water

Potential Environmental Impacts/Risks	Mitigation Measures	Phase	Time period for implementation	Responsible Person	Performance criteria (compliance with standards)	Standards to be achieved
	Leaky vehicles will not be parked over bare ground; where unavoidable, drip trays will be placed under the equipment to collect leaks. The leaky vehicles will be discontinued until repairs are made. Use biodegradable lubricants and fluids/polymers.					
Disturbance to the bed and banks of watercourses if the activity proceeds indiscriminately.	The location of all activities and infrastructure should be outside of the specified zones and/or flood lines of watercourses. If this is unavoidable, the necessary exemptions / approvals will be obtained. Plan drill sites properly to avoid watercourses.	Construction Operation	Once-off sign-off of sites/routes or amendments to these plans before any activities take place for the duration of prospecting operations.	Applicant/SHE Manager	Any activities within 500m of riparian areas are subject to authorization by means of a water use license or GA.	No unauthorised activities can take place within the regulated area of a watercourse.
Exposure of soils, causing increased runoff from cleared areas and erosion of the freshwater features, and thus increased potential for sedimentation, leading to changes in instream habitat and potentially altering surface water quality.	No access roads may cross or encroach any wetlands, drainage lines or streams. A Wetland Assessment must be undertaken prior to the commencement of the proposed project. Maintain buffer zones recommended by the wetland specialist around watercourses as ecological corridors and refuges.	Construction Operation Decommissioning				
Groundwater						
Contamination of the groundwater resources through hydrocarbons, process water and wastes seeping into the groundwater table in the event of leaks/spills.	The Applicant must identify boreholes on the proposed PR Area and monitor the groundwater quality prior to commencement of the activities to establish the baseline. It is recommended that quarterly monitoring samples be taken of boreholes. Equipment and vehicles must be maintained. Inspect, repair, and replace any damaged toilets. Appoint the necessary reputable contractor to manage portable toilets. Potential pollution must be managed by implementing the following processes: • education and training of workers (permanent and temporary); • appropriate management of hazardous materials and waste; • the required steps to enable containment and remediation of pollution incidents; and • specifications for post rehabilitation audit criteria to ascertain whether the remediation has been successful and, if not, to recommend and implement further measures.	Construction Operation Decommissioning	Weekly inspections of the vehicles and storage area for the duration of prospecting activities.	Project Manager/Contractor	NWA will be complied with to ensure that the quantity, quality, and reliability of water required to maintain the ecological function on which human depends is maintained.	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements.
Socio Economic						
Impact on the surrounding landowners and users. Impact includes: • Property damage (private roads, fences, gates, etc.).	Prospecting activities must only be undertaken during weekdays from 6:00 to 18:00. Remain in designated roads /routes.	Construction Operation Decommissioning	Daily for the duration of prospecting operations	Project Manager/SHE Manager	General duty of care in terms of NEMA	Maintain high safety standards on site with reduced safety risks

Potential Environmental Impacts/Risks	Mitigation Measures	Phase	Time period for implementation	Responsible Person	Performance criteria (compliance with standards)	Standards to be achieved
• Trespassing on private property. • Nuisance. • Veld fires. • Disturbance of day-to-day activities.	The drilling team must always close the farm gates after entering. Damage caused as a result of prospecting activities must be repaired to the reasonable satisfaction of the landowner. Vehicles will be in roadworthy condition with reflective strips to make them clean and visible for other road users. Intersections with main tarred roads will be clearly signposted. No employee will be allowed to loiter around farms. The drill contractor must monitor the whereabouts of the drill team. No employees will be allowed to make any open fires on the farms or adjacent land. Cigarette butts may not be thrown in the veld but must be disposed of correctly. Contractors must ensure that basic fire-fighting equipment and suitably qualified/experienced personal are always available on site. Fire extinguishers shall be placed at working areas and all areas where hazardous substances are kept.					
Creation of employment opportunities, skills development, and training.	It is recommended that local contractors are used to maximise the opportunities made available to the local labour force. Training and skills development programmes should be initiated prior to the commencement of the operation phase. Develop a database of local BEE service providers and ensure that they are informed of economic opportunities.	Construction Operation	Once off before prospecting activities commence	Applicant	Prioritise the sourcing of local labour and share in gender equality.	Transparent communication with job seekers.
Heritage						
Loss or damage to sites, features, or objects of cultural heritage significance	A heritage specialist must be appointed to provide inputs on the final prospecting locations. On discovery of heritage resources, the operations must be stopped. Do not further disturb the area before the below is undertaken. Notify the ECO. The ECO must arrange an assessment of the resource. If confirmed significant, the ECO must liaise with National, Cultural and History Museum. P.O. Box 28088	Construction Operation	Once-off sign-off of route plans or amendments to these plans before any activities take place for the duration of prospecting operations.	SHE Manager/ECO	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 36 and 38 of NHRA	Protect historical and cultural sites if they are observed on site.

Potential Environmental Impacts/Risks	Mitigation Measures	Phase	Time period for implementation	Responsible Person	Performance criteria (compliance with standards)	Standards to be achieved
	SUNNYSIDE 0132 Work must only recommence when cleared by ECO. Avoid the heritage features identified, namely Site 4 and 5.					
Visual						
Change in the visual characteristics of the immediate area around the drill and trench sites	Keep disturbed areas as small as possible. Keep the drill site neat, clean, and organised in order to maintain a tidy appearance. Remove waste off site as soon as possible or place it in closed bins in order to keep the site free from additional unsightly elements. Rehabilitation must be on-going.	Construction Operation Decommissioning	Weekly inspections of the drill site and site camp for the duration of prospecting activities Once-off inspection of rehabilitated sites after substantial rainfall.	Project Manager/SHE Manager	General duty of care in terms of NEMA.	Maintain the landscape to a high aesthetic standard to retain a high visual quality for visitors and observers
Topography						
Localised dips in topography if boreholes collapse after material is replaced.	Inspect and take immediate action to repair any dips by levelling and grading the disturbed area.	Decommissioning and closure	Once-off inspection of drilled boreholes after substantial rainfall		NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation requirements.	Restore natural catchment drainage patterns as far as possible.

6 Financial Provision

6.1 Description of the closure objectives and extent to which they align with the baseline characterisation

The closure vision for the proposed project is to establish a safe, stable and non-polluting post-prospecting landscape that can facilitate integrated, self-sustaining and value generating opportunities, thereby leave a lasting positive legacy. Closure objectives identified include:

6.1.1 Geology

Ensure that all the boreholes are plugged and sealed. Rehabilitation of each of the drilling sites will be focus on the plugging of the hole and stabilisation of the disturbed area.

6.1.2 Topography

Ensure that the final elevation of rehabilitated areas is free draining. The localised nature of the prospecting activities means that attaining objective will result in restoration of baseline conditions.

6.1.3 Soils and land capability

Ensure that topsoil (with vegetation clods where applicable) are replaced to the surface of rehabilitated drilled sites to maintain arable land capability and reduce risk of erosion. By removing soil clods with vegetation, the baseline conditions will be minimally altered and will recover fully to baseline condition over a short to medium term duration.

6.1.4 Surface water and aquatic ecosystems

Ensure no sedimentation and/or chemical contamination of the surrounding surface water systems. Prevent disturbance to the channelled valley bottom wetland and maintain current wetland status.

6.1.5 Groundwater

Ensure no contamination of groundwater or disturbance to groundwater aquifer. Where water strikes are encountered the boreholes can be equipped as abstraction boreholes by the landowner if the necessary authorisations are obtained where required.

6.1.6 Flora and Fauna

Encourage indigenous vegetative growth over the disturbed areas to prevent alien plant infestation. The aim is to reduce introduction of new species or spread of existing species and to preserve protected species in situ as far as possible.

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

Post closure land use (PCLU) is determined in consultation with stakeholders so that the PCLU meets the requirements of the stakeholders, within the context of the closure plan. This activity is undertaken for the area affected by prospecting activities and integrates stakeholder requirements with risk mitigation. The DBAR will be made available for a review and comment period. The comments received during this period will be addressed in the final report.

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

This application is for a prospecting right. Please refer to ***Figure 1*** above for the preliminary position of the prospecting boreholes and trenches (please note that these are subject to change following the outcome of the Geophysics survey). Each individual drill site will impact a maximum footprint of $20m^2$, which will be rehabilitated as soon as the necessary data is obtained.

The rehabilitation actions intended to be undertaken at the end of the life of the proposed prospecting activities are described under the headings below. These actions are designed to achieve the closure objectives described in Section 6.1 above. from NEMA GN 1147.

6.3.1 Boreholes and trenches

All prospecting boreholes that will not be required for later monitoring or other useful purposes should be plugged and sealed with cement to prevent possible cross flow and contamination between aquifers.

The casing pipes must be withdrawn from the hole. If this is not possible, then the casing must be cut off at least one meter below ground level. The borehole may, if necessary, have a wooden or bentonite plug inserted to assist in the effectiveness of positioning the grouting. The primary objective is to install a plug in the hole at a predetermined depth. The plug is then utilised as the foundation of the seal to be established. The effectiveness of the seal is determined by the integrity of the immediate surrounding material it is positioned in. The following must be considered in the installation of a plug:

- During the drilling of the hole, depth of the weathering of the strata must be recorded.
- The seal must be installed at least five metres below the depth of the recorded weathered zone.
- The plug must effectively seal the hole to prevent any grout from leaking past the plug.
- The plug must be able to remain in position until consolidation of the grout has taken place.

The plug installed acts as the foundation of the seal to support the grout. The placement of the grout must satisfy the following requirements:

- The grout must be pumped down the borehole, preferably through the drilling rods from the bottom of the hole to 2 meters below collar.
- The grout must be placed to a minimum depth of 5 meters.
- Rapid drying cement must be used.

The overburden material obtained from trenching will be used to backfill the trenches. Stockpiled soil material will be used in the preparation of the landform surface for rehabilitation purposes and the final surface reshaped to simulate surrounding topography while ensuring that the surface is free draining. Once backfilling is complete a growth medium cover must be placed, and vegetation will be established. There may be a requirement to include sacrificial erosion protection measures on the surface while vegetation is being established.

6.3.2 Roads and parking areas

Any access road or portions thereof, constructed by the Applicant and which will no longer be required by the landowner/tenant, shall be removed and/or rehabilitated which will involve the following activities:

- Removal of all signage, gates, fencing, shade structures, traffic barriers and the situation restored to the pre-prospecting situation.
- Roads shall be ripped or ploughed, and if necessary, appropriately fertilised (based on a soil analysis) to ensure the regrowth of vegetation.
- All 'hard top' surfaces to be ripped along with any concrete structures.
- All potentially contaminated soils are to be identified and demarcated for later remediation; and
- All access roads that have been treated with saline dust suppression water need to be treated, with the upper surface ripped, and removed to designated contaminant disposal areas.

6.3.3 Remediation of contaminated areas

Contaminated soil will be regarded as waste if hydrocarbon spills occur and will be handled according to Regulation 16 and 26 of the National Environmental Management: Waste Act 59 of 2008. The potentially contaminated areas (i.e hydrocarbon storage areas, vehicle parking areas) will be dealt with as follows:

- All soil, contaminated with hydrocarbons, will be identified, excavated, if possible, to at least 200 mm below the contaminated zone and then treated.
- All tanks, pipes and sumps containing hydrocarbons will be flushed or emptied.
- Removed soils will be managed as determined by the nature and extent of the contamination.
- Liquid storage tanks will be emptied, the structure removed/demolished and sub-surface holes filled; and
- All equipment in which chemicals have been stored or transported will be cleaned and disposed of in a suitable disposal facility.

6.3.4 Vegetation

Successful revegetation will help control erosion of soil resources, maintain soil productivity and reduce sediment loading in streams utilizing non-invasive plants that fit the criteria of the habitat (e.g., soils, water availability, slope and other

appropriate environmental factors). Invasive species will be avoided, and the area will be managed to control the spread of these species. To counter the effects of erosion, naturally occurring grassland species will be planted on slopes. These species will provide soil holding capacity and reduce runoff velocity. The flatter areas will be re-vegetated with the objective of creating a sustainable ecosystem. The occurrence of protected plant species will need to be determined before vegetation is removed and the required permits will be obtained for either destruction or relocation.

6.3.5 Waste Management

Waste material of any description, including receptacles, scrap, rubble, and tyres, will be removed entirely from the prospecting area, and disposed of at a recognised landfill facility. Waste management activities will include:

- Hazardous waste will be managed as per the Minimum Requirements for Handling, Classification and Disposal of Hazardous Waste.
- Non-hazardous will be disposed in the nearby licensed landfill site.
- Scrap and waste steel will be sold to recyclers.
- It may be necessary to fence temporary salvage yards for security reasons, particularly where these are located close to public roads.

6.3.6 Schedule of Actions

Ongoing rehabilitation will be conducted during the invasive prospecting phase. Final rehabilitation shall be completed within a period specified by the Regional Manager.

6.3.7 Relinquishment Criteria

Following the implementation of the closure actions described above, it is necessary to have measurable criteria against which to assess the effectiveness of the plan and its implementation. These criteria will assist the Applicant in identifying when the standard of closure achieved is sufficient to relinquish responsibility for a specific area. The relinquishment criteria for the proposed prospecting operation are summarised below:

- **Soil quality** – Soil quality as assessed against the Norms and Standards to support Chapter 8 of NEMWA.
- **Land productivity** - Land capability and productivity similar to that which existed prior to prospecting.
- **Safety/stability** – The sites are safe for use by humans and animals.
- **Vegetation** – Establishment of vegetation communities that stabilises the soil and is not invasive to the region.
- **Social:** There must be no unattended complaints. Where possible written confirmation from the affected landowner must be solicited confirming that outstanding issues have been addressed and closed out.
- **Waste:** There must be no waste materials remaining on site.

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

The rehabilitation plan has been compiled with the aim to meet the primary closure objective which is to establish a safe, stable, and non-polluting post-prospecting landscape. By implementing the rehabilitation activities in line with the plan the Applicant should be able to restore the affected areas to the pre-prospecting condition.

6.5 Quantum of the financial provision required to manage and rehabilitate the environment

An applicant or holder of a right or permit must determine and make financial provision to guarantee the availability of sufficient funds to undertake rehabilitation and remediation of the adverse environmental impacts of prospecting, exploration and mining or production operations, as contemplated in the Mineral and Petroleum Resources Development Act, 2004, (MPRDA) and MPRDA Regulations to the satisfaction of the Minister responsible for mineral resources.

The liability for closure of the aspects associated with the prospecting activities has been determined using the approach advocated by the *Department of Mineral Resources and Energy (DMRE) Guideline Document for the Evaluation of the Quantum of Closure-Related Financial Provisions* (2005). This document has been used and applied to assess the environmental liabilities associated with closure, and to quantify the provision that is consequently required. Based on the requirements of the Guideline document, the level of information available is defined as "limited". As such the "Rules based" approach must be followed in the determination of the Quantum. The approach to calculating the financial provision is summarised as follows:

Table 6: Rules Based Approach followed

Steps followed	Comment
Step 1: Determine the Mineral Mined/Prospected	In the first step, the applicable minerals have been identified in the tables provided in the DMR guideline (Table B. 12) as "**Iron, Vanadium and Titanium**".
Step 2A: Determine Primary Risk Class	The "Primary Risk Class" has been determined from Table B.12 of the DMR Guideline as "**C** (**Low Risk**)" based on the minerals involved and small size of the proposed operation.
Step 2B: Revision of Primary Risk Class	The Primary Risk Class can be revised based on saleable by-products if required. However, this is not applicable for the proposed prospecting operation.
Step 3: Determine Environmental Sensitivity	The "Environmental Sensitivity" has been determined by reference to Table B.4 of the DMR Guideline as "**High**" because the biophysical component was classified as 'high' since the application area is in a largely natural state.
Step 4: Determination of weighting factors	Weighting Factor 1: The nature of the terrain where the proposed operation is located is **Flat**. Weighting Factor 2: The proximity of the operation to an urban centre. In this case the proposed operation is considered **Peri-Urban since it is located approximately 12km from Northam and 25km from Thabazimbi.**

6.5.1 Closure Components

The closure components and size of disturbed areas provided by Northam in the Prospecting Work Program (PWP) was used to estimate the financial provision. The accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. The cost was calculated based on the quantities of each deliverable and the DMRE master rate. The closure components are listed in the table below along with the quantities.

Table 7: Closure components

Closure Component	Closure Component Description	Units	Comment
3	Access roads	254m	Farm roads will be used as far as possible. Temporary Access Road (if required) will not exceed 3.5m in width.
10	General surface rehabilitation	0.25ha	Two (2) drill sites which will cover an approximate area of 25m x 25m each and three (3) trenches measuring 30 x 4 x 3 meters each are planned. Thus, 625m^2 per drill site (x2) and 120m^2 per trench (x3) resulting in a total area of disturbance of 1 610m^2. An additional 890m^2 have been provision for access road rehabilitation.
13	Water Management	0.25ha	The rehabilitated areas will have to be managed
14	Maintenance & aftercare	0.25ha	The rehabilitated area will require maintenance and aftercare for 2 to 3 years.

6.5.2 Quantum of Financial Provision

The quantum of financial provision is provided below in ***Table 8***. The Master rates for the different components were obtained from the DMR guideline (2005) which have been escalated based on inflation rates.

Weighting factors were applied based on the nature of the terrain (flat) and the proximity to urban areas (peri - urban).

Based on these calculations the preliminary environmental Liability is **R86 826.09 including VAT and Contingencies**. It is recommended that the financial provision be reviewed upon completion of construction activities and commencement of operational activities at the proposed site and updated to account for any shortfalls or differences.

Table 8: Quantum of Financial Provision

Applicant	**Northam Platinum Limited**	Location:	Thabazimbi Magisterial District, Limpopo Province					
Evaluators:	uKhozi Environmentalists: Tommy Olivier	Date:	June 2023 Risk Class: **C**; Area Sensitivity: **High**					
No.	**Description**	**Unit**	A Quantity	2005 based master rate	B **Revised and escalated master rate 2023**	C Multiplication factor	D Weighting factor 1	E=A*B*C*D **Amount (Rands)**
			Step 4.5	Step 4.3		Step 4.3	Step 4.4	
1	Dismantling of **processing plant and related structures** (including overland conveyors).	m^2	0.00	R 6.82	**R 18.59**	1.00	1.00	R 0.00
2(A)	Demolition of **steel buildings and structures.**	m^2	0.00	R 95.00	**R 259.00**	1.00	1.00	R 0.00
2(B)	Demolition of **reinforced concrete buildings and structures**	m2	0.00	R 140.00	**R 381.69**	1.00	1.00	R 0.00
3	Rehabilitation of **access roads (will not be wider than 3.5m)**	**m**	**254.00**	**R 17.00**	**R 46.35**	**1.00**	**1.00**	**R 11 772.90**
4(A)	Demolition and rehabilitation of **electrified railway lines**	m	0	R 165.00	**R 449.85**	1.00	1.00	R 0.00
4(B)	Demolition and rehabilitation of **non-electrified railway lines**	m	0	R 90.00	**R 245.37**	1.00	1.00	R 0.00
5	Demolition of **housing and/or administration facilities.**	m2	0.00	R 190.00	**R 518.01**	1.00	1.00	R 0.00
6	**Opencast rehabilitation** including final voids and ramps	ha	0.00	R 96 700.00	**R 263 639.80**	1.00	1.00	R 0.00
7	Sealing of **shafts, adits and inclines**	m3	0.00	R 51.00	**R 139.04**	1.00	1.00	R 0.00
8(A)	Rehabilitation of **overburden and spoils - discard dump and slurry dam**	ha	0.00	R 66 400.00	**R 181 030.85**	1.00	1.00	R 0.00
8(B)	Rehabilitation of processing waste **deposits and evaporation ponds (basic salt-producing waste)**	ha	0.00	R 82 700.00	**R 225 470.65**	1.00	1.00	R 0.00
8(C)	Rehabilitation of processing waste **deposits and evaporation ponds (acidic, metal-rich waste)**	ha	0.00	R 240 200.00	**R 654 873.63**	0.81	1.00	R 0.00
9	Rehabilitation of **subsided areas**	ha	0.00	R 55 600.00	**R 151 586.07**	1.00	1.00	R 0.00
10	**General surface rehabilitation**	**ha**	**0.25**	**R 52 600.00**	**R 151 586.07**	**1.00**	**1.00**	**R 37 896.52**
11	**River diversions**	ha	0.00	R 52 600.00	**R 151 586.07**	1.00	1.00	R 0.00
12	**Fencing**	m	0.00	R 60.00	**R 163.58**	1.00	1.00	R 0.00
13	**Water management**	**ha**	**0.25**	**R 20 000.00**	**R 54 527.36**	**0.33**	1.00	**R 4 498.51**
14	**2 years of maintenance & aftercare**	**ha**	**0.25**	**R 7 000.00**	**R 19 084.58**	**1.00**	1.00	**R 4 771.15**
15 (A)	Specialist study detailed (closure plan)	Sum	0		N/A	1.00	1.00	R 0.00
15(B)	Specialist studies	ha	0.00		N/A	1.00	1.00	R 0.00
	Sum of items 1 to 15 above							R 58 939.07
	Multiply by Weighting factor 2 (Step 4.4) = **SUBTOTAL 1**						**1.05**	**R 61 886.02**
1	Preliminary and General		Add 6% of Subtotal 1 if Subtotal 1 ≥ R 100 000 000.00					N/A
			Add 12% of Subtotal 1 if Subtotal 1 ≤ R 100 000 000.00					R 7 426.32
2	Contingencies		Add 10% of Subtotal 1					R 6 188.60
							SUB TOTAL 2: (sum of management (P's & G's) and contingency)	R 13 614.93
							SUB TOTAL 3 (SUBTOTAL 1 + SUBTOTAL 2)	**R 75 500.95**
							15%	R 11 325.14
							GRAND TOTAL: (Subtotal 3 plus VAT)	**R 86 826.09**

6.6 Confirm that the financial provision will be provided as determined

Northam will provide for the closure liability associated with the project through the purchase of a Bank Guarantee as allowed by the Financial Provision for Prospecting, Exploration, Mining or Production Operations Regulations, with the Bank Guarantee provided to the DMRE following authorisation of the project.

7 Mechanisms for monitoring compliance with and performance assessment against the environmental management programme

Regular monitoring of all the environmental management measures and components shall be carried out by the holder of the prospecting right in order to ensure that the provisions of this EMPr are adhered to. Environmental management and monitoring will be conducted where needed by in-house Environmental Managers. The Applicant is the landowner so there is no need for access agreements.

The anticipated monitoring program is provided in ***Table 9*** below.

The recommended management options have been listed below:

- Provide an updated layout plan at the prospecting site indicating the final locations of the proposed drill holes.
- Demarcating each drill site to ensure activities do not take place outside this area.
- Effective managing of the topsoil by covering or reseeding the stockpiles to avoid erosion.
- Use existing roads as far as possible.
- Implement dust control during dry and windy days.
- Temporary toilet facilities, wastewater and refuse disposal areas must be established.
- Maintenance of vehicles should take place of site.
- Prospecting operations need to be conducted at least 100m away from all riverbanks, wetlands and identified springs unless authorised by DWS.
- Final disposal of domestic and hazardous waste must be done by a registered contractor.
- Compliance reporting/submission of information.

Table 9: Monitoring Programme

Aspect	Area to be monitored	Impacts Requiring Monitoring	Functional Requirements for Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency
Geology	Drilling sites	Cracks and disruption to geological layers.	1. Ensure sensitive sites are avoided or that necessary authorisations / permits are obtained where these cannot be avoided through sign-off of all onsite activity plans.	1. Geologist and project manager	1. Once-off sign-off of drilling plans or amendments to these plans before any activities take place for the duration of prospecting operations.
Topography		Localised dips in topography if boreholes collapse after material is replaced.	1. Inspect drilled sites for localised dipping in topography or pooling of water	1. SHE manager	1. Once-off inspection of drilled boreholes after substantial rainfall
Soils	Access routes	Loss of soil resource through compaction and contamination	1. Inspect all routes and prospecting sites for compacted soils, erosion, and degradation. 2. Ensure vehicles are within operation specifications to reduce risks of leaks.	1. SHE manager 2. SHE manager	1. Once off inspection of rehabilitated areas after substantial rainfall. 2. Weekly inspection of all vehicle and equipment service and maintenance logbooks for the duration of prospecting operations.
	Drilling/trenching sites		1. Ensure responsible material and soil handling and replacement. 2. Ensure area is clear of hydrocarbon spills.	1. SHE manager with the project manager 2. Site manager	1. Monthly inspection once invasive prospecting commences for the duration of prospecting. 2. Weekly inspection of all vehicle and equipment service and maintenance logbooks for the duration of prospecting operations.
	Contractor's camp		1. Using biodegradable fluids/polymers. 2. Ensure portable toilet facilities are in proper working condition, not overflowing or leaking and hygienic. 3. Ensure that all machinery and vehicles are in proper working condition with no leaking and are fully equipped with portable bunding and drip trays with a spill kits on site.	1. Project manager 2. SHE manager 3. SHE manager	1. Weekly inspections will be conducted during the duration of the prospecting activities
Flora	Access routes	Disturbance/damage to vegetation	1. Ensure sensitive sites are avoided or that necessary authorisations / permits are obtained where these cannot be avoided through sign-off of all onsite activity plans.	1. SHE manager and project manager	2. Once-off sign-off of drilling plans or amendments to these plans before any activities take place for the duration of prospecting operations.
	Drill sites	Alien plant infestation	1. Where alien and invasive species, specifically those listed under NEMBA as Category 1b species, are noted, immediate eradication actions should be undertaken.	1. SHE manager	2. Sporadic visual inspection of rehabilitated drill sites throughout prospecting operations
Surface water and aquatic ecosystems	Access routes	Disturbance to streams and wetlands if activity proceeds indiscriminately.	1. Ensure sensitive sites are avoided or that necessary authorisations / permits are obtained where these cannot be avoided through sign-off of all onsite activity plans.	1. SHE manager and project manager	2. Once-off sign-off of route plans or amendments to these plans before any activities take place for the duration of prospecting operations.
		Potential silt loading of surface water features.	1. Inspect all routes and prospecting sites for soil erosion or degradation.	1. SHE manager	2. Monthly inspection once invasive prospecting commences for the duration of prospecting.
	Contractor's camp	Contamination of surface water resources	1. Ensure area is clear of hydrocarbon spills. 2. Ensure portable toilet facilities are in proper working condition, not overflowing or leaking and hygienic.	1. Project manager 2. SHE manager	1. Weekly inspection of all vehicle and equipment service and maintenance logbooks for the duration of prospecting operations. 2. Weekly inspections of portable toilet facilities for the duration of prospecting activities.
Groundwater	Drill sites	Groundwater contamination	1. Prevent any oil spills or leaks into borehole. 2. Lining sumps with the appropriate lining system	1. SHE manager 2. Project manager	1. Daily check of oil leaks 2. Daily inspection of drilling areas.

Aspect	Area to be monitored	Impacts Requiring Monitoring	Functional Requirements for Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency
Air quality	Access routes	Increase in dust fall out	1. Visual inspection for billowing dust clouds.	1. SHE manager	1. Sporadic visual inspection of billowing dust clouds from prospecting areas throughout prospecting operations.
Heritage resources	Drill site &Access routes	Damage or destruction of heritage resources.	1. Preserve any heritage and cultural sites encountered. 2. 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 uncovered during prospecting, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA. 3. If unmarked human burials are discovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490) must be alerted immediately as per section 36(6) of the NHRA.	1. SHE manager 2. SHE and SAHRA 3. SHE manager and SAHRA	1. Once-off survey for heritage sites on areas targeted for travel and / or drilling prior to activity in the area. 2. Weekly inspections of drilling areas.
Socio economic, health and safety	Access routes	Damage to existing infrastructure and increase potential for road accidents	1. Maintain roads and intersections with public roads to reduce road incidences. 2. Ensure that on-site speed limits are enforced to reduce dust generation and road incidences.	1. SHE manager 2. SHE manager	1. Monthly inspections of all farm roads and intersections from the onset of operations for the duration of prospecting operations. 2. Sporadic speed inspections for the duration of prospecting operations.
	Working & hazardous substance storage areas	Increase risk of veld fires	1. Ensure that all machinery and vehicles are in proper working condition with no leaking and are fully equipped with portable bunding and drip trays with a spill kit on site. 2. No open fires should be allowed on site and serviced fire extinguishers should be provided on site.	1. Project manager 2. Project manager	1. Weekly visual inspection of the active prospecting areas will commence as soon as any prospecting contractors comes to site and continue for the life of prospecting operations.

8 Indicate the frequency of the submission of the performance assessment report

An annual performance assessment (or at a frequency stipulated in the EA) will be conducted by an external ECO throughout the life of prospecting as required under NEMA. This is conducted to assess the adequacy and compliance to the EMPr, EA and the relevant legislation. Based on the findings of the external audit any significant variation in the prospecting activity that will require changes to the EMrP will be updated and communicated with the department before such changes are implemented.

9 Environmental Awareness Plan

The section was compiled using the Applicant's environmental policies.

9.1 Manner in which the applicant intends to inform employees of any environmental risk

The Environmental Manager, Site Manager and Prospecting Manager must be conversant in environmental legislation, with special reference to the MPRDA, NEMA, NFA, NCNCA and the NWA.

The contractor / driller will be responsible for training its staff in terms of general environmental awareness. This will include basic training on the contents of this EMP; and will be conducted prior to commencement of prospecting activities. The aim of the environmental awareness training will be to highlight the potential impacts of the prospecting activities, and to highlight no-go areas.

The contractor / driller will ensure that records are kept of all training sessions / inductions.

The Environmental Manager will monitor these records and undertake regular follow ups.

Figure 3 presents a hand-out to be made available to all personnel / labourers on site.

Figure 3: Hand-out to be provided to all personnel/labourers

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

Northam is committed to establishing and maintaining procedures to identify potential emergency situations, to respond to emergencies and to mitigate any resulting safety, health, and environmental risks. In addition, the organisation will review its emergency procedures (particularly after emergency situations) and periodically test such procedures where practicable.

Training, as detailed above, will address the specific measures and actions as listed in the EMP and also conditions of the EA. In this way, the prospecting team will be provided the knowledge required to conduct the prospecting activities without resulting in environmental non-compliance, the liability of which would lie with Northam. Secondly, informing the prospecting team of the EMPr will also assist the team in identifying if an impact is likely to occur / has occurred and communicate this appropriately to the Environmental Manager.

In order for appropriate action to be taken, proper communications network and reporting protocol must be established, with the prospecting team and the site manager reporting all environmental and social issues to the Environmental.

10 Specific information required by the Competent Authority

All the information requested by the Competent Authority (DMRE) to date has been included in the BAR/EMPr.

11 UNDERTAKING

I **Thomas Willem Olivier** herby undertake that:

(a) the information provided in the foregoing report is correct.
(b) the comments and inputs from stakeholders and I&APs have been correctly recorded in the report.
(c) the information provided to interested and affected parties and any responses to comments or inputs made by interested and affected parties are correctly reflected in the report; and
(d) the inputs and recommendations from the specialist reports have been included in the EIA/EMPr Report.

Compiled by:

Tommy Olivier – EAP
Reg. EAP (EAPASA) No. 2020/1162
Date: 2023/08/10

Reviewed by:

Stephan Barkhuizen – Project Manager/Reviewer
SACNASP (Reg No: 115982),
Date: 2023/07/12

-END-

APPENDIX 1: CURRICULUM VITAE & QUALIFICATIONS OF THE EAP

C U R R I C U L U M V I T A E

T O M M Y O L I V I E R

BSc (HONOURS) ENVIRONMENTAL ANALYSIS & MANAGEMENT November 2009
BSc (ECOLOGY)

CAREER OBJECTIVE

To invest my passion for the industry in a team committed to the sustainable use of the environment.

To work within a partnership while gaining experience and performing a variety of tasks related to the integration of environmental factors and considerations resulting in responsible decision making.

To benefit by supporting business and profit growth through professional stakeholder relationship development and communication.

To continue striving to work hard, meet tight deadlines and complete projects through delivering quality work thus enhancing the firm's revenue and reputation.

CELL – 082 521 8870
E-MAIL - tommy@ukhozi-enviro.co.za

P R I V A T E & C O N F I D E N T I A L

PERSONAL INFORMATION	THOMAS WILLEM OLIVIER (TOMMY)
Identity number	860530 5109 082
Date of birth	30 May 1986
Marital status	Married
Nationality	South African
Languages – Read, write, speak	English & Afrikaans
Criminal offences	Nil record
Drivers license	Code B – Own reliable vehicle
Health	Excellent
Residential area	Equestria, Pretoria
Postal address	P O Box 72684 Lynwood Ridge 0040
Telephone	082 521 8870 (Cell)
E-mail	**tommy@ukhozi-enviro.co.za**

SECONDARY EDUCATION	ERMELO HIGH SCHOOL	2004
Highest level passed	**SENIOR CERTIFICATE – PASSED WITH MERIT – 2 DISTINCTIONS**	
Subjects passed	- A – English (2nd Language) - E – Mathematics - B – Biology - B – Afrikaans (1st Language) - D – Physical Science - A – Bible Studies	
Sport & achievements	**Leadership – Honourary Colours –2004** - Learner Governing Board – Prefect - Captain – First Team Tennis **Sport – Honourary Colours – Tennis** - Tennis – o Mpumalanga Provincial Colours o South African National Championship participant o First Team Member – Gr. 8 till Gr. 12 & Captain - Cricket o Highveld Regional Colours o Provincial Championship Participant o First Team	

TERTIARY EDUCATION	UNIVERSITY OF PRETORIA	2005 - 2009
Degree completed	**BSc (HONOURS) ENVIRONMENTAL ANALYSIS & MANAGEMENT**	
Dissertation	**CAMPUS STUDY ON CLIMATE CHANGE AWARENESS – UNIVERSITY OF PRETORIA** Objective of project is to gain relevant knowledge and understanding about the views of potential future leaders and company directors that can contribute towards providing leadership and influence that could effect a positive change towards global initiatives against global warming. Objective and methodology – - Determine the levels of knowledge about climate change, on the	

UP campus, by students from different faculties.

- Distribution of a questionnaire using stratified random sampling technique in order to source data
- Data analysis on return of questionnaires and to write a report regarding –
    - Public awareness of climate change
    - General perceptions
    - Degree of concern
    - Perceived risk
    - Willingness to pay or sacrifice to mitigate
    - Who should take responsibility for controlling risk

Major subjects

Code	Subject Module	Result
GGY728	- CONSERV. ENV. ENFORCEMENT	Jan
GGY785	- ENVIRONM.IMPACT AND AUDIT.	61%
GGY789	- ENVIRONMENTAL CHANGE	**76%**
GGY727	- ENVIRONMENTAL COMPLIANCE	Jan
GGY711	- ENVIRONMENTAL PRINCIPLES	**79%**
GGY702	- GEOGRAPHY PROJECT	72%
ZEN710	- LARGE MAMMAL ECOLOGY	66%
GGY703	- RESEARCH AND PRESEN.SKILLS	68%
BOT781	- VELD EVALUATION & MNGEMENT	68%

Degree completed	**BSc (ECOLOGY)**	**2008**

Major subjects

Code	Subject module	Result
ZEN353	- COMMUNITY ECOLOGY	60%
ZEN364	- CONSERVATION ECOLOGY	59%
ZEN361	- ECOPHYSIOLOGY	63%
ZEN362	- EVOLUTION AND PHYLOGENY	64%
BOT358	- PLANT ECOLOGY	67%
BOT356	- PLANT ECOPHYSIOLOGY	69%
ZEN351	- **POPULATION ECOLOGY (DISTINCTION)**	**77%**

Research study participated within

CHANGES IN SPECIES RICHNESS OF SPIDERS AT CHANGING ALTITUDES IN THE SANI PASS

COMPUTER LITERACY	**PERSONAL USER & UNIVERSITY TRAINING**

- MS WORD
- MS EXCEL
- MS POWERPOINT
- INTERNET
- PLANET GIS
- E-MAIL

EXPERIENCE	**UKHOZI ENVIRONMENTALISTS (PTY) LTD**	**2010 - 2020**

Position held:

Environmental Practitioner and Managing Director

Professional Affiliations:

Registered Environmental Assessment Practitioner: **Number 2020/1162**

Summary:

I completed my degree in Ecology as well as my BSc Honours degree with a thesis entitled, “Climate Change Awareness” at the University of Pretoria in 2009. From 2010 I have been working as an environmental practitioner under Kenneth Smith at uKhozi Environmentalists and took over as the Managing Director in 2016.

	I have managed a wide range of projects since becoming part of uKhozi Environmentalists. I have ten years' experience in conducting feasibility studies; Basic Assessments (BA's); Scoping and Environmental Impact Assessments (S & EIA's); Environmental Management Programmes (EMPr's), Water Use Licence applications (WULa's); Integrated Water and Waste Management Plans (IWWMP's); Waste Management Licences (WML); Closure Reports and Environmental Liability Quantum for mines, planning and executing Public Participation Processes (PPP); EMPr and WULa compliance auditing; compiling project proposals, training and awareness material; environmental and water monitoring and liaising with clients in both the private and public sectors.
WORK EXPERIENCE	**2010-2020**
Mining Right and Environmental Authorisation Applications	1. Project Manager for the S22 Mining Right and Environmental Authorisation application for the Driefontein Mining Project situated on situated on Section of Portion 5 and 6 of the Farm Driefontein 398 JS and Portion 6 of the Farm Sterkstroom 400 JS in the Middelburg Magisterial District of the Mpumalanga Province (Ref No: MP10218MR). Applicant - Canyon Resources (Pty) Ltd. 2. Project Manager for the S22 Mining Right and Environmental Authorisation application for the Phalanndwa Extension Colliery situated on a Section of the Remaining Extent (R/E) and a Section of Portion 7 of the Farm Schoongezicht 225 IR, Delmas, Mpumalanga (Ref No: MP 10164 MR). Applicant – Miniandante (Pty) Ltd. 3. Project Manager for the S22 Mining Right and Environmental Authorisation application for Schoongezicht Mining Project situated on Portion 10 and 11 of the Farm Schoongezicht 225 IR, Delmas, Mpumalanga (Ref No: MP 10114 EM). Applicant – Antobiz (Pty) Ltd 4. Project Manager Full Scoping EIA Process for the refurbishment of the defunct Kwasa Colliery in the Piet Retief District (Ref No: 17/2/3 GS-222). Applicant - Siphiwo Investments (Pty) Ltd. 5. Project Manager for the S22 Mining Right and Environmental Authorisation application for the proposed coal mining operation on the farm Goedehoop 169 HT, situated in the Magisterial District of Piet Retief, Mpumalanga, DMR Ref No: MP 10098 EM. Applicant – Jindal Mining SA (Pty) Ltd.
Water Use License Applications	1. Project Manager for the WULA for Driefontein Mine in the Middelburg District, 2019. Applicant: Canyon Resources (Pty) Ltd. 2019. 2. Project Manager for the WULA for Phalanndwa Extension Colliery in the Delmas District, 2018. Applicant: Miniandante (Pty) Ltd. 2018. 3. Project Manager for the WULA for Salzburg Crocodile Farm and Abattoir in the Alldays District, 2018. Applicant: Salzburg Krokodille (Pty) Ltd. 2018. 4. Project Manager for the WULA for the Sheepmoor Bulk Water Supply Scheme in the Ermelo Distruct. Applicant: Msukaligwa Local Municipality. 2018. 5. Project Manager for various WULA for the construction of irrigation dams, 2017. Applicants – Cornelius Boerdery (Pty) Ltd, Comey Landgoed cc. Ongoing

	6. Project Manager for the WULA for Honingkranz Sand mine in the Balmoral District, 2011. Applicant – Balmoral Crushers (Pty) Ltd. 2012.
Prospecting Right applications	1. S16 application for the proposed prospecting project covering portions 1 and 2 of the farm Dwaalhoek 105 HU in the Magisterial district of Uphongolo Kwazulu Natal Province, DMR Ref nr KZN 30/5/1/1/2/10426 PR (2013). Proponent: Atha Ventures. 2. S16 application for the for the proposed prospecting project covering portions of the farm Locatie van Teban 55 LT situated in the Magisterial district of Vhembe Limpopo Province, DMR Ref nr LP 30/5/1/1/2/11712 PR (2013). Proponent: Atha Ventures. 3. S16 application for the proposed prospecting for Limestone and dolomitic limestone on the farms Helvetia No. 126, Helvetia Annex No. 125, Brandziekfontein No. 124, Portions 10, 15, 18, 41, 46, 48, 49, 56, 61, 65 & 72 of Block AA 689 in the Magisterial District of Kuruman, DMR Ref nr NC30/5/1/1/2/11244 PR (2014). Proponent: Atha Ventures. 4. S16 application for the proposed prospecting for coal, platinum group metals and vanadium in the Magisterial District of Middelburg, Mpumalanga, DMR Ref nr MP 305/1/1/2/5312PR (2013). Proponent: Umthombo Resources. 5. S16 application for the proposed prospecting for Limestone and dolomitic limestone in the Magisterial District of Kuruman, DMR Ref nr NC30/5/1/1/2/11244 PR (2014). Narana Trade and Investments. 6. S16 application for the proposed prospecting project for coal in the Magisterial District of Springs, Gauteng Province, DMR Ref GP30/5/1/1/2/10023PR (2013). INSA Coal. 7. S16 application for the proposed prospecting for coal in the Magisterial District of Delmas Gauteng Province, DMR Ref GP30/5/1/1/2(10126) PR (2013). INSA Coal. 8. S16 application for the proposed prospecting for coal in the Magisterial District of Nongoma in KZN, DMR Ref KZN30/5/1/1/2/10345 PR. Proponent: Hoshoza Resources
Environmental Authorisation applications	1. Project Manager Basic Assessment Process for the development of an egg layer facility in the Robertson District. Proponent: Danko Trust. 2020 2. Project Manager Basic Assessment Process for the expansion of an existing feedlot in the Belfast District. Proponent Beestepan Boerdery (Pty) Ltd. 2018. 3. Project Manager Basic Assessment Process for the relocation of a power line in the Springs District. Proponent Steynol (Pty) Ltd. 2017. 4. Project Manager conducting the Full Scoping EIA process including an Air Emissions License for the establishment of an Incinerator Plant in the Iswepe district by NTE Company. 2016.
Audits and Performance Assessment Reviews (PARs)	1. Jindal Mining SA (Pty) Ltd. Water Use License Audit Report of the Kiepersol Colliery situated in the district of Piet Retief, 2017 -2020 2. Jindal Mining SA (Pty) Ltd. Performance Assessment Review of Kiepersol Colliery's compliance with the EMPr, situated in the district of Piet Retief, 2017 - 2020 3. Londani Coal (Pty) Ltd Water Use Licence Audit Report of the Nndanganeni Colliery: Licence no. 04/B12C/CGIJ/1383, situated in the district of Middelburg, 2012 & 2014.

	4. Bawessels (Pty) Ltd Final Performance Assessment for the Zevenfontein Colliery, situated in the district of Middelburg, 2012.
Public Participation	I have managed the public participation process for all the above listed projects but have also been appointed to only conduct public participation for specific projects listed below. 1. Manage the Public Participation Process as part of a S16 prospecting application for coal on the farm Klippan 155 IO, NW30/5/1/1/3/2/1/2756 EM. Proponent: Umthombo Resources (Pty) Ltd 2. Manage the Public Participation Process as part of a S16 prospecting application for coal on the farms Driefontein 398 JS, Myburgh 404 JS, Rietspruit 402 JS, Sterkstroom 400 JS and Rietpan 408 JS situated in the magisterial district of Middelburg, MP30/5/1/1/2/10528 PR. Proponent: Umthombo Resources (Pty) Ltd. 3. Manage the Public Participation Process as part of a S16 prospecting application for coal in the Magisterial district of Bronkhorstspruit, GP30/5/1/1(10225) PR. Proponent: Fountain Capital (Pty) Ltd 4. Manage the Public Participation Process as part of a S16 Prospecting Right application for coal on portion 31, 33, 36 and 44 of the farm Droogefontein 242 IR Magisterial District of Delmas, MP 30/5/1/1/2/13087 PR. Proponent: Fountain Capital (Pty) Ltd 5. Manage the Public Participation Process as part of the Water Use License application for the extension of the Nndanganeni Colliery, situated in the district of Middelburg, 2015. Proponent: Londani Coal (Pty) Ltd.
Monitoring	1. Ground and surface water monitoring and reporting for Londani Coal (Pty) Ltd at the Kopermyn Washing Plant and Nndanganeni Colliery as well as the associated sidings. 2012 - 2020. 2. Ground and surface monitoring and reporting for Jindal Africa at Kiepersol Colliery from 2010 -2011.

REFERENCES	**PERMISSION TO CONTACT**
Ken Smith – Mentor and Professional Natural Scientist	1. Tel. 082 774 7747 or email: KSE-Services@global.co.za
Inus de Wit (Colleague)	2. Tel: 082 786 7810 or email: inus@ukhozi-enviro.co.za
Gideon Taljaard – Client	3. Tel. 073 693 7307 or email: taljaardg@phptaff.co.za
Nevin Munyaradzi Tunhuma - Client	4. Tel: 017 492 0019 or email: nevin.tunhuma@jindalafrica.com
Clifford Hallatt – Client	5. Tel: +27 (0)11 783 7996 or email: c.hallatt@canyoncoal.com
Dr Jane Olwoch - Dissertation Mentor & Lecturer	6. Tel. 012 420 2533 or email: jane.olwoch@up.ac.za

Annexure: **Qualifications and Professional Registrations**

2503791

Universiteit van Pretoria

Die Raad en die Senaat verklaar hiermee dat die graad

Baccalaureus Scientiae
met spesialisering in
Ekologie

met al die regte en voorregte daaraan verbonde by geleentheid van 'n kongregasie van die Universiteit toegeken is aan

THOMAS WILLEM OLIVIER

kragtens die Wet op Hoër Onderwys, 1997 en die Statuut van die Universiteit

Namens die Raad en die Senaat

Visekanselier en Rektor

Namens die Fakulteit
Natuur- en Landbouwetenskappe

Dekaan

Registrateur

2009-04-15

Gesertifiseer n ware afskrif
van die oorspronklike
Certified a true copy of
the original

VENESSA OLIVIER
COMMISSIONER OF OATHS (RSA)
TAX PRACTITIONER (SA) SAIT MEMBER
P.O.Box 72684 LYNNWOOD RIDGE
PRETORIA 0040 TEL: 072 609 7922
Date: 13/02/2020

2503791

Universiteit van Pretoria

Die Raad en die Senaat verklaar hiermee dat die graad

Baccalaureus Scientiae Honores

met spesialisering in
Omgewingsanalise en -bestuur

met al die regte en voorregte daaraan verbonde by geleentheid van 'n kongregasie van die Universiteit toegeken is aan

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Namens die Raad en die Senaat

C. de la Rey

Visekanselier en Rektor

Namens die Fakulteit
Natuur- en Landbouwetenskappe

Dekaan

Registrateur

2010-04-16

Gesertifiseer n ware afskrif
van die oorspronklike
Certified a true copy of
the original

VENESSA OLIVIER
COMMISSIONER OF OATHS (RSA)
TAX PRACTITIONER (SA) SAIT MEMBER
P.O.Box 72684 LYNNWOOD RIDGE
PRETORIA 0040 TEL: 072 609 7922
Date: 13/07/2023

EAPASA
Unit 19 Oxford Office Park
3 Bauhinia Street
Highveld Techno Park
Centurion
0157
Tel. (+27) 12 880 2154

Email: registrar@eapasa.org / Website: www.eapasa.org

Environmental Assessment Practitioners Association of South Africa
Advancing environmental assessment practice in South Africa

Mr Thomas Olivier
Willow Farm Estate Number 29, Willow farm road 2049
Equestria
Pretoria
0184

Sent by email to: tommy@ukhozi-enviro.co.za

Dear Mr Olivier

Registered Environmental Assessment Practitioner: Number 2020/1162
Thomas Willem Olivier : South African ID 8605305109082

The Environmental Assessment Practitioners Association of South Africa (EAPASA) herewith certifies that Thomas Willem Olivier is a Registered Environmental Assessment Practitioner (EAP) in accordance with the prescribed criteria of Regulation 15.(1) of the Section 24H Registration Authority Regulations (Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the National Environmental Management Act (NEMA), Act No. 107 of 1998, as amended).

Your registration is duly authorised by EAPASA as the single Registration Authority for EAPs in South Africa (appointed as per Regulation No. 104, Gazette No. 41434 of 8 February 2018, in terms of section 24H(3)(a) of the NEMA). Your status as a Registered EAP is displayed in the 'EAP Register' - please find your name and contact email address at

https://registration.eapasa.org/registered-practitioners

Your registration is effective for a period of five years from 30 June 2020, and expires on 30 June 2025. The renewal of your registration in 2025 will be contingent on you having met the requirements of EAPASA's Continuing Professional Development (CPD) policy during each year of registration.

As a Registered EAP you are required to uphold the EAPASA Code of Ethical Conduct and Practice in your professional endeavours, towards the goal of quality assurance in environmental assessment practice.

Please accept my congratulations on your registration.

Best regards

RCHill

Dr Richard Hill
Registrar
Date: 30 June 2020

APPENDIX 2:

REPORT ON RESULTS OF CONSULTATION (RRC)

mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

REPORT ON THE RESULTS OF CONSULTATION WITH COMMUNITIES AND INTERESTED AND AFFECTED PARTIES

AS REQUIRED IN TERMS OF SECTIONS, 16(4) (B) or 27(5) (b) OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT (ACT 28 of 2002), AND IN ACCORDANCE WITH THE STANDARD DIRECTIVE FOR THE COMPILATION THEREOF AS PUBLISHED ON THE OFFICIAL WEBSITE OF THE DEPARTMENT OF MINERAL RESOURCES

NAME OF APPLICANT: Northam Platinum Limited
REFERENCE NUMBER: LP30/5/1/1/2/14909PR

COMPILED BY: UKHOZI ENVIRONMENTALISTS (PTY) LTD IN ASSOCIATION WITH JEMS (PTY) LTD
ADDRESS: P.O BOX 92269, MOOIKLOOF, 0059
TEL: 083 776 7898/ 082 521 8870
FAX: 086 658 3132
DATE: AUGUST 2023
REPORT NO: JEMS-ZON-DBAR-23
REPORT STATUS: DRAFT

A. Definitions

consultation' means a two way communication process between the applicant and the community or interested and affected party wherein the former is seeking, listening to, and considering the latter's response, which allows openness in the decision making process.

'community' means a group of historically disadvantaged persons with interest or rights in a particular area of land on which the members have or exercise communal rights in terms of an agreement, custom or law: Provided that, where as a consequence of the provisions of the Act negotiations or consultations with the community are required, the community shall include the members or part of the community, directly affected by prospecting or mining, on land occupied by such members or part of the community.

'Interested and affected' parties include, but are not limited to; –

(i) Host Communities
(ii) Landowners (Traditional and Title Deed owners)
(iii) Traditional Authority
(iv) Land Claimants
(v) Lawful land occupier
(vi) The Department of Land Affairs,
(vii) Any other person (including on adjacent and non-adjacent properties) whose socioeconomic conditions may be directly affected by the proposed prospecting or mining operation
(viii) The Local Municipality,
(ix) The relevant Government Departments, agencies and institutions responsible for the various aspects of the environment and for infrastructure which may be affected by the proposed project.

B. Annexures

The following annexures are attached to this report as proof of consultation:

Annexure	Description
Annexure A: Notification documentation	Copy of notification letter, Newspaper Notice and Site Notices
Annexure B: Written notification	Proof of emails sent & registered post
Annexure C: IAP Registrations, Written Responses and EAP Response	IAP Registration sheets, written responses from IAPs & authorities and EAP Responses
Annexure D: Proof of Availability of draft BAR	Proof of emails sent Submission of hard copies

1. Methodology applied to consultation

1.1. Name the community or communities identified, or explain why no such community was identified

No community was identified during the preliminary public participation process. The directly affected farm portion (RE of the Farm Kopje Alleen 422 KQ) is owned by the Northam Platinum Limited (the current Applicant.

1.2. Specifically state whether or not the Community is also the landowner

N/A. Refer to **Section 1.1** above.

1.3. State whether or not the Department of Land Affairs have been identified as an interested and affected party

Yes. The Department of Agriculture, Land Reform and Rural Development (DALRRL) has been identified as an Interested and Affected Party (I&AP).

1.4. State specifically whether or not a land claim is involved

An enquiry was sent to the DALRRL: Land Claims Commissioner in the Limpopo Province however no response has been received at the time of writing this report (Refer to proof of email sent below)

LAND CLAIM ENQUIRY - RE OF PORTION 1 OF KOPJE ALLEEN 422 KQ

TE tommy@ukhozi-enviro.co.za
To 'landclaims@dalrrd.gov.za'

Reply | Reply All | Forward | ...

Thu 2023/07/13 08:38

Good Day

uKhozi Environmentalists (Pty) Ltd in association with JEMS (Pty) Ltd was appointed by Northam Platinum Limited as the independent environmental consultant, to facilitate the Environmental Authorisation Application process for the Prospecting Right Application over the Remaining Extent (RE) of Portion 1 of the Farm Kopje Alleen 422 KQ situated in the in the Thabazimbi Local Municipality of Limpopo Province.

As part of the consultation process we are required to confirm if there are any existing or pending land claims on the affected property.

In light of the above, can you please advise if there are any land claims on the **RE of Portion 1 Farm Kopje Alleen 422 KQ**?

Your assistance will be much appreciated.

Regards

Tommy Olivier
Reg. EAP (EAPASA) No. 2020/1162
Email: tommy@ukhozi-enviro.co.za
Cell: 082 521 8870

1.5. Name the Traditional Authority identified

No Traditional Authority has been identified.

1.6. List the landowners/lawful occupiers identified by the Applicant

Please see **Table 1** below for the landowner information.

Table 1: Landowner Information

Farm Name and Number	Portion	Landowner
Kopje Alleen 422 KQ	Remaining Extent (RE) of Portion 1	**Northam Platinum Limited**

1.7. Explain whether or not other persons' (including on adjacent and non-adjacent properties) socio-economic conditions will be directly affected by the proposed prospecting operation and if not, explain why not

It is not anticipated that the drilling activities will impact on the socio-economic conditions of the landowner/lawful occupier or adjacent landowners because this application is limited to exploration and prospecting activities. The nature of the proposed activities will allow the current land use to continue alongside prospecting.

1.8. Name the Local Municipality identified by the Applicant

The Local and District Municipalities identified in the process include:

i) Waterberg District Municipality
ii) Thabazimbi Local Municipality

1.9. Name the relevant Government Departments, agencies and institutions responsible for the various aspects of the environment and for infrastructure which may be affected by the proposed project.

The following authorities and organs of state have been identified:

- Department of Economic Development, Environment and Tourism
- Department of Water and Sanitation (DWS)
- South African Heritage Resources Association (SARHA)
- Dept. Environmental, Fisheries and Forestry (DEFF)
- Department of Public Works Road and Transport
- Department of Agriculture, Land Reform and Rural Development (DALRRL)
- Limpopo Department of Mineral Resources and Energy (DMRE) (As Competent Authority)

1.10. Submit evidence that the landowner or lawful occupier of the land in question, and any other interested and affected parties including all those listed above, were notified

Northam is the legal owner of the property and Zondereinde Mine the lawful owner. In line with Regulation 41(2) b) the following people were informed through a written notification (refer to **Annexure A.1** for a copy of the notification letter):

- Adjacent landowners
- Local authorities
- Commenting Authorities and Relevant Organs of State

Proof of written notification is provided in **Annexure B**.

A press notice was placed in the local newspaper (***Platinum Bushvelder***) on the 14th of July 2023, notifying the public of the application. The notice also requested the public to register as an I&AP with the Public Participation Office in order to receive all future correspondence regarding this project. The notice also informed the public that the draft BAR (DBAR) will be made available for comment from the **14th of July 2023 to 14th of August 2023.** Refer to **Annexure A.2** for proof of placement.

A2 notices notifying the public of the proposed project and EA Application process, and inviting them to register as I&APs, were placed at the following locations:

(1) Northam Magistrate Court (24°57'29.27"S; 27°15'51.64"E)
(2) Site Entrance of the Zondereinde Mine (24°49'58.95"S; 27°20'21.90"E)
(3) Setaria Village (24°47'31.86"S; 27°24'15.20"E).
(4) Road D56 along Southern Boundary of the PR Area (24°51'59.86"S; 27°22'39.49"E)

Refer to **Figure 1** below indicating the location of the site notices in relation to the PR Area.

Proof of placement is provided in **Annexure A.3**.

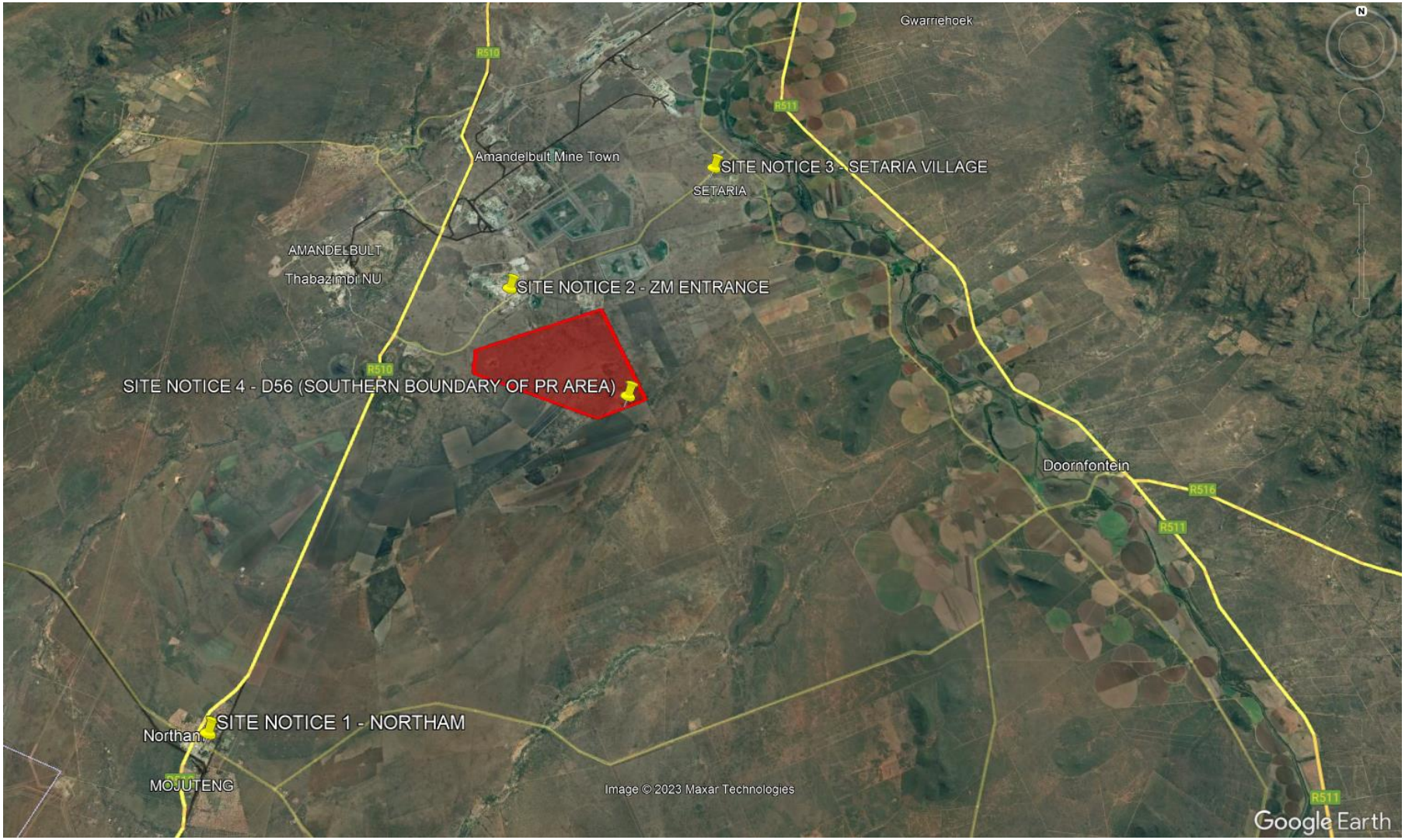


Figure 1: Location of site notices in relation to the PR area

2. Description of the existing status of the cultural, socio-economic, or biophysical environment, as the case may be, prior to the proposed prospecting or mining operation

2.1 Confirm that the identified and consulted interested and affected parties agree on the description of the existing status of the environment

No comments have been received regarding the existing status of the environment. The FBAR will be updated with comments received during the commenting period.

2.2 Describe the existing status of the cultural environment that may be affected

Refer to **Part A: BAR Section 11.15**.

2.3 Describe the existing status of any heritage environment that may be affected

Refer to **Part A: BAR Section 11.15**.

2.4 Describe the existing status of any current land uses and the socioeconomic environment that may be directly affected

Northam is the property owner of the proposed PR Area. Majority of the PR Area comprise of vacant grass land with Koppies and distributed outcrops, cultivated fields are located in the centre of the PR Area. A section of the Zondereinde Smelter Infrastructure is located over the PR Area.

2.5 Describe the existing status of any infrastructure that may be affected.

Most of the application area is vacant land but infrastructure found inside the application area include powerlines. smelter infrastructure, fences, and gates. Prospecting will allow for enough flexibility in drilling/trenching to avoid the infrastructure identified.

2.6 Describe the existing status of the biophysical environment that will be affected, including the main aspects such as water resources, flora, fauna, air, soil, topography etc.

Refer to **Part A: BAR Section 11**.

2.7 Provide any relevant additional information

No additional information.

3. The anticipated environmental, social or cultural impacts identified

3.1. Confirm that the community and identified interested and affected parties have been consulted and that they agree that the potential impacts identified include those identified by them

The SAHRA Development Applications Unit (DAU) requests that an application specific assessment of the impact to heritage resources must be undertaken as part of the EA process that complies with section 38(3) of the NHRA as required by section 38(8) of the NHRA. The HIA must include an archaeological component.

3.1.1 Provide a list and description of potential impacts identified on the cultural environment

See Point 3.1 above.

3.1.2 Provide a list and description of potential impacts identified on the heritage environment, if applicable

See Point 3.1 above.

3.1.3 Provide a list and description of potential impacts identified on the socioeconomic conditions of any person on the property and on any adjacent or non-adjacent property who may be affected by the proposed prospecting or mining operation

See Point 3.1 above.

3.1.4 Provide a list and description of potential impacts (positive & negative) identified on: employment opportunities, community health and community proximity

See Point 3.1 above.

3.1.5 Provide a list and description of potential impacts identified on the biophysical environment including but not be limited to impacts on flora, fauna, water resources, air, noise, soil etc.

See Point 3.1 above.

3.1.6 Provide a description of potential cumulative impacts that the proposed operation may contribute to considering other identified land uses which may have potential environmental linkages to the land concerned

See Point 3.1 above.

4. Land use or development alternatives, alternative means of carrying out the proposed operation, and the consequences of not proceeding with the proposed operation

4.1. Provide a list of and describe any alternative land uses that exist on the property or on adjacent or non-adjacent properties that may be affected by the proposed mining operation

Alternative land uses that exist within the study area include:

- Vacant land
- Cultivated lands
- Livestock and game farming
- Mining

4.2. Provide a list of and describe any land developments identified by the community or interested and affected parties that are in progress and which may be affected by the proposed mining operation

Northam has recently received an approval for the development of a renewable power/ solar project on a portion of the PR Area. Northam has an existing mining right (LP37MR) on a section of the PR Area for other commodities. As mentioned under Point

4.3. Provide a list of and describe any proposals made in the consultation process to adjust the operational plans of the mine to accommodate the needs of the community, landowners and interested and affected parties

No comments and/proposals have been received to accommodate the needs of the community, landowners and I&APs. The FBAR will be updated with comments received during the commenting period.

Prospecting will allow for enough flexibility to accommodate the needs of the landowner.

4.4. Provide information in relation to the consequences of not proceeding with proposed operation

Refer to **Part A: BAR Section 9.7**.

5. Description of the process of engagement referred to in 3.2.1 and 3.2.2 above with identified communities, landowners and interested and affected parties

5.1. Provide a description of the information provided to the community, landowners, and interested and affected parties to inform them in sufficient detail of what the prospecting or mining operation will entail on the land, in order for them to assess what impact the prospecting will have on them or on the use of their land

The following information was provided:

- Notification Letter (Refer to Annexure A.1)
- Newspaper notice (Refer to Annexure A.2).
- Site Notices (Refer to Annexure A.3)
- DBAR (Refer to Annexure D)

5.2. Provide a list of which of the identified communities, landowners, lawful occupiers, and other interested and affected parties were in fact consulted.

A I&APs Register has been opened and will continuously be updated as necessary (i.e., with new contact details, new I&APs etc.). Such a register will be submitted to the Competent Authority as part of the FBAR in accordance with Regulation 42 of the NEMA EIA Regulations of 2014, as amended. Refer to **Table 2** below for the list of I&APs that received written notification.

5.3. Provide a list of their views raised in regard to the existing cultural, socioeconomic or biophysical environment, as the case may be.

No comments have been received to date. The FBAR will be updated with comments received during the commenting period.

5.4. Provide a list of their views raised on how their existing cultural, socio-economic or biophysical environment potentially will be impacted on by the proposed prospecting or mining operation

No comments have been received to date. The FBAR will be updated with comments received during the commenting period

5.5. Provide list of any other concerns raised by the aforesaid parties

No concerns have been received to date.

5.6. Provide the applicable minutes and records of the consultations as appendices

No meetings have been held to date.

5.7. Provide information with regard to any objections received

No objections have been received to date.

Table 2: List of I&APs, issues and EAP Responses

Interested and Affected Parties		Date Received	Issues raised	EAP's Response to the issues raised	Section Referenced
Affected Parties					
Landowners					
Northam is the legal owner of the property RE of Portion 1 of Kopje Alleen 422 KQ					
Lawful occupier/s of the land					
ZM is the lawful occupier of the land.					
Landowners or lawful occupiers on adjacent properties					
					Annexure B
Portion 0 and 2 of Kopje Alleen 422 KQ &Portion 1 Witvley 423 KQ – Leon Edmund	*X*	*2023/07/13*	Notified via registered post. No comments received to date.		
Portion 3 Witvley 423 KQ - Hendrick Le Roux	*X*	*2023/07/13*	Notified via registered post. No comments received to date.		
RE Witvley 423 KQ – G.J. EHLERS BOERDERY PTY LTD	*X*	*2023/0713*	Notified via registered post. No comments received to date.		
Municipal councillor					
Ward 11 – Prospecting Area situated in this Ward. *Ms. M. Matsietsa*	*X*	*2023/07/12*	*Notified via registered post.* *No comments received to date.*		***Annexure B***
Municipality					
Waterberg District Municipality;	*X*	*2023/07/12*	*Notified via email.* *No comments received to date.*		***Annexure B***

Interested and Affected Parties		Date Received	Issues raised	EAP's Response to the issues raised	Section Referenced
Thabazimbi Local Municipality;	*X*	*2023/07/12*	*Notified via email.* *No comments received to date.*		
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWS etc.					
LDEDET - Director EIA	*X*		*Notified via email.* *No comments received to date.*		***Appendix 7*** ***Annexure B of the RRC***
DWS - Northwest (Hartebeespoort Dam)	*X*		*Notified via email.* *No comments received to date.*		
DMRE – Case officer	*X*		*Notified via email.* *No comments received to date.*		
SAHRA	*X*	*2023/07/20*	The SAHRA Development Applications Unit (DAU) requests that an application specific assessment of the impact to heritage resources must be undertaken as part of the EA process that complies with section 38(3) of the NHRA as required by section 38(8) of the NHRA. The HIA must include an archaeological component. The field-based archaeological component of the HIA must be conducted by a qualified archaeologist and must comply with the SAHRA 2007 Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment Reports (see www.asapa.co.za or www.aphp.org.za for a list of qualified archaeologists). The proposed development is located within an area of insignificant Palaeontological Sensitivity as per the SAHRIS PalaeoSensitivity map. As such, no further assessment of the impact to Palaeontological resources is required.	*A desktop Heritage Assessment was undertaken by CTS Heritage and the report uploaded on SAHRIS along with the revised DBAR.*	

Interested and Affected Parties		Date Received	Issues raised	EAP's Response to the issues raised	Section Referenced
			Any other heritage resources as defined in section 3 of the NHRA that may be impacted, such as built structures over 60 years old, sites of cultural significance associated with oral histories, burial grounds and graves, graves of victims of conflict, and cultural landscapes or viewscapes must also be assessed. The applicant is advised to extend the EA process in terms of section 19(1)b of NEMA in order to address this comment. Further comments will be issued upon receipt of the above requested report and a revised DBAR that incorporates the results of the HIA.		
Dept. Environmental, Fisheries and Forestry					
Director: Environmental Authorisations	*X*		*Notified via email.* *No comments received to date.*		***Annexure B***
Other Competent Authorities					
Department of Agriculture, Land Reform and Rural Development (DALRRL): - Land Claims Commissioner	*X*		*Notified via email.* *No comments received to date.*		***Annexure B***
Department of Public Works Road and Transport	*X*		*Notified via email.* *No comments received to date.*		
Other Affected Parties					
				Will be included as identified.	***Annexure B***
Interested Parties					
				Will be included as identified.	***Annexure B***

6. Describe the most appropriate means to carry out the proposed operation with due accommodation of the issues raised in the consultation process

No issues raised to date. The FBAR will be updated with issues raised during the commenting period.

C. IDENTIFICATION OF THE REPORT

The report on the results of consultation must, at the end of the report include a certificate of identification as follows

Herewith I, the person whose name and identity number is stated below, confirm that I am the person authorised to act as representative of the applicant in terms of the resolution submitted with the application, and confirm that the above report comprises the results of consultation as contemplated in Section 16 (4) (b) or 27 (5) (b) of the Act, as the case may be.	
Full Names and Surname	**Thomas Willem Olivier**
Identity Number	**8605305109082**

- END

ANNEXURE A: NOTIFICATION DOCUMENTATION

A.1 - COPY OF NOTIFICATION LETTER

uKhozi (Pty) Ltd
ENVIRONMENTALISTS

Date: 13 July 2023

Applicant: Northam Platinum Limited
Environmental Assessment Practitioners: uKhozi Environmentalists (Pty) Ltd in association with JEMS (Pty) Ltd
DMRE Ref No: LP30/5/1/1/2/14909PR

Dear Stakeholder/Interested and Affected Party

NOTICE OF APPLICATION FOR ENVIRONMENTAL AUTHORISATION FOR THE KOPJE ALLEEN PROSPECTING RIGHT BY ZONDEREINDE MINE

Notice is hereby given in terms of Chapter 6 of the National Environment Management Act (Act No. 107 of 1998) under Regulation 40 of the EIA Regulations (GNR 326) and Government Notice No. R807 (NEMA Public Participation Guidelines) that Northam Platinum Limited (hereafter referred to as the Applicant) submitted an application for a Prospecting Right in terms of Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) and Environmental Authorisation (EA) in terms of Section 24(5) of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA), to prospect for Iron, Vanadium, Titanium and related metals over the Remaining Extent (RE) of Portion 1 of the Farm Kopje Alleen 422 KQ situated in the in the Thabazimbi Local Municipality of Limpopo Province.

The Prospecting Area is approximately 1 167 hectares in extent and is situated between the towns of Northam and Thabazimbi. The Zondereinde Platinum Mine (ZM) of Northam (the current Applicant) is immediately adjacent to the north of the Prospecting Area. The northern portion of the Prospecting Area is held under Northam's existing Mining Right LP37MR but for different minerals to that included in this prospecting right application. Refer to **Annexure A** for the Locality Map. The prospecting operation will comprise the following activities:

- a desktop study,
- collation of existing data and project planning,
- surface geological mapping,
- geochemical sampling,
- geophysical sampling and analysis,
- borehole drilling and sampling (**two boreholes**),
- trenching and sampling (**three trenches**)
- modelling/ore resource estimation.

The Department of Mineral Resources and Energy (DMRE) accepted the application and instructed the Applicant to proceed with the public participation and relevant EA process. uKhozi Environmentalists (Pty) Ltd (uKhozi) in association with JEMS (Pty) Ltd (JEMS) was subsequently appointed as the independent Environmental Assessment Practitioner (EAP), to facilitate the application process. An integrated application for a Prospecting Right and associated Environmental Authorisation will be followed with the DMRE Limpopo Regional Office acting as the Competent Authority. A Basic Assessment Process is required, as stipulated in GNR326 EIA Regulation 19, in support of the Environmental Authorisation application for triggering the following listed activity:

uKhozi Environmentalists (Pty) Ltd. (2004/013846/07 t/a "uKhozi").
PO Box 72684, Lynwood Ridge, 0040
Tel +27 (0)82 521 8870 Fax +27 (0)86 767 8072 Web address: www.ukhozi-enviro.co.za
Directors: Inus de Wit; Tommy Olivier

APPLICABLE LISTING NOTICE (GNR 324, GNR 325 or GNR 327, AS AMENDED JUNE 2021)	ACTIVITY NO.	DESCRIPTION OF ACTIVITY
GNR 327 (LISTING NOTICE 1)	20	*Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the MPRDA, including-* *(a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource*

The Public Participation Process will be conducted in accordance with Regulations 41-44 of the GNR326. Through the consultation process you are offered an opportunity to voice your opinions and concerns with regards to the application and have them formally recorded and registered as such to be considered by the DMRE in the decision-making process.

The Draft Basic Assessment Report ("DBAR") will be available for public review for a period of 30 days from **14 July 2023 to 14 August 2023**. Electronic copies of the DBAR are available on request from the Public Participation Office (details below). Hard copies of the DBAR will be available at the Zondereinde Mine Security Office.

If you require further information on the application and/or activity, please submit your name, contact information, interest, and relevant issues in the matter in writing to the Public Participation Office. **I&APs are requested to please refer to the DMRE's Reference number in all correspondence.**

Public Participation Office:
uKhozi Environmentalists (Pty) Ltd in association with JEMS (Pty) Ltd
Person: Stephan Barkhuizen/Tommy Olivier
Tel number: 083 776 7898/ 082 521 8870
Fax number: 086 658 3132
Postal address: P.O. 92269, MOOIKLOOF, 0059
Email: stephan@jems.co.za / tommy@ukhozi-enviro.co.za

We thank you for your participation in this application.

Yours faithfully

Tommy Olivier
Practitioner: uKhozi-Environmentalists
Email: tommy@ukhozi-enviro.co.za
Cell: 082 521 8870
Fax: 086 767 8072

2

A.2 - PRESS NOTICE (PLATIUM BUSHVELDER)

SPORT and more!

"Brave is to just do it!" says Maya

The definition of 'brave' *adjective*
: ready to face and endure danger or pain; showing courage.

Thabazimbi – October 2017 was the start of a nerve-racking journey for the Broekhuizen-family of Thabazimbi. Maya, their 11-year-old daughter showed signs of a common cold. A week later Maya's legs became weak, she fell, couldn't stand, and had difficulty breathing as a vicious viral infection started slowly draining life from this once healthy body.
Dr Janamari du Plessis in Thabazimbi diagnosed Maya with Guillain Barré syndrome (GBS), and immediately the fight for Maya's life began with an emergency ambulance ride to Unitas hospital.
"Poor judgement at the emergency department, 12 gruelling hours waiting for a paediatrician, emergency tracheostomy, and two weeks of full ventilation while sedation followed. Another two weeks of ICU, using breathing and feeding tubes, several blood tests and Polygam treatment, was no easy feat," said Maya mother, Mathilda Broekhuizen.
After 32 days in ICU, Maya was moved to Muelmed Rehabilitation Centre.
"We went against doctors' and rehab specialists' recommendations and believed that prayers and a miracle will await us at home. Maya came home just before Christmas in a wheelchair, having to re-learn all movement and speech," said Aart Broekhuizen, Maya's father. "We kept believing that the Lord our God will heal her."
Maya was home-schooled from Grades 1-6. She completed her Grade 7 year in Laerskool van Wykskraal and started Grade 8 at High School Frikkie Meyer.
However, some of Maya's Guillain Barré symptoms lingered, including hypersensitivity on her feet, waking up with hand and arm tremors, speech impairment, and some slow movements. Her smile only returned five months after her hospitalisation.
"This journey has cemented our faith and every day we see a walking miracle," says Mathilda Broekhuizen, Maya's mother.
Their advice to all parents is to keep believing that the Lord Jesus Christ still works miracles. "Trust in the Lord and your ability to hear the Holy Spirit. Strong family ties are your weapon."
But they still had a long journey ahead of them. Dr Berna Faulds, a biokineticist in Thabazimbi, helped with daily exercise routines.
The family re-evaluated their life: emotionally they were off stronger, their faith grew, and Maya taught them perseverance.
Her perseverance paid off. She resumed with the family sport: archery. It was difficult at first to keep the bow straight and gain strength to pull the bow. But she is a warrior!
At the age of 17, Maya stepped into the Adult category and has proven herself worthy. As a junior archer, she competed at the World Field Archery 2022 in Estonia and set a new world record, and brought home Gold. At the recently held ARFAC 2023 in Windhoek, Namibia, she competed in the Adult Female Bowhunter Unlimited category. It was Gold for Maya with a well-deserving lead from day 1.
Maya said: "Brave is to just do it".
We need a new generation of brave youngsters who will tell their stories and be brave. You can follow Maya's story on Facebook: Maya GBS Wonder Woman.


An even bigger smile when Maya Broekhuizen received her Protea colours for the first time during her international participation at WFAC2022 in Estonia.


ARFAC 2022: Maya Broekhuizen (middle) receives Gold in the Adult Female Bowhunter Unlimited category in Windhoek, Namibia. On the left, Liezl Schoeman from Namibia received the bronze and Silver goes to Mathilda Broekhuizen (Maya's mom on the right).

Northam Rhino Rugbyklub vierde span

Northam Rhinos 4de span kook!

Northam – Die Northam Rhino Rugbyklub se vierde span het Saterdag 8 Julie 2023 kragte gemeet teen Pretoria Rugbyklub, en wen met 'n telling van 29-18. Ayabonga Bildokwe op nommer agt het twee puik drieë gedruk en is aangewys as speler van die wedstryd.
"Ons vierde span speel in die Blou Bulle se reserwe liga en is ook tans bo-aan die *log*," aldus afrigter Flip de Kock.

Northam Wolverines vs Pretoria Rugbyklub

Northam – Ons sien uit na Saterdag 15 Julie 2023 wanneer die Northam Wolverines teen Pretoria Rugbyklub kragte sal meet vir 'n Carlton League wedstryd, wat by die Millstream River Estate, Hartebeespoort, sal plaasvind.
Die eerste span se wedstryd skop om 16:00 af, die tweede span om 14:30 en die derde span om 13:00. Ingang fooie beloop R30 per persoon en die hekke open om 10uur die oggend.

Dewan gekies vir o/13 A Bokkie span!

Thabazimbi – Dewan Schlebusch van Laerskool Thabazimbi was by die AVS Bokkieweek in Kroonstad gekies vir die nasionale o/13 A Bokkie span. Hulle speel Saterdag 15 Julie 2023 'n wedstryd in Meyerton. Thabazimbi is trots op jou, Dewan!


Dewan Schlebusch presteer by AVS Bokkieweek.

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT APPLICATION

Notice is given, in terms of the 2014 EIA regulations (as amended in 2017) published in Government Notice No. R326 under Section 24(5) and 44 of the National Environmental Management Act (Act No. 107 of 1998), of the intent to lodge an Application for Environmental Authorisation and the undertaking of a Scoping and Environmental Impact Assessment Process (i.t.o. Listing Notice 1, 2 and 3 – G.N. R327, 325 & 324) for the following activity:
Project title: The Proposed Dwaalboom Solar 4 and 5 Photovoltaic Solar Energy Facilities and Associated Infrastructure near Northam, Limpopo Province.
Project description: The development of two (02) Photovoltaic Solar Energy Facilities (SEF) and associated infrastructure (on-site substation, Battery Energy Storage Solution (BESS), internal and perimeter access roads, operational and management buildings, temporary and permanent laydown areas, etc.). Each solar cluster will have a generation capacity as follows: Dwaalboom Solar 4 (Pty) Ltd up to 180 MW and Dwaalboom Solar 5 (Pty) Ltd up to 120 MW.
Project location: Dwaalboom Solar 4 (Pty) Ltd is located on Portion 22 of Farm Koedoesdoorn No. 414, Registration Division KQ, with an EIA footprint of approximately 360 ha. Dwaalboom Solar 5 (Pty) is located on Portion 2 of Farm Geovernements Plaats No. 414; Remaining Extent and Remaining Extent of Portion 3 of Farm Goevernements Plaats No. 414, Registration Division KQ, with an EIA footprint of approximately 250 ha. Dwaalboom Solar 4 and 5 are located within the Thabazimbi Local Municipality, Waterberg District. The town of Northam is located approximately 3 - 7 km southwest of the proposed SEF's.
Applicant: Dwaalboom Solar 4 (Pty) Ltd and Dwaalboom Solar 5 (Pty) Ltd
The Application for Environmental Authorisation will be submitted to the National Department of Forestry, Fisheries and the Environment (DFFE). In order to ensure that you are identified as an Interested and/or Affected Party (I&AP), please submit your name, contact information and interest in the project, in writing, to the contact details provided below within 30-days of publication of this advertisement. You will be notified once any draft documents are available for review and comment.
Consultant: Blue Crane Environmental
Roschel Maharaj | Cell: 063 062 7725
E-mail: dwaalboom@bcrane.co.za

Please scan the QR Code for a copy of the Background Information Document (BID) and Locality Map

WANT TO PLACE AN ADVERT? **CALL 014 592 0686**

NOTICE OF APPLICATION FOR ENVIRONMENTAL AUTHORISATION FOR THE KOPJE ALLEEN PROSPECTING RIGHT BY ZONDEREINDE MINE

An application for a Prospecting Right, in terms of Section 16 of the Mineral and Petroleum Resources Development Act (MPRDA), 28 of 2002, as last amended, along with an Environmental Authorisation application in terms of Section 24(5) and 44 of the National Environmental Management Act, 1998 (NEMA), has been lodged with the Department of Mineral Resources and Energy (DMRE), Limpopo Regional Office, to prospect for Iron, Vanadium, Titanium and related metals over the Remaining Extent (RE) of Portion 1 of the Farm Kopje Alleen 422 KQ situated in the in the Thabazimbi Local Municipality of Limpopo Province.
Applicant: Northam Platinum (Pty) Ltd, registration number 1977/003282/06
DMR Ref Number: LP30/5/1/1/2/14909PR
Applicable listed activity: GNR 327 (Listing Notice 1) Activity 20
Property Description: Remainder of Portion 1 of the Farm Kopje Alleen 422 KQ
Project Description: The proposed project will comprise of geologically mapping, geophysical survey, anomaly screening, two (2) boreholes and three (3) trenches for the prospecting area.
Availability of the Draft Basic Assessment Report:
The Draft Basic Assessment Report ("DBAR") will be available for public review for a period of 30 days from 14 July 2023 to 14 August 2023. Electronic copies of the DBAR are available on request from the Public Participation Office (details below). Hard copies of the DBAR will be available at the Zondereinde Mine Security Office and Northam Municipality Local Library.
Stakeholder Involvement:
Any person or party who is interested in, or who potentially may be affected by the proposed project is invited to register as an Interested and/or Affected Party (I&AP) to obtain more information on the project under application, and form part of the public participation process by submitting queries, comments and/or issues of concern to the Public Participation Office at:
uKhozi Environmentalists (Pty) Ltd in association with JEMS (Pty) Ltd
Person: Stephan Barkhuizen/Tommy Olivier
Tel number: 083 776 7898/ 082 521 8870 | **Fax number:** 086 658 3132
Postal address: P.O. 92269, MOOIKLOOF, 0059
Email: stephan@jems.co.za / tommy@ukhozi-enviro.co.za
I&APs are requested to please refer to the DMRE's Reference number in all correspondence.

WE KNOCK AND DROP FLYERS AND PAMPHLETS **CALL 072 026 0414**

NOTICE OF APPLICATION FOR A WATER USE LICENCE

Notice is hereby given in terms of Section 21 and Section 41(4) of the National Water Act (Act 36 of 1998), as amended, as well as in terms of Section 17, 18 and 19 of the Regulations Regarding the Procedural Requirements for Water Use License Applications and Appeals (GN 267 of 24 March 2017) that an Integrated Water Use License Application will be submitted to carry out the following activities:
Project description:
The abstraction of water from boreholes for agricultural irrigation as well as the storage of water in off-stream earth dams.
Water uses triggered:
21(a): The abstraction of groundwater from boreholes
21(b): Storage of water in off-stream earth dams and in-stream earth dams
Properties: Portion 1 of the farm Haakdoorndrift 373 KQ
Proponent: Haakdoorn Boerdery
Coordinates of site
24°41'10.61"S; 27°23'45.78"E
Contact Person:
Mr SJ Jansen van Rensburg
Tel: (072) 132 5544
Email: sj@jvrwater.co.za
JVR Water Consultants (Pty) Ltd
Should you wish to provide any comments, concerns or objections to this application please provide your written comments, concerns or objections to the contact person listed above on **or before the 13th of September 2023.** Should you wish to request additional information regarding the application please contact the contact person listed above. Should you require additional information it must be requested and commented on by 13th of September 2023. No comments received after the 13th of September 2023 will be included in the application.

A.3 – SITE NOTICES

Site Notice 1 - Northam Magistrate Court (24°57'29.27"S; 27°15'51.64"E)

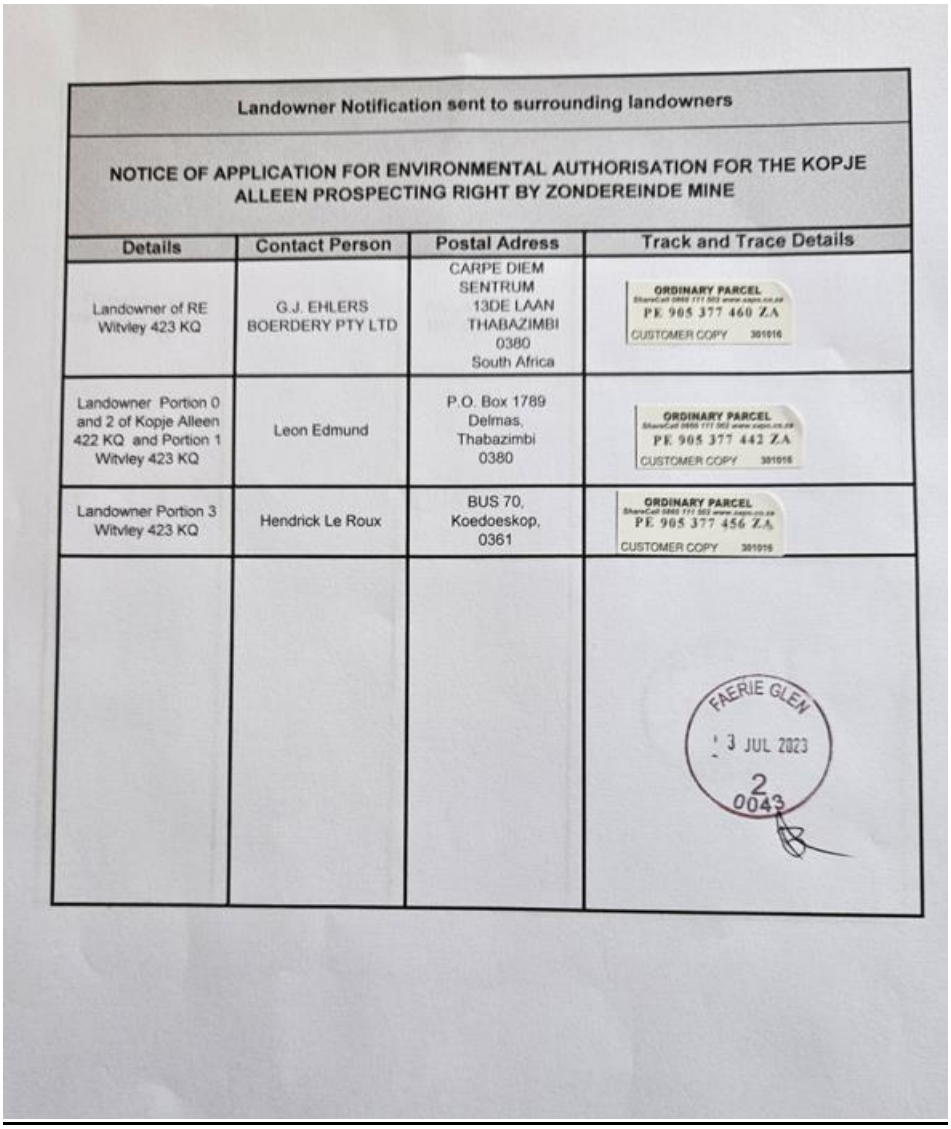
Site Notice 2 - Site Entrance of the Zondereinde Mine (24°49'58.95"S; 27°20'21.90"E)

Site Notice 3 - Setaria Village (24°47'31.86"S; 27°24'15.20"E)

Site Notice 4 - Road D56 along Southern Boundary of the PR Area (24°51'59.86"S; 27°22'39.49"E)

ANNEXURE B: WRITTEN NOTIFICATION

B.1 Landowners or lawful occupiers on adjacent properties

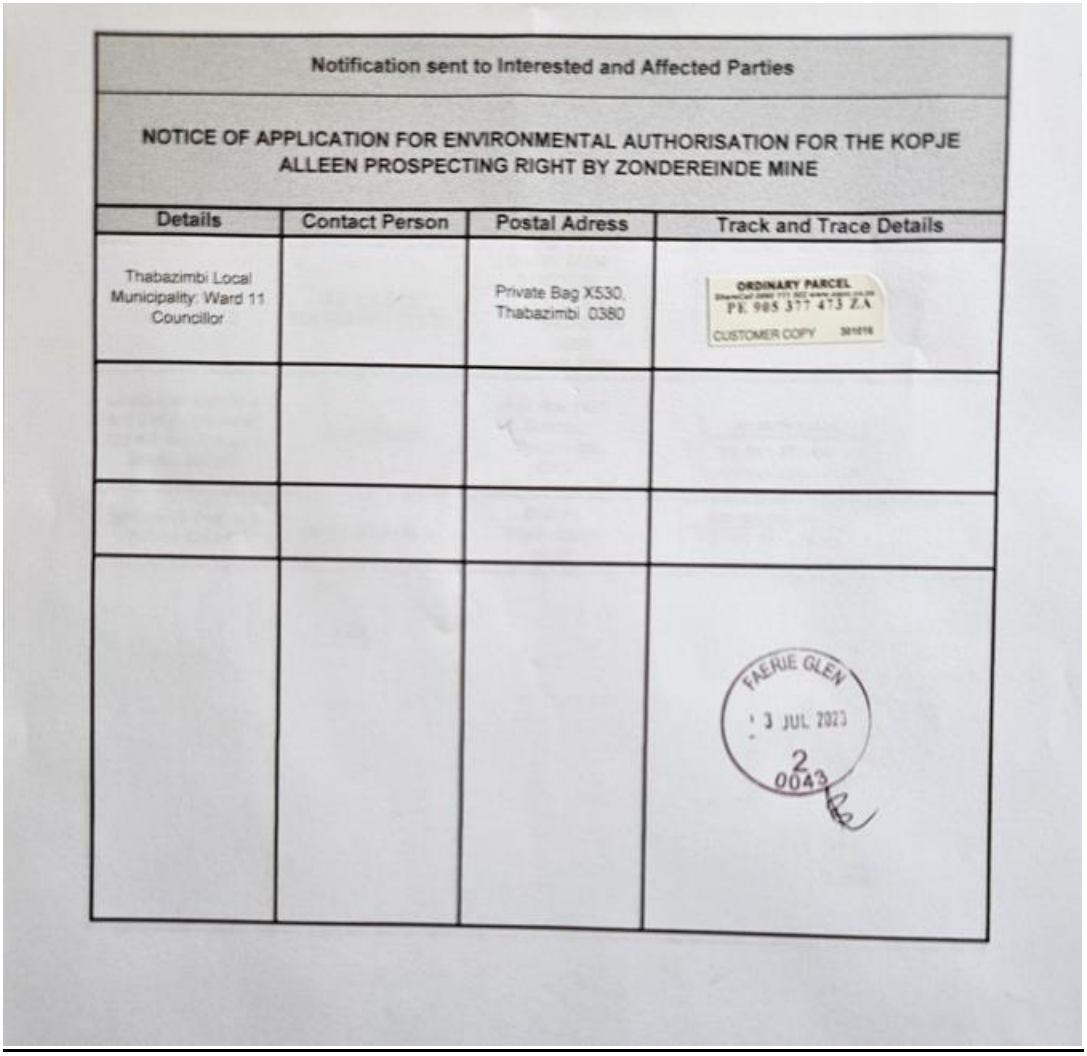


Landowner Notification sent to surrounding landowners

NOTICE OF APPLICATION FOR ENVIRONMENTAL AUTHORISATION FOR THE KOPJE ALLEEN PROSPECTING RIGHT BY ZONDEREINDE MINE

Details	Contact Person	Postal Adress	Track and Trace Details
Landowner of RE Witvley 423 KQ	G.J. EHLERS BOERDERY PTY LTD	CARPE DIEM SENTRUM 13DE LAAN THABAZIMBI 0380 South Africa	ORDINARY PARCEL PE 905 377 460 ZA CUSTOMER COPY
Landowner Portion 0 and 2 of Kopje Alleen 422 KQ and Portion 1 Witvley 423 KQ	Leon Edmund	P.O. Box 1789 Delmas, Thabazimbi 0380	ORDINARY PARCEL PE 905 377 442 ZA CUSTOMER COPY
Landowner Portion 3 Witvley 423 KQ	Hendrick Le Roux	BUS 70, Koedoeskop, 0361	ORDINARY PARCEL PE 905 377 456 ZA CUSTOMER COPY
			FAERIE GLEN 13 JUL 2023 2 0043

B.2 Municipality and Ward Councillor



Notification sent to Interested and Affected Parties

NOTICE OF APPLICATION FOR ENVIRONMENTAL AUTHORISATION FOR THE KOPJE ALLEEN PROSPECTING RIGHT BY ZONDEREINDE MINE

Details	Contact Person	Postal Adress	Track and Trace Details
Thabazimbi Local Municipality: Ward 11 Councillor		Private Bag X530, Thabazimbi 0380	ORDINARY PARCEL PE 985 377 473 ZA CUSTOMER COPY
			FAERIE GLEN 13 JUL 2023 0043

NOTICE OF BAR PROCESS - PROSPECTING RIGHT APPLICATION ON RE OF PORTION 1 OF KOPJE ALLEEN 422 KQ (DMRE REF: LP14909PR)

TE tommy@ukhozi-enviro.co.za
To 'tommy@ukhozi-enviro.co.za'
Bcc 'skoenaite@waterberg.gov.za'; 'vraphunga@waterberg.gov.za'; 'MthethwaNN@thabazimbi.gov.za'; 'nomfundo.mt@yahoo.com'; 'Twodays.molefe@gmail.com'

Reply | Reply All | Forward | ...
Thu 2023/07/13 12:54

Notification Letter_Kopje Alleen PR_Northam (LP14909PR).pdf
254 KB

Dear Stakeholder

NOTIFICATION OF PUBLIC PARTICIPATION PROCESS AS PART OF THE ENVIRONMENTAL AUTHORISATION APPLICATION FOR THE PROSPECTING RIGHT APPLICATION BY NORTHAM PLATINUM LIMITED ON THE REMAINING EXTENT OF PORTION 1 OF THE FARM KOPJE ALLEEN 422 KQ SITUATED IN THE IN THE THABAZIMBI LOCAL MUNICIPALITY OF LIMPOPO PROVINCE

This email serves as notification of the application processes currently underway for Northam Platinum Limited (Northam) pertaining to the subject matter above and its related Public Participation Process. Interested and Affected Parties (I&APs) are hereby invited to register and provide their comments/questions on the proposed project and related application processes as specified in the attached Notification Letter. To ensure that you are registered as an Interested and Affected Party (I&AP) and receive further information on this process, including a soft copy of the Draft Basic Assessment Report (DBAR), which will be available for comment from the **14th of July 2023 to the 14th of August 2023,** please submit your name, contact details and comments/questions to the contact persons given below:

Public Participation Office:
uKhozi Environmentalists (Pty) Ltd in association with JEMS (Pty) Ltd
Person: Stephan Barkhuizen/Tommy Olivier
Tel number: 083 776 7898/ 082 521 8870
Fax number: 086 658 3132
Postal address: P.O. 92269, MOOIKLOOF, 0059
Email: stephan@jems.co.za / tommy@ukhozi-enviro.co.za

The Public Participation Process will be conducted in accordance with Regulations 41-44 of the GNR326. Through the consultation process you are offered an opportunity to voice your opinions and concerns with regards to the application and have them formally recorded and registered as such to be considered by the DMRE in the decision-making process.

We thank you for your participation in this application.

B.3 Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWS etc)

NOTICE OF BAR PROCESS - PROSPECTING RIGHT APPLICATION ON RE OF PORTION 1 OF KOPJE ALLEEN 422 KQ (DMRE REF: LP14909PR)

TE tommy@ukhozi-enviro.co.za
To 'tommy@ukhozi-enviro.co.za'
Bcc 'mongwev@ledet.gov.za'; 'ramashalal@dws.gov.za'; 'MulaudziJ2@dws.gov.za'

Reply | Reply All | Forward
Thu 2023/07/13 12:54

Notification Letter_Kopje Alleen PR_Northam (LP14909PR).pdf
254 KB

Dear Stakeholder

NOTIFICATION OF PUBLIC PARTICIPATION PROCESS AS PART OF THE ENVIRONMENTAL AUTHORISATION APPLICATION FOR THE PROSPECTING RIGHT APPLICATION BY NORTHAM PLATINUM LIMITED ON THE REMAINING EXTENT OF PORTION 1 OF THE FARM KOPJE ALLEEN 422 KQ SITUATED IN THE IN THE THABAZIMBI LOCAL MUNICIPALITY OF LIMPOPO PROVINCE

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Public Participation Office:
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Person: Stephan Barkhuizen/Tommy Olivier
Tel number: 083 776 7898/ 082 521 8870
Fax number: 086 658 3132
Postal address: P.O. 92269, MOOIKLOOF, 0059
Email: stephan@jems.co.za / tommy@ukhozi-enviro.co.za

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We thank you for your participation in this application.

B.4 Dept. Environmental, Fisheries and Forestry

NOTICE OF BAR PROCESS - PROSPECTING RIGHT APPLICATION ON RE OF PORTION 1 OF KOPJE ALLEEN 422 KQ (DMRE REF: LP14909PR)

TE tommy@ukhozi-enviro.co.za
To 'tommy@ukhozi-enviro.co.za'
Bcc 'LAlade@environment.gov.za'; 'Imahlangu@environment.gov.za'

Reply | Reply All | Forward
Thu 2023/07/13 12:55

Notification Letter_Kopje Alleen PR_Northam (LP14909PR).pdf
254 KB

Dear Stakeholder

NOTIFICATION OF PUBLIC PARTICIPATION PROCESS AS PART OF THE ENVIRONMENTAL AUTHORISATION APPLICATION FOR THE PROSPECTING RIGHT APPLICATION BY NORTHAM PLATINUM LIMITED ON THE REMAINING EXTENT OF PORTION 1 OF THE FARM KOPJE ALLEEN 422 KQ SITUATED IN THE IN THE THABAZIMBI LOCAL MUNICIPALITY OF LIMPOPO PROVINCE

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Public Participation Office:
uKhozi Environmentalists (Pty) Ltd in association with JEMS (Pty) Ltd
Person: Stephan Barkhuizen/Tommy Olivier
Tel number: 083 776 7898/ 082 521 8870
Fax number: 086 658 3132
Postal address: P.O. 92269, MOOIKLOOF, 0059
Email: stephan@jems.co.za / tommy@ukhozi-enviro.co.za

The Public Participation Process will be conducted in accordance with Regulations 41-44 of the GNR326. Through the consultation process you are offered an opportunity to voice your opinions and concerns with regards to the application and have them formally recorded and registered as such to be considered by the DMRE in the decision-making process.

We thank you for your participation in this application.

B.5 Other Competent Authorities

NOTICE OF BAR PROCESS - PROSPECTING RIGHT APPLICATION ON RE OF PORTION 1 OF KOPJE ALLEEN 422 KQ (DMRE REF: LP14909PR)

TE tommy@ukhozi-enviro.co.za
To 'tommy@ukhozi-enviro.co.za'
Bcc 'newsroom@dpw.limpopo.gov.za'; 'landclaims@dalrrd.gov.za'; 'Lebjane.Maphutha@dalrrd.gov.za'

Reply | Reply All | Forward
Thu 2023/07/13 12:55

Notification Letter_Kopje Alleen PR_Northam.pdf
254 KB

Dear Stakeholder

NOTIFICATION OF PUBLIC PARTICIPATION PROCESS AS PART OF THE ENVIRONMENTAL AUTHORISATION APPLICATION FOR THE PROSPECTING RIGHT APPLICATION BY NORTHAM PLATINUM LIMITED ON THE REMAINING EXTENT OF PORTION 1 OF THE FARM KOPJE ALLEEN 422 KQ SITUATED IN THE IN THE THABAZIMBI LOCAL MUNICIPALITY OF LIMPOPO PROVINCE

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Public Participation Office:
uKhozi Environmentalists (Pty) Ltd in association with JEMS (Pty) Ltd
Person: Stephan Barkhuizen/Tommy Olivier
Tel number: 083 776 7898/ 082 521 8870
Fax number: 086 658 3132
Postal address: P.O. 92269, MOOIKLOOF, 0059
Email: stephan@jems.co.za / tommy@ukhozi-enviro.co.za

The Public Participation Process will be conducted in accordance with Regulations 41-44 of the GNR326. Through the consultation process you are offered an opportunity to voice your opinions and concerns with regards to the application and have them formally recorded and registered as such to be considered by the DMRE in the decision-making process.

We thank you for your participation in this application.

ANNEXURE C: IAP REGISTRATIONS, WRITTEN RESPONSES AND EAP RESPONSE

C.1 SAHRIS Development Unit

KOPJE ALLEEN PROSPECTING RIGHT APPLICATION BY ZONDEREINDE MINE

Our Ref:

an agency of the
Department of Arts and Culture

T: +27 21 462 4502 | F: +27 21 462 4509 | E: info@sahra.org.za
South African Heritage Resources Agency | 111 Harrington Street | Cape Town
P.O. Box 4637 | Cape Town | 8001
www.sahra.org.za

Enquiries: Annlin Matabane
Tel: 0123204964
Email: amatabane@sahra.org.za
CaseID: 21871

Date: Thursday July 20, 2023
Page No: 1

Interim Comment

In terms of Section 38(4), 38(8) of the National Heritage Resources Act (Act 25 of 1999)

Attention: Northam Platinum Limited

Northam Platinum Limited, has submitted an application for an environmental authorisation under NEMA to the DMRE to prospect for Iron, Vanadium, Titanium and related metals over the Remaining Extent (RE) of Portion 1 of the Farm Kopje Alleen 422 KQ situated in the in the Thabazimbi Local Municipality of Limpopo Province.

uKhozi Environmentalists (Pty) Ltd in association with JEMS (Pty) Ltd was appointed by Northam Platinum Limited to facilitate the Prospecting Right and Environmental Authorisation application process, has submitted an application for an environmental authorisation under NEMA to the DMRE to prospect for Iron, Vanadium, Titanium and related metals over the Remaining Extent (RE) of Portion 1 of the Farm Kopje Alleen 422 KQ situated in the in the Thabazimbi Local Municipality of Limpopo Province (DMRE LP30/5/1/1/2/14909 PR).

A Draft Basic Assessment (DBAR) has been submitted in terms of the National Environmental Management Act, 1998 (NEMA) and the EIA Regulations for activities that trigger the Mineral and Petroleum Resources Development Act, 2002 (MPRDA)(as amended). The proposed prospecting activities will include a desktop study, collation of existing data and project planning, surface geological mapping, geochemical sampling, geophysical sampling and analysis, borehole drilling and sampling (two boreholes), trenching and sampling, and ultimately (three trenches) modelling/ore resource estimation.

The DBAR references previous assessment of the impacts to heritage resources for other development applications on the same property, however, no application specific assessment of the impact to heritage resources has been submitted that complies with section 38(3) of the National Heritage Resources Act, Act 25 of 1999 (NHRA).

Interim Comment

The SAHRA Development Applications Unit (DAU) requests that an application specific assessment of the impact to heritage resources must be undertaken as part of the EA process that complies with section 38(3) of the NHRA as required by section 38(8) of the NHRA. The HIA must include an archaeological component.

KOPJE ALLEEN PROSPECTING RIGHT APPLICATION BY ZONDEREINDE MINE

Our Ref:

an agency of the
Department of Arts and Culture

T: +27 21 462 4502 | F: +27 21 462 4509 | E: info@sahra.org.za
South African Heritage Resources Agency | 111 Harrington Street | Cape Town
P.O. Box 4637 | Cape Town | 8001
www.sahra.org.za

Enquiries: Annlin Matabane
Tel: 0123204964
Email: amatabane@sahra.org.za
CaseID: 21871

Date: Thursday July 20, 2023
Page No: 2

The field-based archaeological component of the HIA must be conducted by a qualified archaeologist and must comply with the SAHRA 2007 Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment Reports (see www.asapa.co.za or www.aphp.org.za for a list of qualified archaeologists).

The proposed development is located within an area of insignificant Palaeontological Sensitivity as per the SAHRIS PalaeoSensitivity map. As such, no further assessment of the impact to Palaeontological resources is required.

Any other heritage resources as defined in section 3 of the NHRA that may be impacted, such as built structures over 60 years old, sites of cultural significance associated with oral histories, burial grounds and graves, graves of victims of conflict, and cultural landscapes or viewscapes must also be assessed.

The applicant is advised to extend the EA process in terms of section 19(1)b of NEMA in order to address this comment. Further comments will be issued upon receipt of the above requested report and a revised DBAR that incorporates the results of the HIA.

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully

Annlin Matabane
Heritage Officer
South African Heritage Resources Agency

KOPJE ALLEEN PROSPECTING RIGHT APPLICATION BY ZONDEREINDE MINE

Our Ref:

an agency of the
Department of Arts and Culture

T: +27 21 462 4502 | F: +27 21 462 4509 | E: info@sahra.org.za
South African Heritage Resources Agency | 111 Harrington Street | Cape Town
P.O. Box 4637 | Cape Town | 8001
www.sahra.org.za

Enquiries: Annlin Matabane
Tel: 0123204964
Email: amatabane@sahra.org.za
CaseID: 21871

Date: Thursday July 20, 2023
Page No: 3

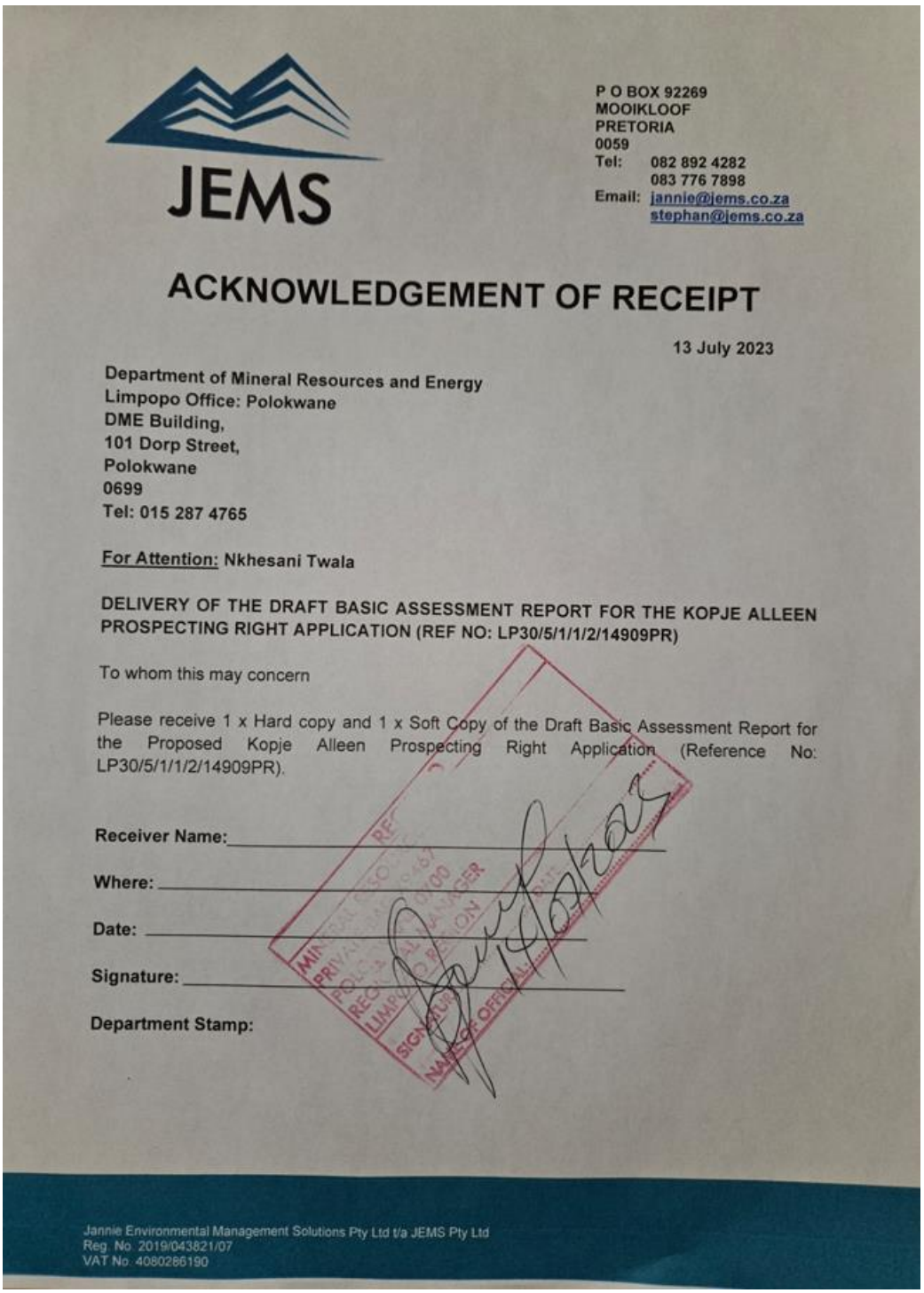
Natasha Higgitt
Manager: Development Applications Unit
South African Heritage Resources Agency

ADMIN:
Direct URL to case: https://sahris.sahra.org.za/node/620645
(DMR, Ref: LP30/5/1/1/2/14909PR)

ANNEXURE D: PROOF OF AVAILABILITY OF DRAFT BAR

D.1 Hard copies

D.1.1 DMRE



JEMS

P O BOX 92269
MOOIKLOOF
PRETORIA
0059
Tel: 082 892 4282
083 776 7898
Email: jannie@jems.co.za
stephan@jems.co.za

ACKNOWLEDGEMENT OF RECEIPT

13 July 2023

Department of Mineral Resources and Energy
Limpopo Office: Polokwane
DME Building,
101 Dorp Street,
Polokwane
0699
Tel: 015 287 4765

For Attention: Nkhesani Twala

DELIVERY OF THE DRAFT BASIC ASSESSMENT REPORT FOR THE KOPJE ALLEEN PROSPECTING RIGHT APPLICATION (REF NO: LP30/5/1/1/2/14909PR)

To whom this may concern

Please receive 1 x Hard copy and 1 x Soft Copy of the Draft Basic Assessment Report for the Proposed Kopje Alleen Prospecting Right Application (Reference No: LP30/5/1/1/2/14909PR).

Receiver Name: _____

Where: _____

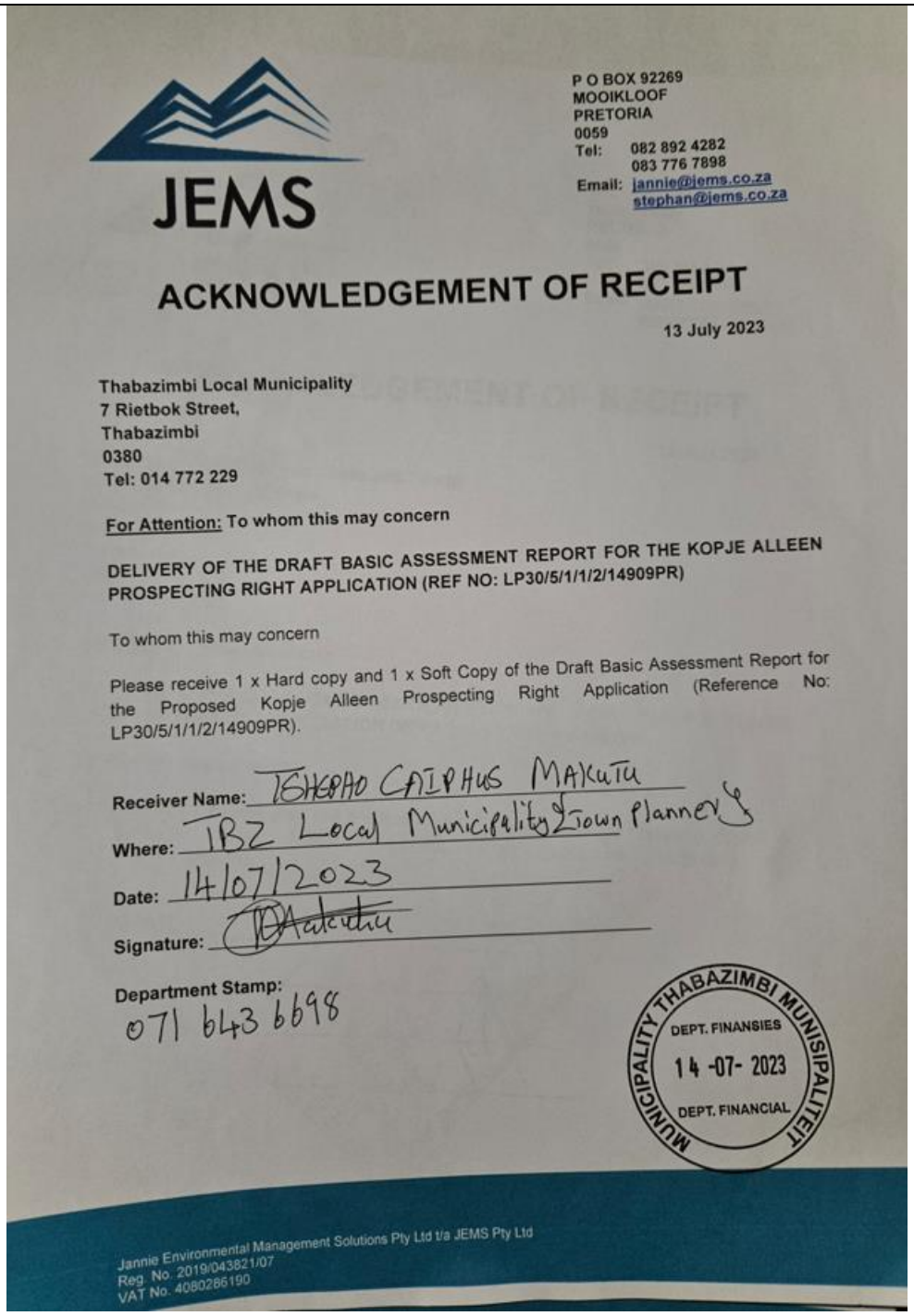
Date: _____

Signature: _____

Department Stamp:

Jannie Environmental Management Solutions Pty Ltd t/a JEMS Pty Ltd
Reg. No. 2019/043821/07
VAT No. 4080286190

D.1.2 Thabazimbi Local Municipality



JEMS

P O BOX 92269
MOOIKLOOF
PRETORIA
0059
Tel: 082 892 4282
083 776 7898
Email: jannie@jems.co.za
stephan@jems.co.za

ACKNOWLEDGEMENT OF RECEIPT

13 July 2023

Thabazimbi Local Municipality
7 Rietbok Street,
Thabazimbi
0380
Tel: 014 772 229

For Attention: To whom this may concern

DELIVERY OF THE DRAFT BASIC ASSESSMENT REPORT FOR THE KOPJE ALLEEN PROSPECTING RIGHT APPLICATION (REF NO: LP30/5/1/1/2/14909PR)

To whom this may concern

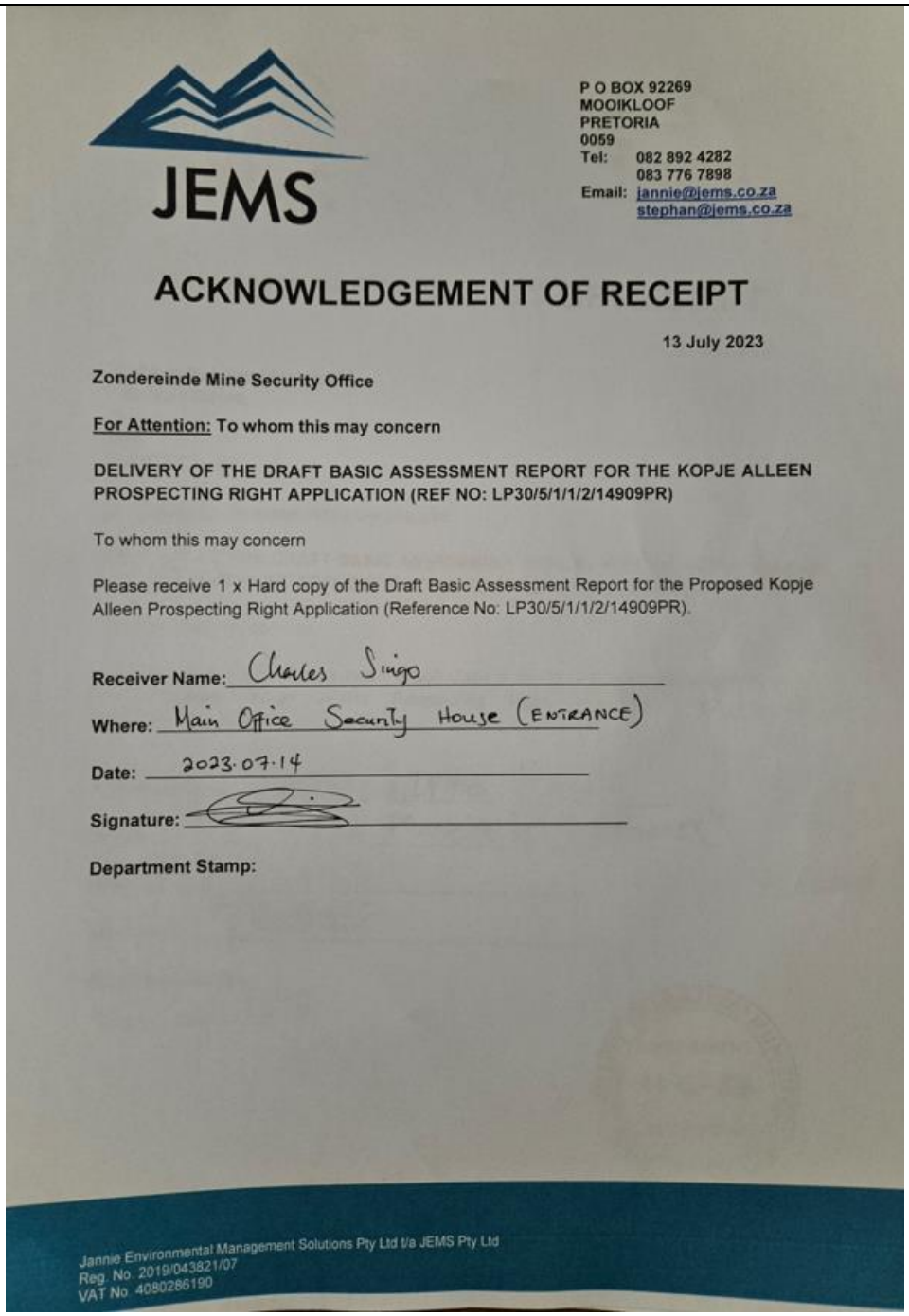
Please receive 1 x Hard copy and 1 x Soft Copy of the Draft Basic Assessment Report for the Proposed Kopje Alleen Prospecting Right Application (Reference No: LP30/5/1/1/2/14909PR).

Receiver Name: TSHEPHO CAIPHUS MAKUTU
Where: TBZ Local Municipality Town Planners
Date: 14/07/2023
Signature:
Department Stamp:
071 643 6698

MUNICIPALITY THABAZIMBI MUNISIPALITEIT
DEPT. FINANSIES
14 -07- 2023
DEPT. FINANCIAL

Jannie Environmental Management Solutions Pty Ltd t/a JEMS Pty Ltd
Reg. No. 2019/043821/07
VAT No. 4080286190

D.1.3 Zondereinde Mine



JEMS

P O BOX 92269
MOOIKLOOF
PRETORIA
0059
Tel: 082 892 4282
083 776 7898
Email: jannie@jems.co.za
stephan@jems.co.za

ACKNOWLEDGEMENT OF RECEIPT

13 July 2023

Zondereinde Mine Security Office

For Attention: To whom this may concern

DELIVERY OF THE DRAFT BASIC ASSESSMENT REPORT FOR THE KOPJE ALLEEN PROSPECTING RIGHT APPLICATION (REF NO: LP30/5/1/1/2/14909PR)

To whom this may concern

Please receive 1 x Hard copy of the Draft Basic Assessment Report for the Proposed Kopje Alleen Prospecting Right Application (Reference No: LP30/5/1/1/2/14909PR).

Receiver Name: Charles Siugo

Where: Main Office Security House (ENTRANCE)

Date: 2023.07.14

Signature:

Department Stamp:

Jannie Environmental Management Solutions Pty Ltd t/a JEMS Pty Ltd
Reg. No. 2019/043821/07
VAT No. 4080286190

D.1.4 DWS

JEMS

P O BOX 92269
MOOIKLOOF
PRETORIA
0059
Tel: 082 892 4282
083 776 7898
Email: jannie@jems.co.za
stephan@jems.co.za

ACKNOWLEDGEMENT OF RECEIPT

13 July 2023

Department of Water and Sanitation
North West Province – Hartebeespoort Offices
Physical Address: Old Rustenburg road
Hartebeespoort,
0216
Tel: 012 253 1046

For Attention: Cornea Theunissen

DELIVERY OF THE DRAFT BASIC ASSESSMENT REPORT FOR THE KOPJE ALLEEN Prospecting Right Application (Ref No: LP30/5/1/1/2/14909PR)

To whom this may concern

Please receive 1 x Hard copy and 1 x Soft Copy of the Draft Basic Assessment Report for the Proposed Kopje Alleen Prospecting Right Application (Reference No: LP30/5/1/1/2/14909PR).

Receiver Name: Bernard Mamorabela

Where: DWS Hartebees Poort

Date: 14/7/2023

Signature:

Department Stamp:

Jannie Environmental Management Solutions Pty Ltd t/a JEMS Pty Ltd
Reg. No. 2019/043821/07
VAT No. 4080286190

D.2 Soft copies

D.2.1 Local and District Municipality and Ward Councillor

DRAFT BAR FOR COMMENT - PROSPECTING RIGHT APPLICATION ON RE OF PORTION 1 OF KOPJE ALLEEN 422 KQ (DMRE REF: LP14909PR)

TE tommy@ukhozi-enviro.co.za
To 'tommy@ukhozi-enviro.co.za'
Bcc 'skoenaite@waterberg.gov.za'; 'vraphunga@waterberg.gov.za'; 'MthethwaNN@thabazimbi.gov.za'; 'nomfundo.mt@yahoo.com'; 'Twodays.molefe@gmail.com'

Reply | Reply All | Forward
Fri 2023/07/14 14:10

DRAFT BAR EMPR_KOPJE ALLEN PR APPLICATION.pdf
16 MB

Dear Stakeholder

COMMENTING PERIOD ON DRAFT BAR AS PART OF THE ENVIRONMENTAL AUTHORISATION APPLICATION FOR THE PROSPECTING RIGHT APPLICATION BY NORTHAM PLATINUM LIMITED ON THE REMAINING EXTENT OF PORTION 1 OF THE FARM KOPJE ALLEEN 422 KQ SITUATED IN THE IN THE THABAZIMBI LOCAL MUNICIPALITY OF LIMPOPO PROVINCE

Attached please find a copy of the Draft Basic Assessment Report (DBAR) pertaining to the subject matter above and its related Public Participation Process.

The DBAR is made available for a 30-day commenting period, from **14 July 2023 to 14 August 2023**. Please submit your comments in writing to the contact persons given below:

Public Participation Office:
uKhozi Environmentalists (Pty) Ltd in association with JEMS (Pty) Ltd
Person: Stephan Barkhuizen/Tommy Olivier
Tel number: 083 776 7898/ 082 521 8870
Fax number: 086 658 3132
Postal address: P.O. 92269, MOOIKLOOF, 0059
Email: stephan@jems.co.za / tommy@ukhozi-enviro.co.za

Please note, no comments received after the 14th of August 2023 will be included in the application.

We thank you for your participation in this application.

D.2.2 Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWS etc)

DRAFT BAR FOR COMMENT - PROSPECTING RIGHT APPLICATION ON RE OF PORTION 1 OF KOPJE ALLEEN 422 KQ (DMRE REF: LP14909PR)

TE tommy@ukhozi-enviro.co.za
To 'tommy@ukhozi-enviro.co.za'
Bcc 'mongwev@ledet.gov.za'; 'ramashalal@dws.gov.za'; 'MulaudziJ2@dws.gov.za'

Reply | Reply All | Forward
Fri 2023/07/14 14:11

DRAFT BAR EMPR_KOPJE ALLEN PR APPLICATION.pdf
16 MB

Dear Stakeholder

COMMENTING PERIOD ON DRAFT BAR AS PART OF THE ENVIRONMENTAL AUTHORISATION APPLICATION FOR THE PROSPECTING RIGHT APPLICATION BY NORTHAM PLATINUM LIMITED ON THE REMAINING EXTENT OF PORTION 1 OF THE FARM KOPJE ALLEEN 422 KQ SITUATED IN THE IN THE THABAZIMBI LOCAL MUNICIPALITY OF LIMPOPO PROVINCE

Attached please find a copy of the Draft Basic Assessment Report (DBAR) pertaining to the subject matter above and its related Public Participation Process.

The DBAR is made available for a 30-day commenting period, from **14 July 2023 to 14 August 2023**. Please submit your comments in writing to the contact persons given below:

Public Participation Office:
uKhozi Environmentalists (Pty) Ltd in association with JEMS (Pty) Ltd
Person: Stephan Barkhuizen/Tommy Olivier
Tel number: 083 776 7898/ 082 521 8870
Fax number: 086 658 3132
Postal address: P.O. 92269, MOOIKLOOF, 0059
Email: stephan@jems.co.za / tommy@ukhozi-enviro.co.za

Please note, no comments received after the 14th of August 2023 will be included in the application.

We thank you for your participation in this application.

Regards

D.2.3 Dept. Environmental, Fisheries and Forestry

DRAFT BAR FOR COMMENT - PROSPECTING RIGHT APPLICATION ON RE OF PORTION 1 OF KOPJE ALLEEN 422 KQ (DMRE REF: LP14909PR)

TE tommy@ukhozi-enviro.co.za
To 'tommy@ukhozi-enviro.co.za'
Bcc 'LAlade@environment.gov.za'; 'lmahlangu@environment.gov.za'

Reply | Reply All | Forward
Fri 2023/07/14 14:11

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16 MB

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Postal address: P.O. 92269, MOOIKLOOF, 0059
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Regards

D.2.4 Other Competent Authorities

DRAFT BAR FOR COMMENT - PROSPECTING RIGHT APPLICATION ON RE OF PORTION 1 OF KOPJE ALLEEN 422 KQ (DMRE REF: LP14909PR)

TE tommy@ukhozi-enviro.co.za
To 'tommy@ukhozi-enviro.co.za'
Bcc 'newsroom@dpw.limpopo.gov.za'; 'landclaims@dalrrd.gov.za'; 'Lebjane.Maphutha@dalrrd.gov.za'

Reply | Reply All | Forward
Fri 2023/07/14 14:11

DRAFT BAR EMPR_KOPJE ALLEN PR APPLICATION.pdf
16 MB

Dear Stakeholder

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Email: stephan@jems.co.za / tommy@ukhozi-enviro.co.za

Please note, no comments received after the 14th of August 2023 will be included in the application.

We thank you for your participation in this application.

Regards

APPENDIX 3:

MAPS AND PLANS

Amandelbult mine

Zondereinde mine

R511

R510

A

B

C

D

E

NORTHAM

Koedoeskop

N

0 10 20 km

Corner points
Application Area
Towns
Farm boundaries
Provincial road
Secondary road
Gravel road

The application area comprises:
Farm: Kopje Alleen 422KQ
Portion: Remaining extent of 1
Magisterial District: Thabazimbi
Province: Limpopo
Extent of property: 1167.3865 hectares
SG code: T0KQ00000000042200001
The application area is defined by the corner points: ABCDEA

Point	Latitude	Longitude
A	-24.8360	27.3696
B	-24.8644	27.3843
C	-24.8699	27.3700
D	-24.8562	27.3308
E	-24.8490	27.3309

Coordinate system: WGS1984
Datum: WGS1984

A

B

C

D

E

Kopje Alleen 422KQ RE of pt1

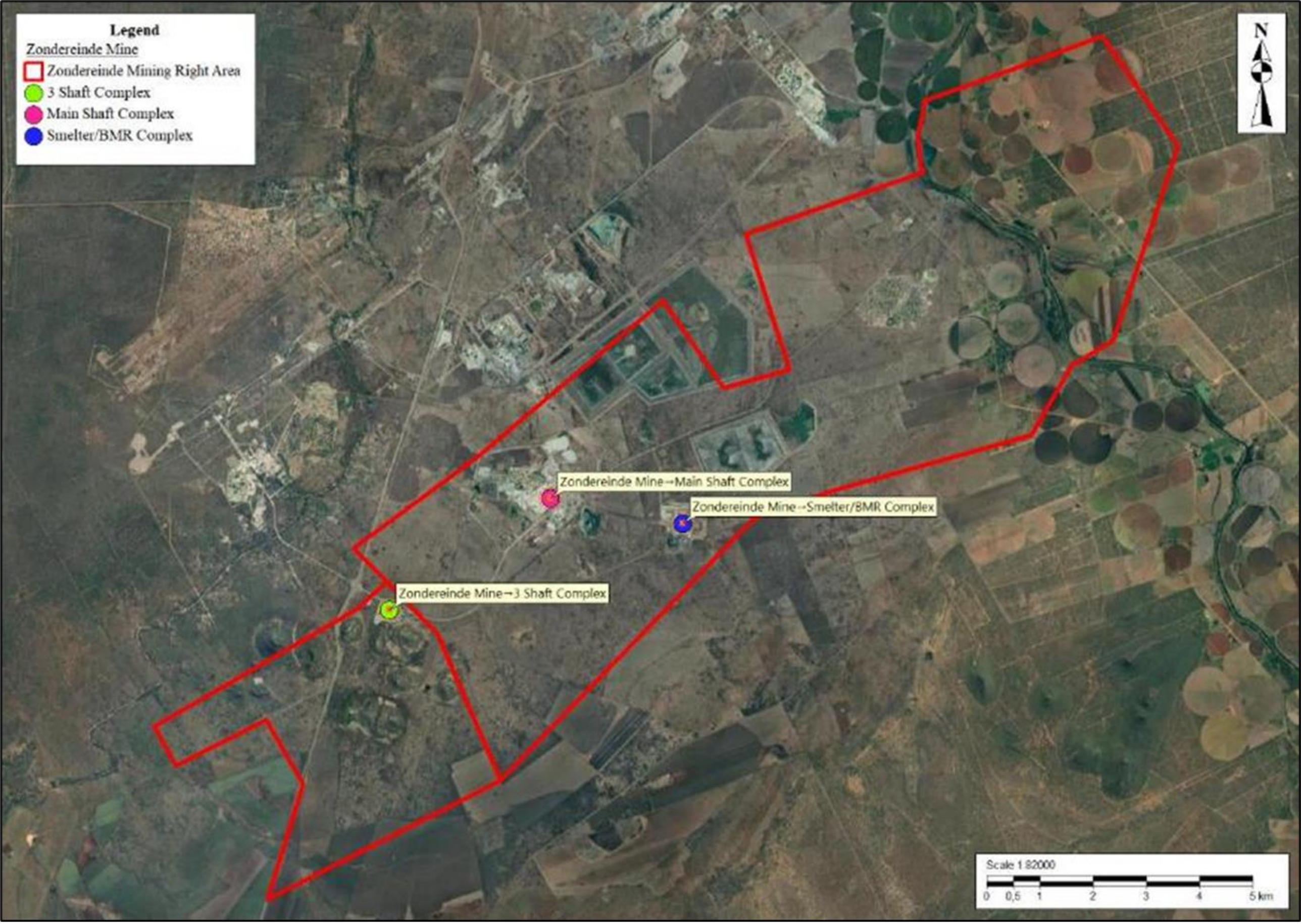
- Corner points
- Application Area
- Farm boundaries
- Provincial road
- Secondary road
- Gravel road
- Rivers
- Topographic contours mamsl

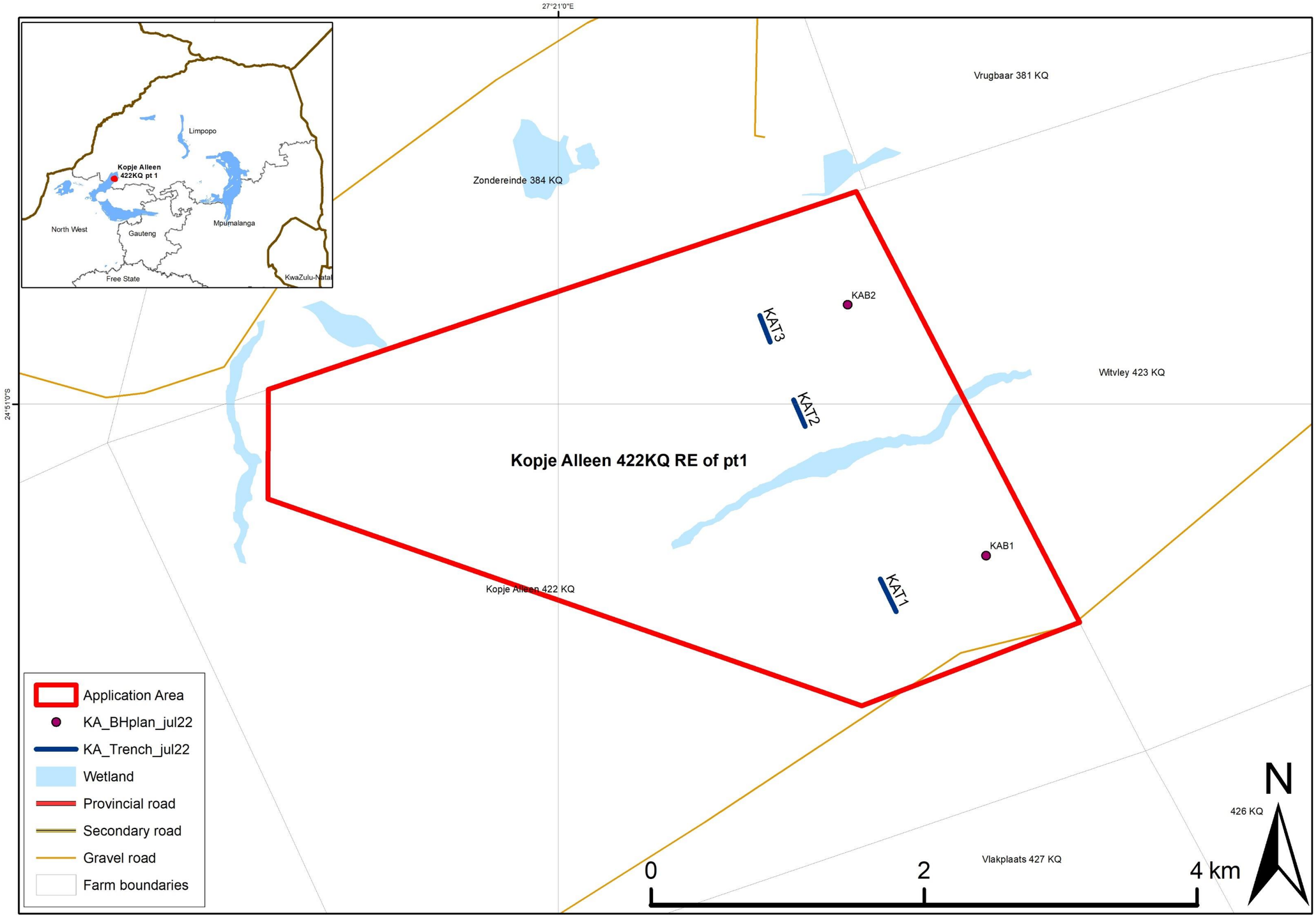
0 2 4 km

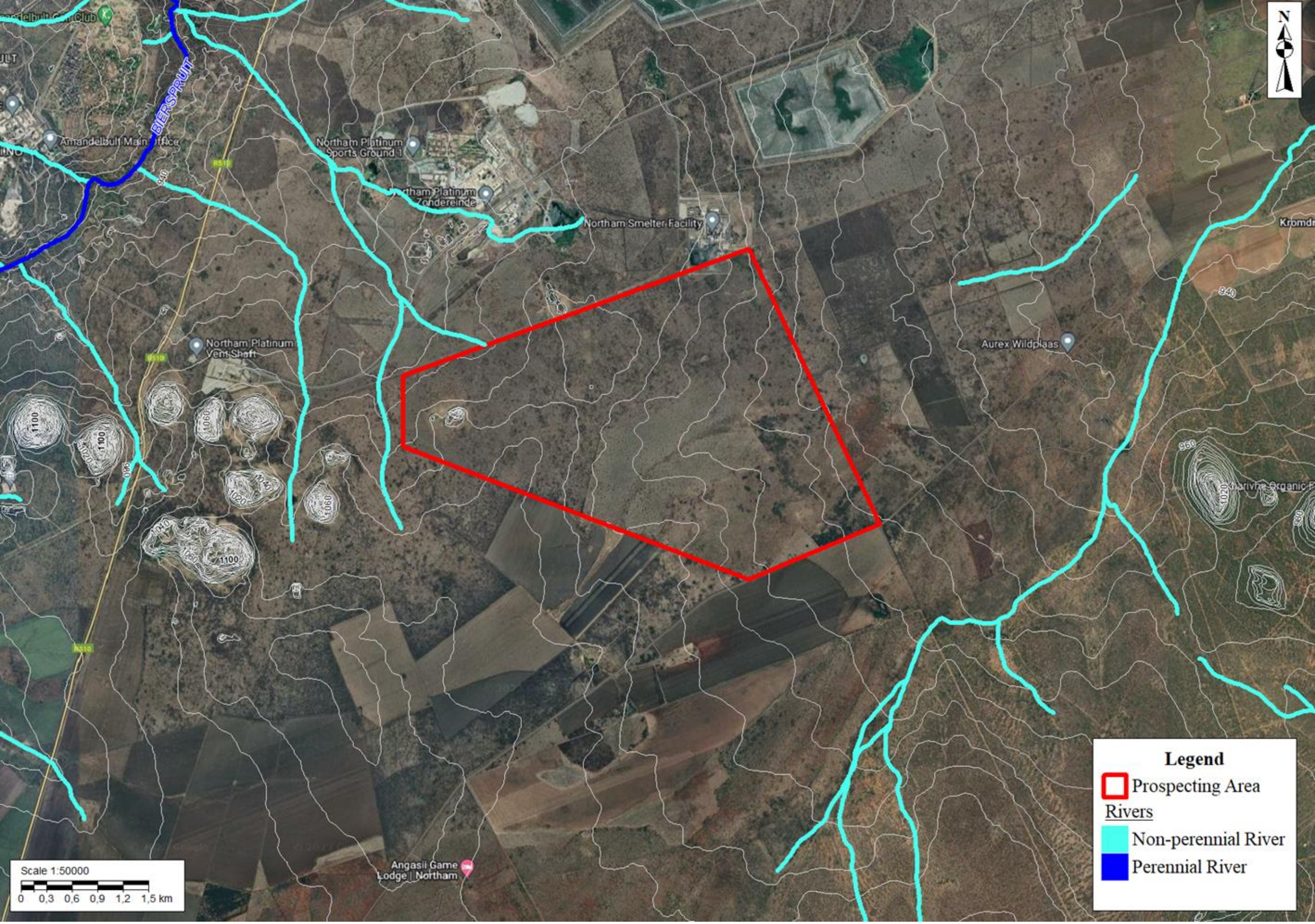
N

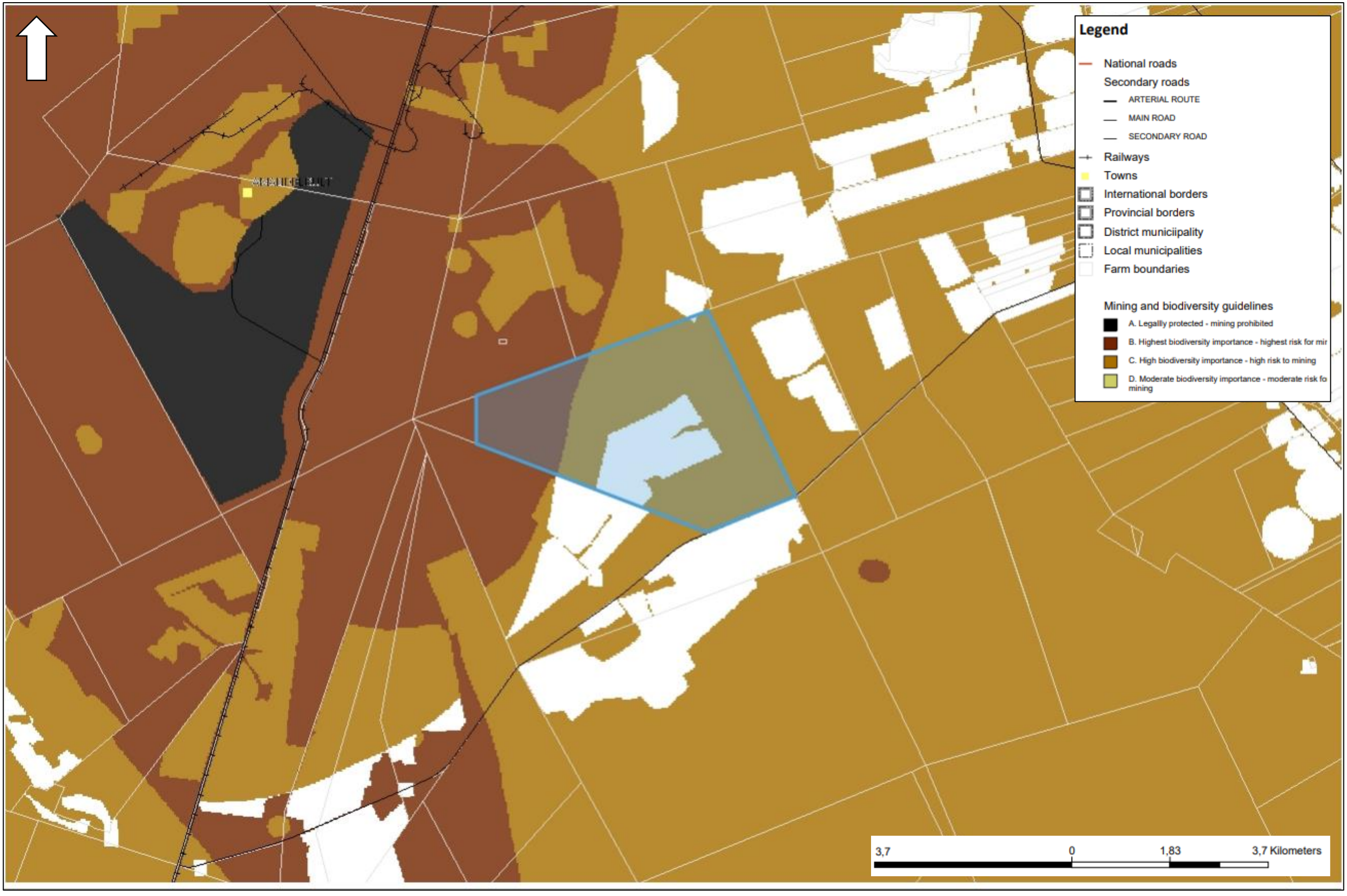
Plan prepared by:	D Smith
Date:	20-07-2022
Signature:	

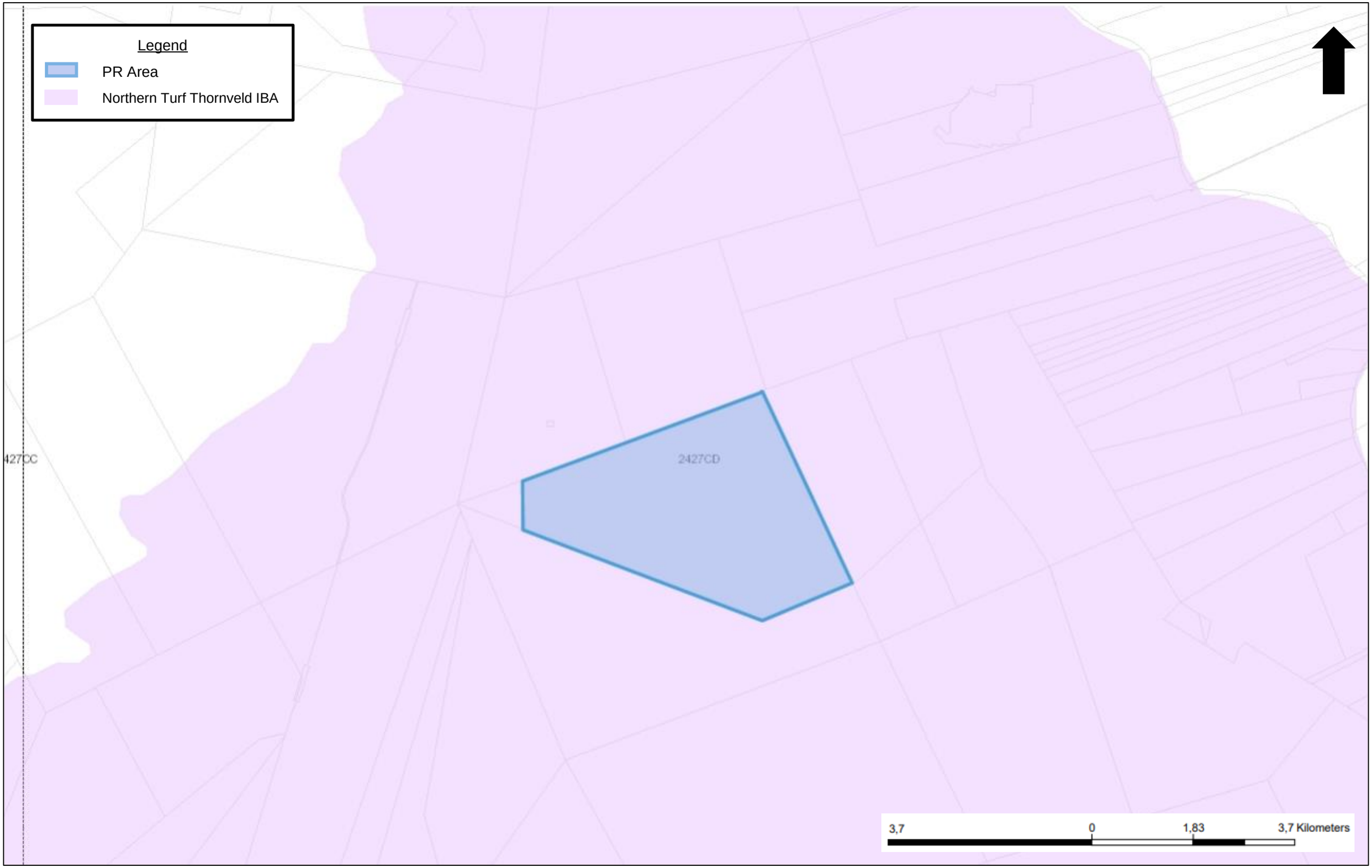

Legend
Prospecting Area
N
RE/386
VRUGBAAR 381 KQ
RE/381
RE/423
ZONDEREINDE 384 KQ
RE/384
4/384
2/384
1/422
2/422
RE/1/423
WITVLEY 423 KQ
KOPJE ALLEEN 422 KQ
2/417
RE/417
3/423
RE/3/417
RE/422
Scale 1:25000
0 75 300 450 600 750 m
427
7/426
VLAKPLAATS 427 KQ

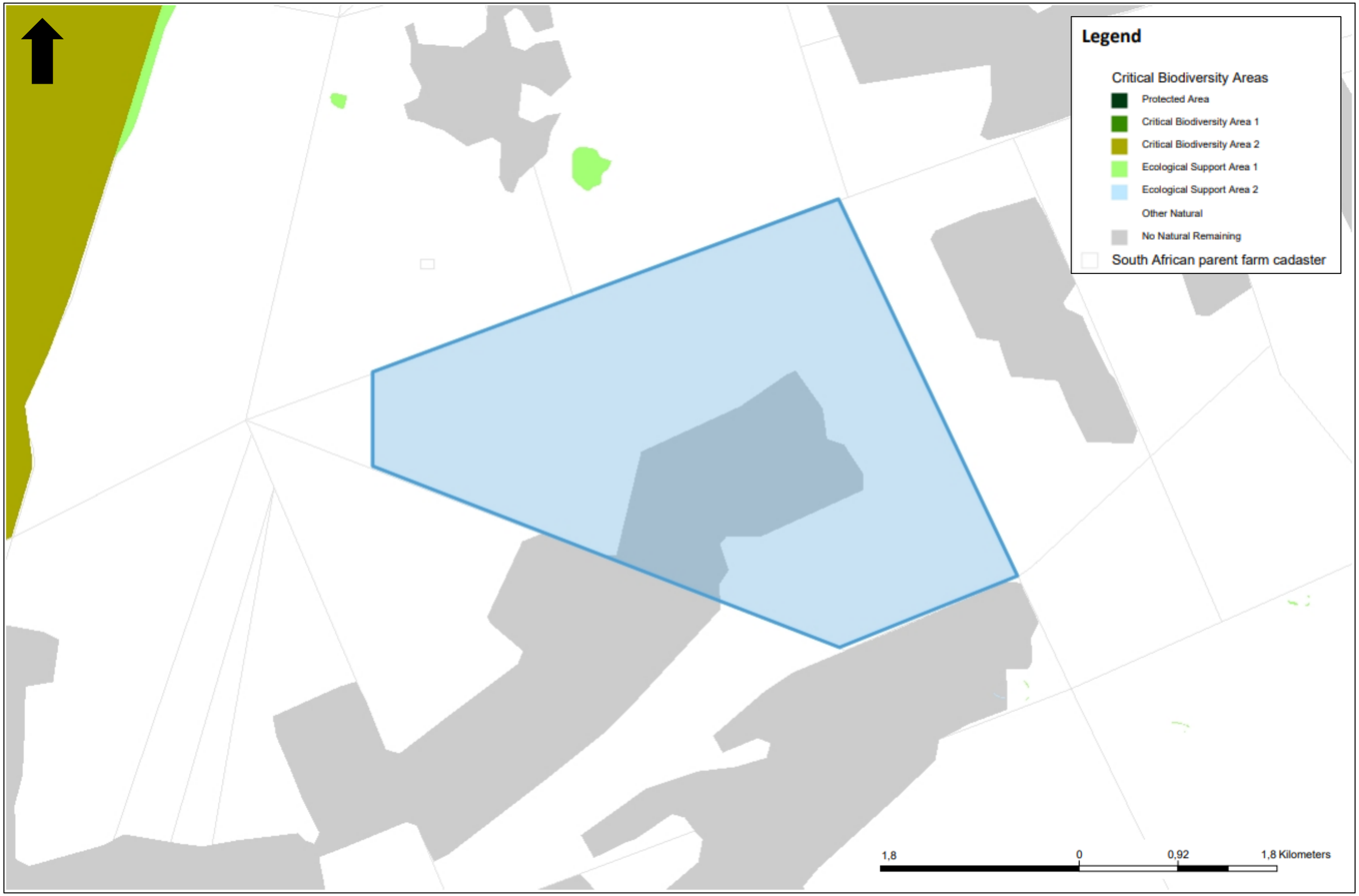

Legend
Zondereinde Mine
Zondereinde Mining Right Area
3 Shaft Complex
Main Shaft Complex
Smelter/BMR Complex
N
Zondereinde Mine→Main Shaft Complex
Zondereinde Mine→Smelter/BMR Complex
Zondereinde Mine→3 Shaft Complex
Scale 1:82000
0 0,5 1 2 3 4 5 km


27°21'0"E
24°51'0"S
Limpopo
Kopje Alleen
422KQ pt 1
North West
Gauteng
Mpumalanga
Free State
KwaZulu-Natal
Vrugbaar 381 KQ
Zondereinde 384 KQ
KAB2
KAT3
KAT2
Witvley 423 KQ
Kopje Alleen 422KQ RE of pt1
KAB1
KAT1
Kopje Alleen 422 KQ
Vlakplaats 427 KQ
426 KQ
Application Area
KA_BHplan_jul22
KA_Trench_jul22
Wetland
Provincial road
Secondary road
Gravel road
Farm boundaries
0
2
4 km
N

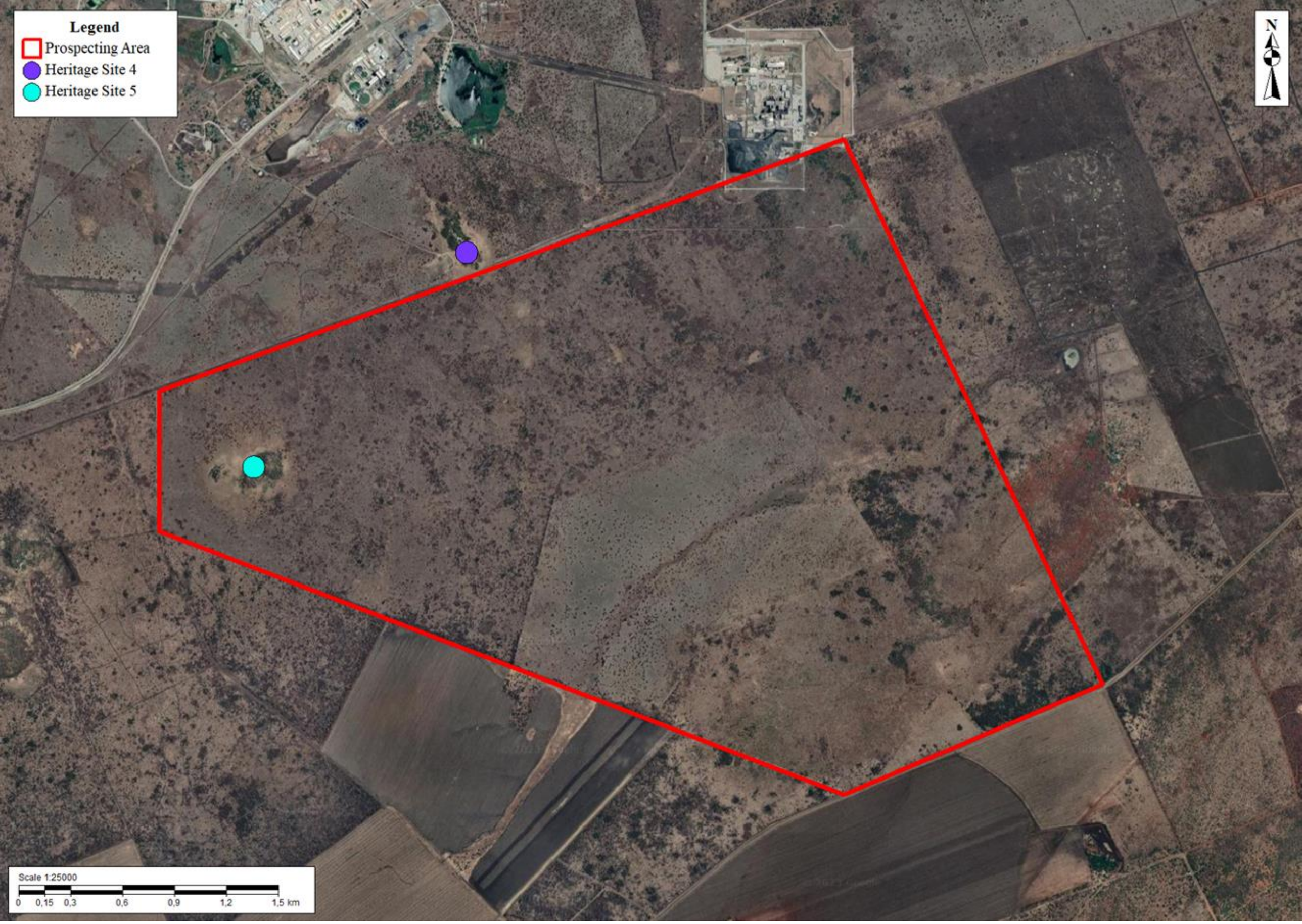

BIERSPRUIT
Amandelbult Main Office
Northam Platinum Sports Ground 1
Northam Platinum Zondereinde
Northam Smelter Facility
Northam Platinum Vent Shaft
Aurex Wildplaas
Angasii Game Lodge | Northam
R510
940
960
980
1020
1040
1060
1100
N
Scale 1:50000
0 0,3 0,6 0,9 1,2 1,5 km
Legend
Prospecting Area
Rivers
Non-perennial River
Perennial River

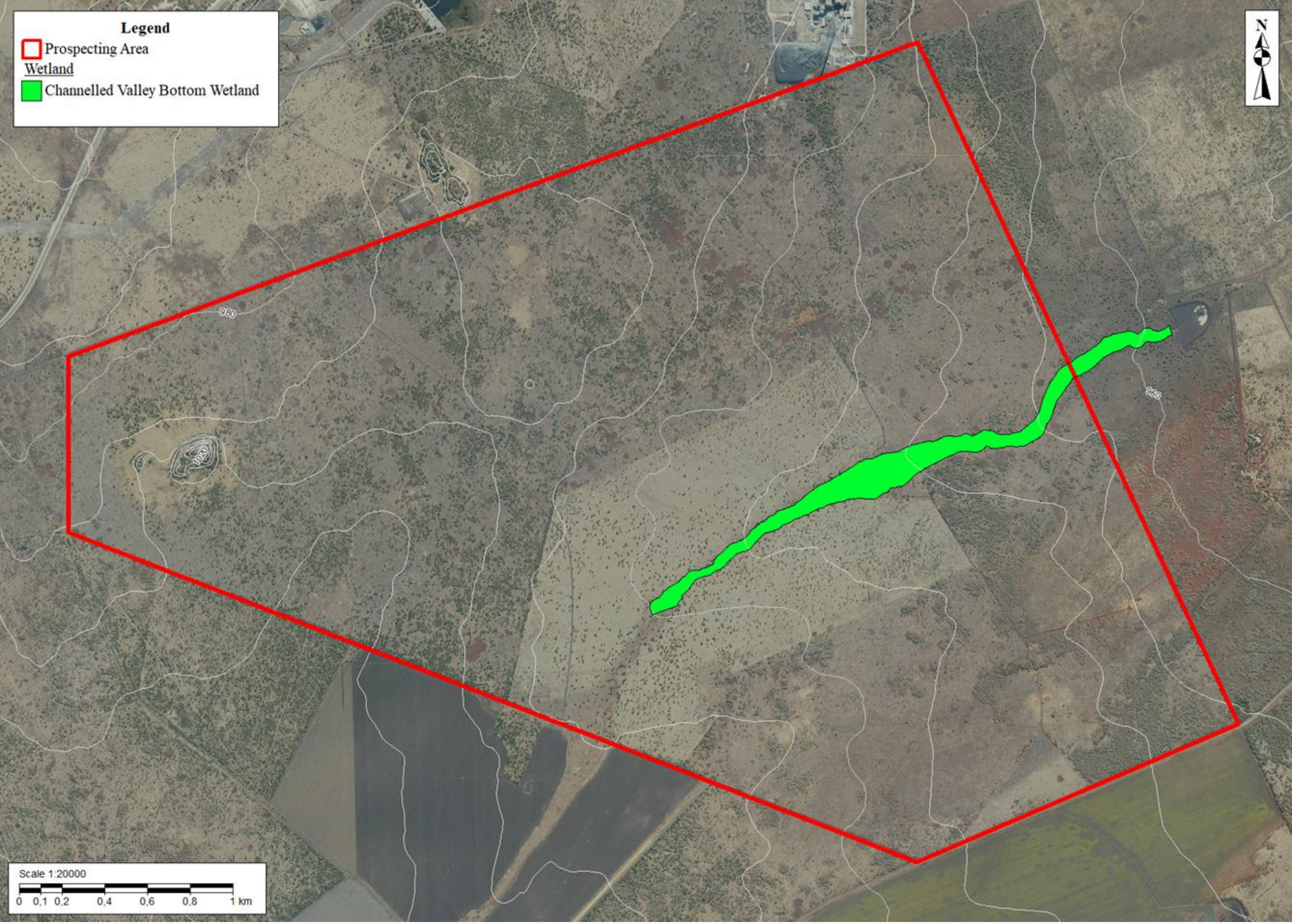

Legend
National roads
Secondary roads
ARTERIAL ROUTE
MAIN ROAD
SECONDARY ROAD
Railways
Towns
International borders
Provincial borders
District municiipality
Local municipalities
Farm boundaries
Mining and biodiversity guidelines
A. Legally protected - mining prohibited
B. Highest biodiversity importance - highest risk for mir
C. High biodiversity importance - high risk to mining
D. Moderate biodiversity importance - moderate risk fo mining
3,7
0
1,83
3,7 Kilometers

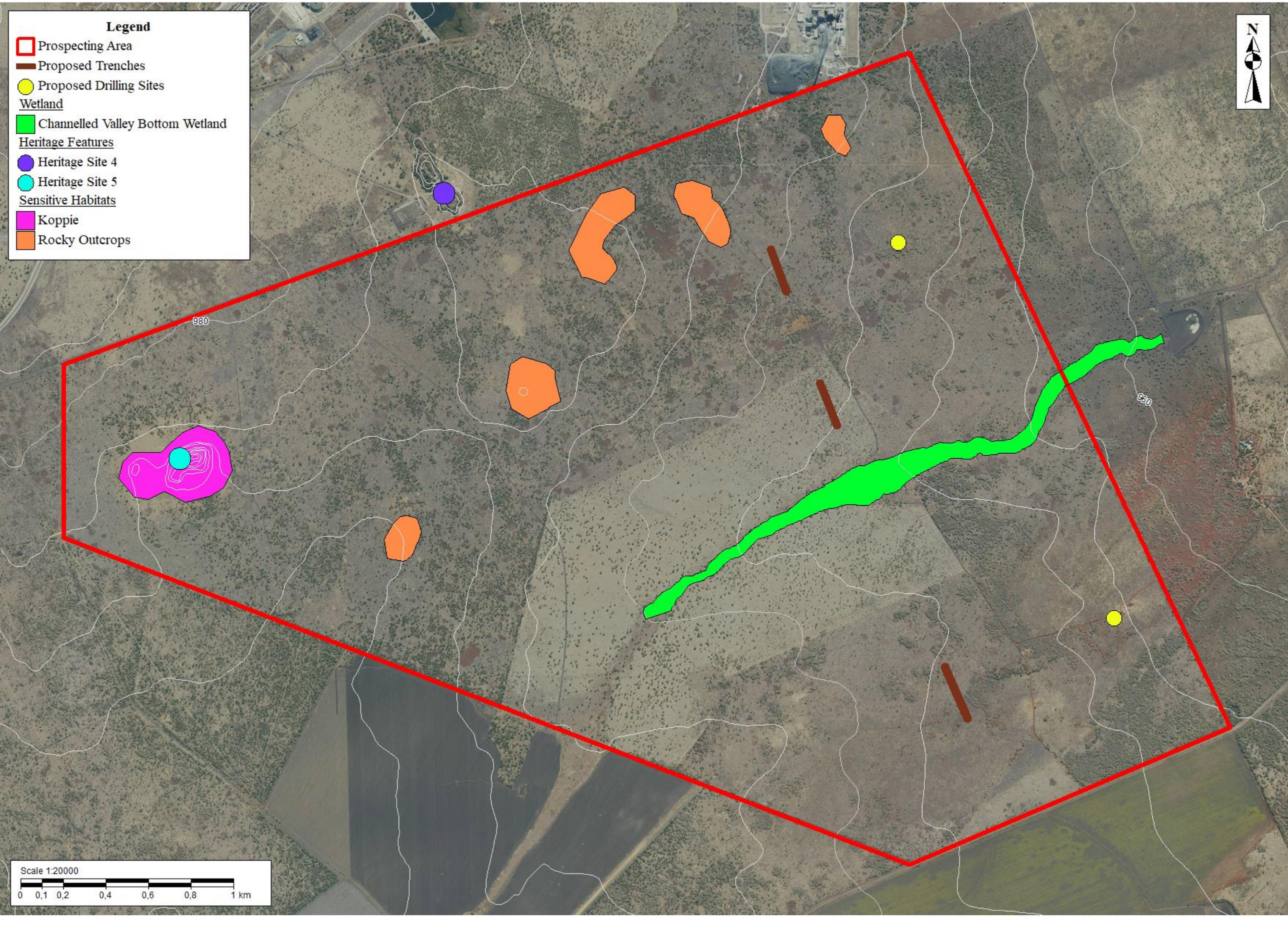

Legend
PR Area
Northern Turf Thornveld IBA
2427CD
427CC
3,7
0
1,83
3,7 Kilometers

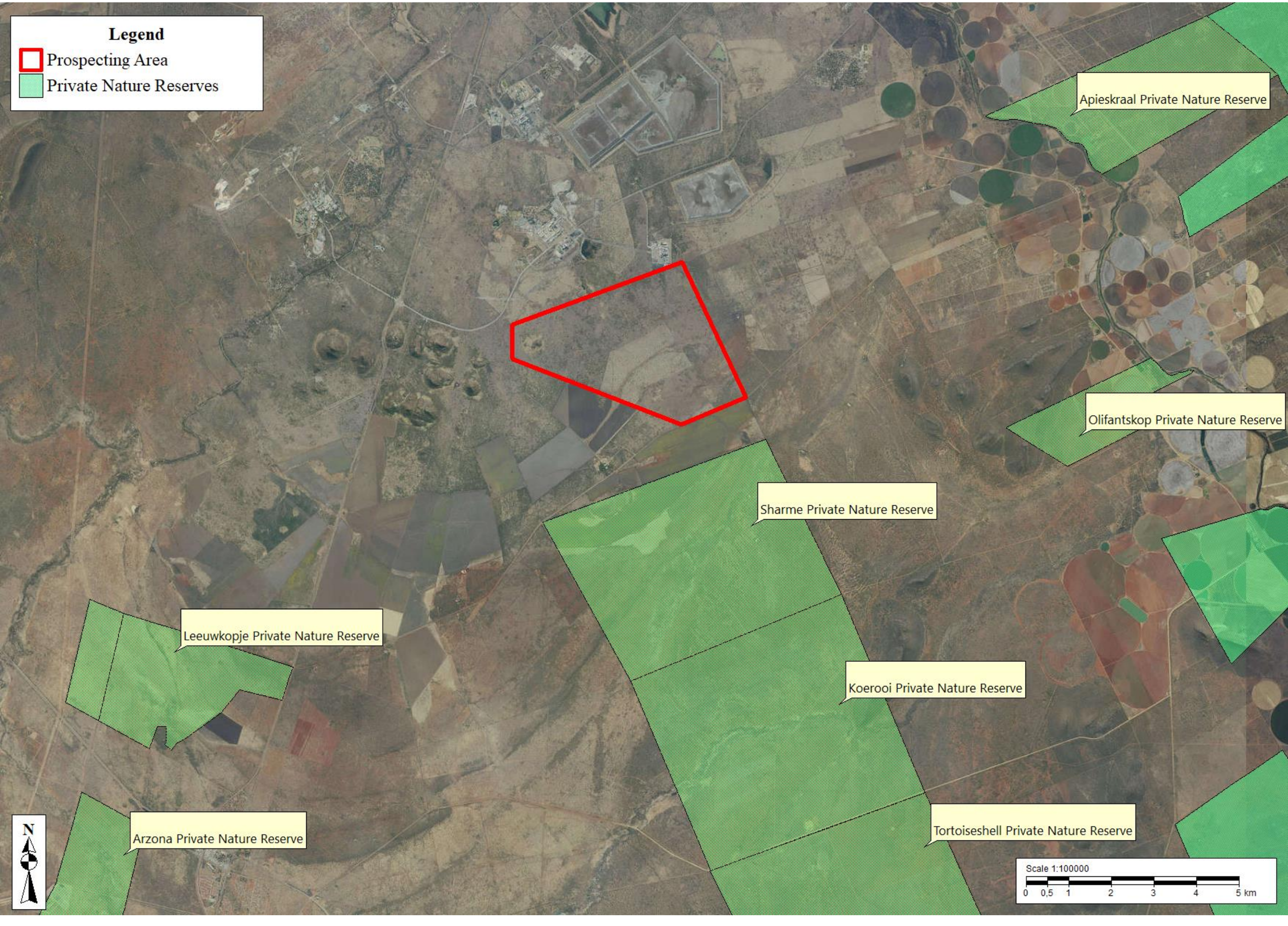

Legend
Critical Biodiversity Areas
Protected Area
Critical Biodiversity Area 1
Critical Biodiversity Area 2
Ecological Support Area 1
Ecological Support Area 2
Other Natural
No Natural Remaining
South African parent farm cadaster
1,8
0
0,92
1,8 Kilometers


N
Scale 1:20000
0 0,1 0,2 0,4 0,6 0,8 1 km


Legend
Prospecting Area
Heritage Site 4
Heritage Site 5
N
Scale 1:25000
0 0,15 0,3 0,6 0,9 1,2 1,5 km


Legend
Prospecting Area
Wetland
Channelled Valley Bottom Wetland
N
980
980
Scale 1:20000
0 0,1 0,2 0,4 0,6 0,8 1 km


Legend
Prospecting Area
Proposed Trenches
Proposed Drilling Sites
Wetland
Channelled Valley Bottom Wetland
Heritage Features
Heritage Site 4
Heritage Site 5
Sensitive Habitats
Koppie
Rocky Outcrops
N
980
960
Scale 1:20000
0 0,1 0,2 0,4 0,6 0,8 1 km


Legend
Prospecting Area
Private Nature Reserves
Apieskraal Private Nature Reserve
Olifantskop Private Nature Reserve
Sharme Private Nature Reserve
Koerooi Private Nature Reserve
Tortoiseshell Private Nature Reserve
Leeuwkopje Private Nature Reserve
Arzona Private Nature Reserve
N
Scale 1:100000
0 0,5 1 2 3 4 5 km

APPENDIX 4:

PROSPECTING WORK PROGRAM

mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

NAME OF APPLICANT: NORTHAM PLATINUM LIMITED

REFERENCE NUMBER:

PROSPECTING WORK PROGRAMME

SUBMITTED FOR A PROSPECTING RIGHT APPLICATION WITHOUT BULK SAMPLING

AS REQUIRED IN TERMS OF SECTION 16 READ TOGETHER WITH REGULATION 7(1) OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT (ACT 28 of 2002)

STANDARD DIRECTIVE

All applicants for mining rights are herewith, in terms of the provisions of Section 16 and in terms of Regulation 7(1) of the Mineral and Petroleum Resources Development Act, directed to submit a Prospecting Work Programme, strictly under the following headings and in the following format together with the application for a prospecting right.

1. **REGULATION 7.1.(a): FULL PARTICULARS OF THE APPLICANT**

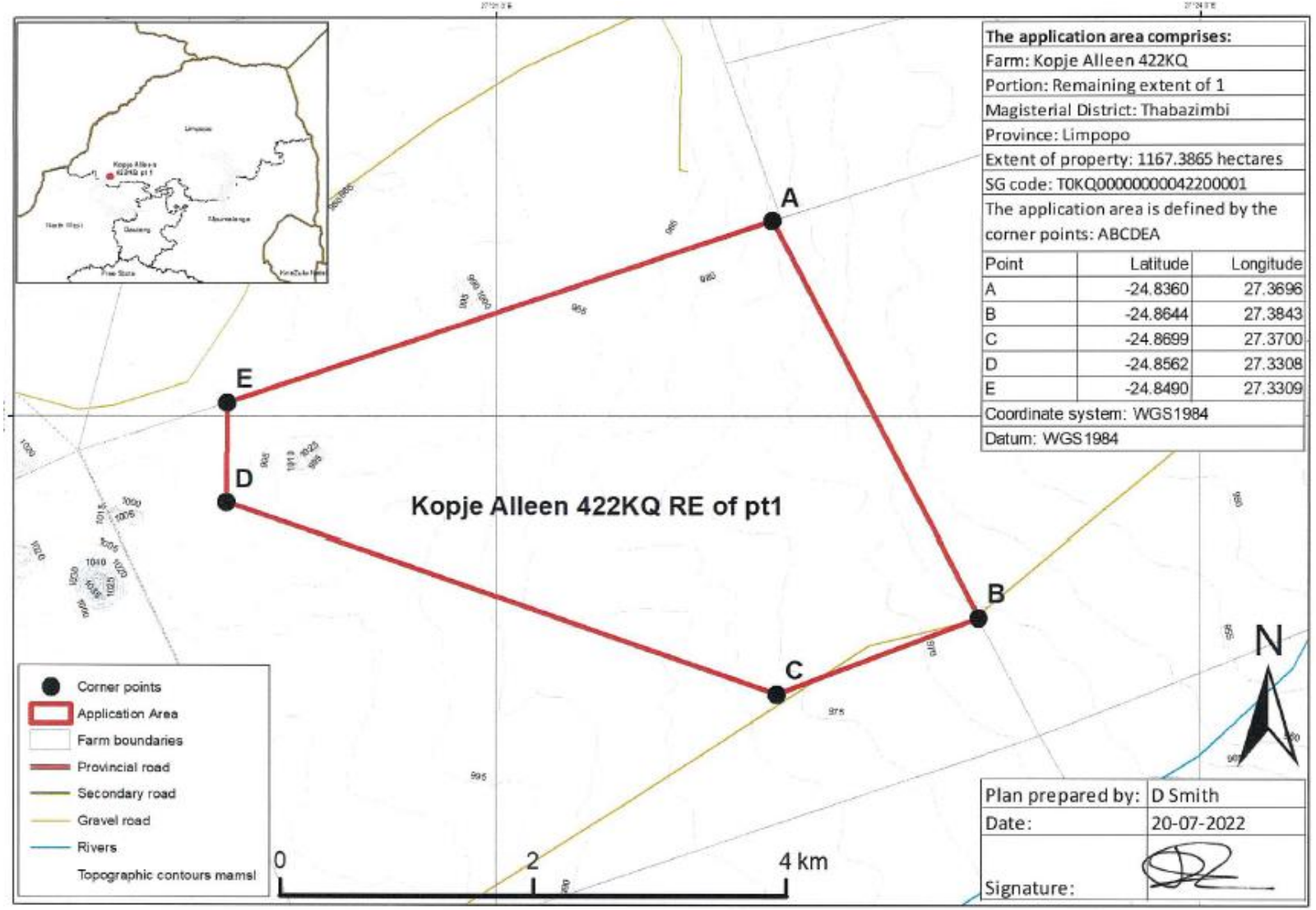
Table 1: Applicant's Contact Details

ITEM	COMPANY CONTACT DETAILS
	Northam Platinum Limited ("Northam")
Company registration number	1977/003282/06
Physical address	Building 4, 1st Floor Maxwell Office Park Magwa Crescent West, Waterfall City Jukskei View 2090, South Africa
Postal address	PO Box 412694, Craighall, 2024, South Africa
Contact person	Damian Smith
Tel number	011 759 6000
Cellular number	082 456 4530
E-mail address	damian.smith@norplats.co.za

Certified copies of the Certificates of Incorporation and Commencement of Business for Northam Platinum Limited are attached in Annexure A.

2. REGULATION 7(1)(b): PLAN CONTEMPLATED IN REGULATION 2(2) SHOWING THE LAND TO WHICH THE APPLICATION RELATES

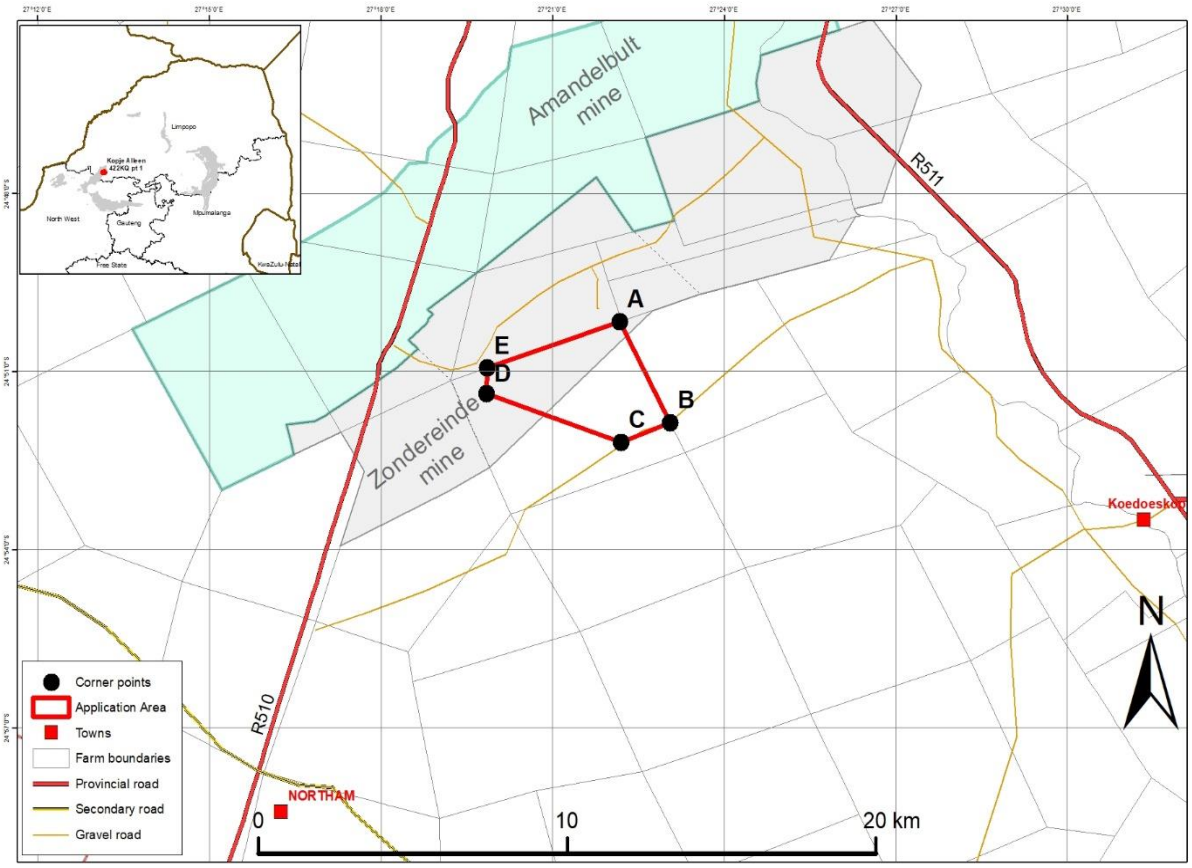
Below is a plan of the application area conforming to regulation 2(2).



The application area comprises:		
Farm: Kopje Alleen 422KQ		
Portion: Remaining extent of 1		
Magisterial District: Thabazimbi		
Province: Limpopo		
Extent of property: 1167.3865 hectares		
SG code: T0KQ00000000042200001		
The application area is defined by the corner points: ABCDEA		
Point	Latitude	Longitude
A	-24.8360	27.3696
B	-24.8644	27.3843
C	-24.8699	27.3700
D	-24.8562	27.3308
E	-24.8490	27.3309
Coordinate system: WGS1984		
Datum: WGS1984		

Plan prepared by:	D Smith
Date:	20-07-2022
Signature:	

Below is a general location plan of the application area, showing its position relative to neighbouring towns, mining rights, roads and rail networks.



3. REGULATION 7(1)(c): THE REGISTERED DESCRIPTION OF THE LAND TO WHICH THE APPLICATION RELATES

The Remainder of Portion 1 of the farm Kopje Alleen 422, Registration Division KQ, located in the Thabazimbi Local Municipality of Limpopo Province. (SG 21 digit code: T0KQ00000000042200001), measuring in extent 1167.3865 hectares, owned by Northam in terms of Deed of Transfer T71207/1987 ("**Prospecting Area**"). The Prospecting Area is 1 167.3865 hectares in extent and is situated between the towns of Northam and Thabazimbi, Limpopo Province. A copy of the title deed for the Remainder of Portion 1 of the farm Kopje Alleen 422 KQ is attached in Annexure B.

The Prospecting Area is surrounded by agricultural land and used for cattle and game farming. The Amandelbult Mine of Anglo American Platinum Limited is situated to the far west, whilst the Zondereinde Platinum Mine of Northam (the current applicant) is immediately adjacent to the north of the Prospecting Area.

The northern portion of the Prospecting Area is held under Northam's mining right LP37MR but for different minerals to that included in this prospecting right application.

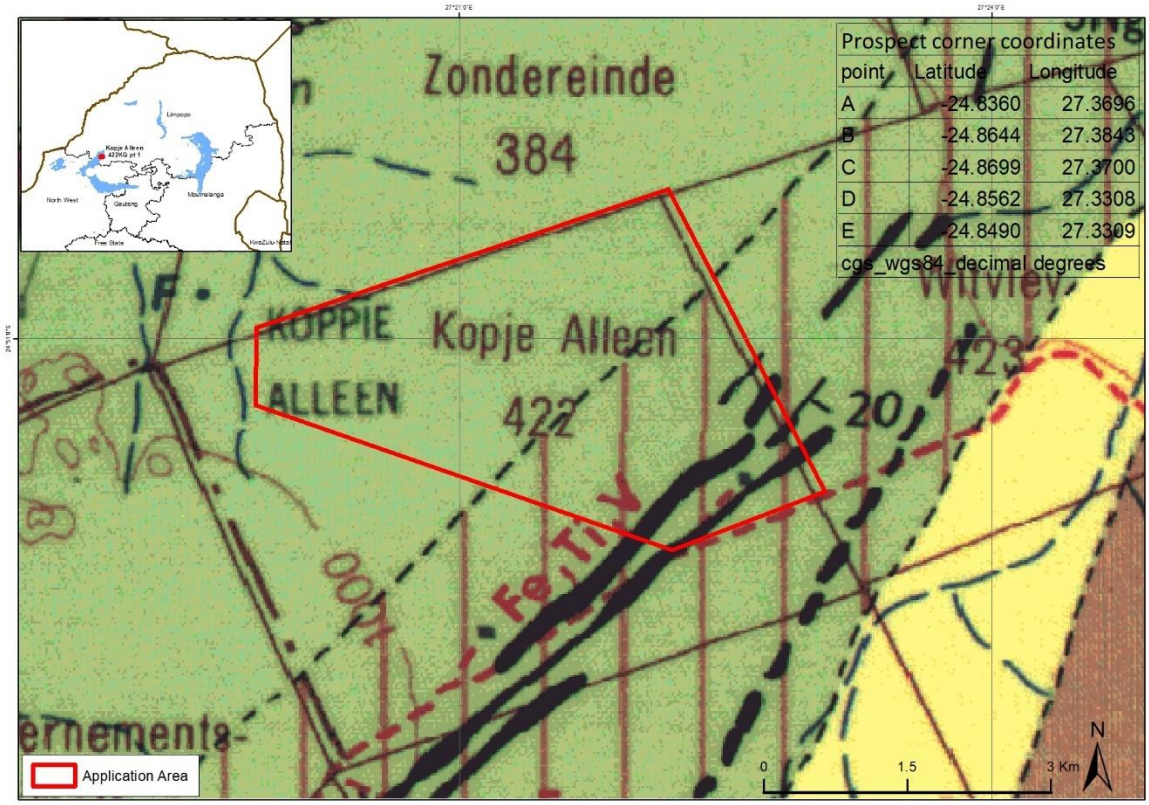
4. REGULATION 7(1)(d) and (e): THE MINERAL OR MINERALS TO BE PROSPECTED FOR

ITEM	DETAIL		
Type of mineral(s)	**Code**	**Commodity**	**Type Code**
	Fe	Iron Ore	B
Type of minerals continued	V	Vanadium Ore	B
	Hm	Heavy Minerals (General)	HM
Locality **(Direction and distance from nearest town)**	Centre of block is approximately 15 km north-east of the town of Northam, Limpopo Province		
Extent of the area required for prospecting	1167.3865 hectares		
Geological formation	Underlain by the Bushveld Complex, Rustenburg Layered Suite, main and upper zones		

5. REGULATION 7(1) (e): A geological description of the land substantiated by a geological map

i. A geological map at a scale suitable to substantiate the prospecting methods described in accordance with Regulation 7(1) (g).

See below a plan of the Prospecting Area underlain by the Council for Geoscience sheet 2426, indicating that this Area is underlain by the magnetite seams located at the base of the upper zone of the Bushveld Rustenburg Layered Suite.



ii. A geological description that is detailed enough to substantiate the prospecting methods described in accordance with Regulation 7(1) (g).

The magnetite seams of the Bushveld Complex are located at the base of the upper zone of the Rustenburg Layered Suite. The base of the upper zone is purported to lie upon the Prospecting Area. The magnetite seams are known resources of Iron, Vanadium and Titanium bearing heavy minerals.

iii. A geological description that lists known mineral/rock/commodity deposits of economic interest in the vicinity within the context of the regional geology.

Platinum Group Metals ("**PGM**") and associated base metal bearing seams of the Critical Zone of the Bushveld Rustenburg Layered Suite, together with Chromite dominant seams, lie to the north-east of the Prospecting Area. Iron ore of the Transvaal sedimentary sequence and Andalusite occurring on the contact between the Transvaal sedimentary

sequence and the lower zone of the Bushveld sequence occur approximately 20 km to the north of the application area.

6. REGULATION 7(1)(f): A DESCRIPTION OF HOW THE MINERAL RESOURCE AND MINERAL DISTRIBUTION OF THE PROSPECTING AREA WILL BE DETERMINED

The prospecting schedule for Iron, Vanadium and Titanium and related metals over the Prospecting Area will comprise the following:

- a desktop study,
- collation of existing data and project planning,
- surface geological mapping,
- geochemical sampling,
- geophysical sampling and analysis,
- borehole drilling and sampling,
- trenching and sampling, and ultimately
- modelling/ore resource estimation.

Furthermore, see the table below, which incorporates the information required in respect of Regulations 7(1)(f), 7(1)(h) and 7(1)(i).

7. REGULATION 7(1)(h): ALL PLANNED PROSPECTING ACTIVITIES MUST BE CONDUCTED IN PHASES AND WITHIN SPECIFIC TIMEFRAMES

The table below summarises the schedule of broad tasks comprising the five years of the prospecting work programme ("**PWP**"). It is important to note that this schedule is result driven, and the outcome of any one phase may dictate the direction of the next.

	year	1	2	3	4	5
	month	month	month	month	month	month
Item	Task	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12
A	**Desktop Study & Application Preparation**					
B	**Borehole Sampling & Assay Analysis**					
C	**Borehole Drilling, trenching & logging**					
D	**Geophysical Surveys**					
E	**Modelling & Resource Estimation**					
F	**Other Work - including prospecting fees**					
G	**Sundry items**					

8. REGULATION 7(1)(i): TECHNICAL DATA DETAILING THE PROSPECTING METHOD OR METHODS TO BE IMPLEMENTED AND THE TIME REQUIRED FOR EACH PHASE OF THE PROPOSED PROSPECTING OPERATION

See overleaf.

The table below incorporates the information required in respect of Regulations 7(1)(f), 7(1)(h) and 7(1)(i):

Phase	Activity (what are the activities that are planned to achieve optimal prospecting)	Skill(s) required (refers to the competent personnel that will be employed to achieve the required results)	Timeframe (in months) for the activity)	Outcome (What is the expected deliverable, e.g. Geological report, analytical results, feasibility study, etc.)	Timeframe for outcome (deadline for the expected outcome to be delivered)	What technical expert will sign off on the outcome? (e.g. geologist, mining engineer, surveyor, economist, etc)
A	Desktop Study and Monitoring of PR status/Environmental Management Programme ("**EMP**") compliance	Geologist	Approx. 2 months (49 days) over 5 years	An interpretation of existing data; budgeting and logistical planning; and annual reports on PWP progress	On an annual basis, in the first 1 month of each year (5 year PWP)	Geologists
B	Sampling and Assay Analysis	Geologist	At least ½ month	Vanadium, Iron and heavy mineral content	On an annual basis, in the second month of each year (5 year PWP)	Geologists & Laboratory Chemist
C	Borehole drilling, trenching and logging	Competent drilling and trenching service providers, geologist	Approximately 3 months (57 days)	Modelling input data and samples for assay	On an annual basis, in the third quarter of each year (5 year PWP)	Geologist
D	Geophysical Surveys	Technician or geologist qualified in geophysical surveying	Approximately 2-3 months (80 days)	3D mapping of magnetite seams	On an annual basis, in the second quarter of the year (5 year PWP)	Geologist
E	Modeling and Resource Estimation	Geologist	Approximately 3 months (57 days)	Magnetite seam volumes and metal content for resource estimation	On an annual basis, in third to last quarter of the year (5 year PWP)	Geologist qualified in 3D modelling
F	Other Work (e.g. organization of access to site, admin) including a pre-feasibility study	Geologist / Technician	Approximately 1 week (10 days)	Organizational workflow	During each year (5 year PWP)	Geologist
G	Sundry (e.g. road travel, air travel etc)	Geologist/Technical	Throughout 5 year PWP	Organizational workflow	Throughout each year (5 year PWP)	N/A

9. REGULATION 7(1)(g): A DESCRIPTION OF THE PROSPECTING METHOD OR METHODS TO BE IMPLEMENTED

i. DESCRIPTION OF PLANNED NON-INVASIVE ACTIVITIES:

DESKTOP STUDY

In order to conduct the PWP in an efficient and effective manner, there will be an acquisition and review of information and data gathered during historical exploration on the Prospecting Area (and in the general area). A short economic costing study may be undertaken, to determine the likely mineral concentration required to make the project feasible (and direct further work). This may also include photo-geological and satellite interpretations. Data will be sourced from the Council for Geoscience (including regional magnetic and gravity datasets); universities and other libraries; and previous explorers may be approached with a view to gaining results.

Re-evaluation of previously prospected areas of similar nature is very important at this stage in order to build a conceptual geological model. Field reconnaissance will be undertaken in the Prospecting Area, in order to ascertain the orientation of infrastructure, land use, terrain access and development. The regional relationship between soil form distribution and potential outcrop/subcrop of mineralisation will be investigated during the field reconnaissance.

GEOLOGICAL SURFACE MAPPING

The area will be geologically mapped on a regional basis to update information on a 1:50 000 scale, using photo-geological interpretations and satellite imagery; remote sensing technologies; and interpretations from the previous phase as a guide. This data, with assistance of 1:10 000 ortho-photo maps (and those gathered from the desktop study efforts), will be integrated in GIS systems and an upgraded digital geological model will be compiled.

Some detailed field mapping will be required in areas outlined by the quality of the information gained from historical archives. The conceptual geological model will then be upgraded prior to conducting any exploration drilling or trenching.

The end product of geological mapping is a map which accurately documents rock types, alteration, mineralogy and structural data, such as faults, folds, and dip of strata.

GEOCHEMICAL SURVEY

The target mineralisation identified during the desktop study and mapping exercise would be further defined using surveyed line/grid based surveys traversing geochemical soil/stream sediment, and grab/float sampling activities if needed.

An orientation survey would be undertaken prior to this and is usually undertaken along existing roads, survey tracks and open areas to test the effectiveness of the technique in the specific terrain.

The choice is broadly between stream sediment sampling in an area with a drainage pattern; surface soil or rock (grab) sampling in areas of shallow cover and poorly developed or non-existent drainage pattern; auger hole sampling of the regolith and/or bed rock in areas of deep transported cover; or special regolith sampling procedures followed by proper analysis usually at ppb (parts per billion detection limit) level.

GEOPHYSICAL SURVEY

Various methods of geophysical applications will be applied on the target areas and include: ground magnetic, gravity and radiometric traversing on irregular grids, where road infrastructure allows for it; and symmetrical grid traversing in areas where it is possible.

An airborne magnetic fixed wing/helicopter survey could be added if deemed viable to further delineate potential ore body extent, with traverse lines orientated perpendicular to the strike of known geology. The necessity for, and the flight dimensions of this survey, is dependent on the above phases. To further delineate the target area, it would be recommended to conduct a surface gravimetric and or magnetic survey along predefined traverses on surface.

The digital geological model will be upgraded based on geophysical results.

ANOMALY SCREENING

Geochemical target anomalies identified from the soil/stream sediment and grab sampling coupled with geophysical magnetic/gravity anomalies and possible airborne survey verification would be integrated in a GIS model and followed up by geological mapping over selected target areas, if possible, to determine possible extent and depth of orebody. Also, if possible, an attempt at defining structural complexities will be undertaken at this stage.

ii. DESCRIPTION OF PLANNED INVASIVE ACTIVITIES:

RECONNAISSANCE/STRATIGRAPHICAL DRILLING

As part of Phase 1, drilling of two (2) reconnaissance diamond drillholes is planned. These holes will be approximately 30m deep and mainly used as a stratigraphic / lithology guide. All other future planned infill boreholes would then be drilled to a depth of 30m and widely spaced, roughly a 500-1000m apart along strike. The information gathered from these holes will be used in conjunction with the methods described in A to E of the table on page 9, to create a preliminary geological model that will be used to plan the next phase of exploration.

DIAMOND DRILLING AND TRENCHING

Phase 1 drilling, as mentioned above, would be followed by infill drilling (phase 2), which would be focused on the determination of anomalies, as this is dependent on the initial phase and based on a conceptual structural geological model. If mineralized horizons are found, a follow-up drill-hole, either down dip or on strike, will be drilled to confirm these intersections.

It is estimated that for initial Fe/V/Ti exploration, a total of 2 short HQ or NQ diameter diamond drill-holes will be drilled to a depth of 30m.

If economically viable reef is intersected, a drill grid will be established as per Phase 2, with infill drilling allowing the determination of a three-dimensional structural model of the target area. The infill drilling would potentially start on a 250 - 500m based grid.

This follow up exploration drilling program (Phase 2) will be conducted as the source for gaining ground truth information of the potential ore body and to prove continuity in the third dimension in detail, addressing reef facies, structure and metallurgical parameters.

In a more complex geological area, the grid may be closer spaced to 125 – 250m, to aid correlation. This is to define the orientation and shape of the ore body and the grade and tonnage, to improve the geological confidence.

Drill core will be geologically logged (structure, lithology and facies), sampled and analysed for Fe, V and Ti. Additional hole deflections or holes might be drilled for value verification and to ascertain variance in metallurgical and mineralogical parameters.

The nature of the target rocks suggests that drilling and trenching would form a major part of the prospecting process. Diamond core drilling and trenching for intersections of the potential economic reef horizons will constitute a major factor in the decision-making sequence. Drilling or trenching at sites selected based on the integrated preliminary analysis reports will include the following actions:

- review the registration, incorporation and competence of potential contracting companies;
- confirm the good financial standing of the contracting company;
- establish confidentiality agreements and manage conflicts of interest that the contracting company may have;
- review the contracting companies approach to Mine Health and Safety issues;
- compile an analysis report on the Mine Health & Safety Appointments;
- submit information of planned drilling/trenching to Mine Health & Safety Inspectorate at the DMRE;
- forward special instructions to the contracting company regarding power, water, sanitation, environmental, safety and security;
- preliminary analysis report on notifications e.g. Eskom, Telkom, Water Affairs, etc;
- preparation of drilling/trench sites;
- establish water source for drilling;
- environmental assessment of drill/trench sites;
- plan access roads, crew accommodation and site security;
- plan health and safety issues and establish a safe working code specific to the area, especially if near rural development or sensitive areas;
- do the necessary risk assessments and PTOs (Planned Task Observations);
- decide on scale of drilling (amount of machines, type of drilling, size of drill rigs, depth of drilling, size of core, deflections);
- report on the start date of the drilling/trenching program;

- award of the contract;
- monitor drilling/trenching program (core quality, recovery, depth marking, site movement);
- enforce/monitor rehabilitation with Site Clearance Certificate signed by all; and
- ensure safe transport of core/ore.

Northam adheres to strict protocols regarding the Quality Assessment and Quality Control (QAQC).

A strict QAQC programme will be followed by the internal Competent Person/ Prospecting Manager. This includes consideration of the following:

- Quality of drilling/trenching programme;
- Accurate grid placement and survey of borehole collars/trench positions;
- Down hole surveys of all intersections including deflections if deeper than 250m;
- Core management (transport, orientation, marking, core loss);
- Core/trench logging and mineralization / reef identification;
- Core/trench sampling procedures;
- Chain of custody of transport of samples to laboratory;
- Quality of laboratories used;
- Quality control of standards, blanks and duplicates, to ensure accurate assay methods and grades from laboratory;
- Applicable Assay method used for style of mineralisation;
- QAQC on laboratory results, including check sampling at different laboratory;
- Economic cut determination and inclusion in economic model;
- Database management; and
- External audits by Qualified Persons.

IN-FILL DRILLING AND METALLURGICAL TEST WORK

If economically viable reef horizons are to be intersected, it would require a more detailed assessment (namely additional drilling/trenching) to be undertaken, for the orientation and shape of the ore body and grade and tonnage to be defined.

This will form part of the Phase 2 infill-drilling programme. Three trenches (as more fully set out below) are also planned as a further method to obtain the necessary information to compile a comprehensive geological model and possible Mineral Resources Statement.

It is important to note that this schedule is result driven, and the outcome of any one phase may dictate the direction of the next.

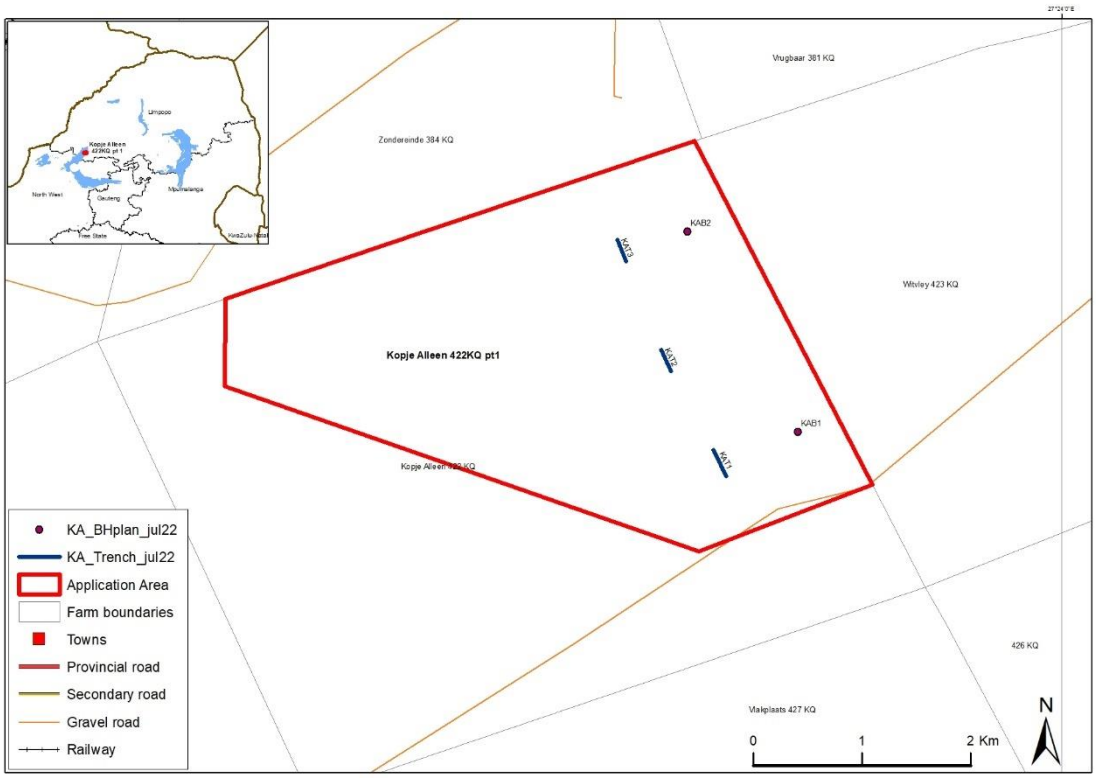
PLAN OF THE MAIN ACTIVITIES WITH DIMENSIONS

It must be emphasized that each of the above-mentioned prospecting activities follow as logical and systematic prospecting events and are driven by the success of the previous phases.

Each drill site will cover an approximate area of 25m x 25m, thus an area of 625m^2 each. Two (2) boreholes are planned.

Three (3) trenches measuring 30 x 4 x 3 meters each are also planned for the Prospecting Area.

The surface plan below (which corresponds with the plan contemplated in regulation 2(2)) indicates the Prospecting Area, showing the intended location and extent of the two boreholes and three trenches.



iii. DESCRIPTION OF PRE-/FEASIBILITY STUDIES

Pre-feasibility studies will involve modeling and resource estimation, as per Phase F as summarised in the table on page 9 (relating to Regulations 7(1)(f), 7(1)(h) and 7(1)(i)). An inferred resource or the closest to this category will be established, using the various exploration methodologies employed. This will be used to estimate volume and grade of the magnetite seams. Should the volume and grade justify further work, then a full feasibility study will be undertaken.

COMMITMENT TO PROVIDE ADDENDUMS IN RESPECT OF

ADDITIONAL PROSPECTING ACTIVITIES

I herewith commit to provide the Department of Mineral Resources and Energy with an addendum in respect of both the EMP and PWP regarding any future in-fill prospecting required but not described above, prior to undertaking such activities. The addendum will cover all the Regulations as per the PWP.

I agree that the addendums will provide for similar activities only and if the scope changes, I would be required to apply in terms of Section 102 of the MPRDA for an amendment of the PWP.

Mark with X

ACCEPT	**X**

10. REGULATION 7(1)(j)(i): DETAILS WITH DOCUMENTARY PROOF OF THE APPLICANT'S TECHNICAL ABILITY OR ACCESS THERETO TO CONDUCT THE PROPOSED PROSPECTING OPERATION

Northam has significant technical experience in the fields of geological prospecting, resource evaluation, mining and engineering. The incumbents are all professionals with tertiary qualifications and members of relevant professional organisations (SACNASP, ECSA, PLATO), which in terms of the SAMREC code recognises them as competent persons.

Northam will leverage and lean on this technical competence and experience for the proposed prospecting activities. Northam commenced construction of its Zondereinde Platinum Mine near Thabazimbi in 1986, following a five-year prospecting programme and came into production in 1993. It conducts underground operations exploiting two Reefs, the Merensky and UG2 Reefs, via a twin shaft system at depths varying between 1 194 and 2 215m below surface. Mining activities are driven by hydropower equipment, a technological innovation which was pioneered by Northam and has now become common practice in deep-level mines. Over the years, Northam has refined this technology, the use of which holds significant environmental benefits in the underground workings where water from surface chilled to 5^{o} provides positional cooling and powers the mining equipment.

The total number of employees involved in both underground and surface operations in the Northam Group is approximately 18 800, including management and supervisory personnel.

Booysendal Platinum Limited, leveraging on Northam's technical expertise, commenced construction of its Booysendal Mine near Mashishing in 2010. The mine's first module, the

Booysendal North Mine, conducts underground operations exploiting two Reefs, the Merensky and UG2 Reefs.

Both the Zondereinde and Booysendal Platinum Mines have achieved sustainable operating profits. This, together with the extensive in-house expertise, strengthens Northam's capacity to develop and establish the proposed prospecting operation.

Give the proximity of Northam's Zondereinde Platinum Mine (which overlaps with the Prospecting Area for different minerals), similar appointments will be made in respect of Mine Health and Safety, which will be further considered and expanded upon prior to commencement of the prospecting operations.

Furthermore, as illustrated below, Northam will make use of existing facilities, including the assay laboratory located at Zondereinde Platinum Mine and existing surface diamond and percussion drilling contracts at Zondereinde Platinum Mine. It is accordingly clear that the proposed prospecting operation is compatible with the technical skill that is at Northam's disposal.

Note that CVs for the various technical resources employed are contained in Annexure C.

Competencies to be employed in terms of the Mine Health and Safety Act

COMPETENCIES TO BE EMPLOYED (List the legal appointments that will be made in terms of the Mine Health and Safety Act, appropriate for the type of operation)
Dennis Hoffmann – Northam Platinum Holdings Limited
Nick Kriel – Zondereinde Mine SHEQ Manager

Competencies to be employed in terms of the NEMA

COMPETENCIES TO BE EMPLOYED (List the appointments that will be made in terms of the NEMA, appropriate for the type of operation)
Suan Mulder – Northam Platinum Holdings Limited
Sandra Gore – Sandra Gore Legal Consulting
Northam will appoint an environmental assessment practitioner, to compile the basic assessment report and EMP upon acceptance of this application.

Competencies to be employed in respect of technical requirements

COMPETENCIES TO BE EMPLOYED
Damian Smith – Geologist Pr Sci Nat 400323/4, 25 years Bushveld experience
Dennis Hoffmann – Geologist Pr Sci Nat 400220/10, 17 years Bushveld experience

I herewith confirm that I have budgeted and financially provided for the required skills listed above.

CONFIRMED (Mark with an **X**)	**X**

List of Appropriate equipment at your disposal (If Applicable)

Assay laboratory located at Zondereinde Platinum Mine
Existing surface diamond and percussion drilling contracts at Zondereinde Platinum Mine
Full suite of software for geological data analysis and modelling
Core shed for core storage, logging and sampling

11. REGULATION 7(1)(j)(ii): DETAILS WITH DOCUMENTARY PROOF OF A BUDGET AND DOCUMENTARY PROOF OF THE APPLICANT'S FINANCIAL ABILITY OR ACCESS THERETO

As is evident from the Annual Financial Statements for Northam, as of 30 June 2021, Northam is in a healthy financial position.

Northam owns and operates the Zondereinde Platinum Mine. Booysendal Platinum Proprietary Limited is a wholly owned subsidiary of Northam and operates the Booysendal Platinum Mine located near the town of Mashishing on the Eastern Limb of the Bushveld Igneous Complex. Furthermore, Eland Proprietary Limited is a wholly owned subsidiary of Northam and owns and operates the Eland Platinum Mine. Northam's current annual production of PGMs is over 700 000 ounces of combined platinum, palladium, rhodium and gold. In addition, Northam produces significant saleable base metals as by products.

Northam accordingly has a positive cash flow generated by the Zondereinde, Eland and Booysendal Platinum Mines.

The Annual Financial Statements for Northam, as of 30 June 2021 are attached in Annexure D.

12. REGULATION 7(1)(k) A COST ESTIMATE OF THE EXPENDITURE TO BE INCURRED FOR EACH PHASE OF THE PROPOSED PROSPECTING OPERATION (remember to also include prospecting fees)

The table below shows a year-by-year breakdown of costs per task for the planned 5 year PWP, together with the cumulative cost subdivided into the various cost centres. Annual schedules for the programme, detailing individual sub-tasks and including rehabilitation of sites disturbed by invasive activities are included in Annexure E.

Task		Year					Total Cost
		1	2	3	4	5	Years 1-5
A	Desktop Study & Application Preparation	79 570	23 650	46 585	45 254	128 841	323 900
B	Borehole Sampling & Assay Analysis	23 500	24 750	27 225	29 948	-	105 423
C	Borehole Drilling, trenching & logging	-	108 350	75 625	83 188	-	267 163
D	Geophysical Surveys	-	142 440	163 350	-	-	305 790
E	Modelling & Resource Estimation	24 500	26 950	29 645	39 265	65 152	185 512
F	Other Work - including prospecting fees	24 669	24 225	212 300	238 375	1 473 450	1 973 019
G	Sundry Items	26 375	44 220	31 218	106 746	168 225	376 784
Cost Centre							
1	Labour Cost	106 500	33 600	57 030	56 244	133 841	387 214
2	Prospecting Cost	45 739	316 765	500 725	379 785	1 533 602	2 776 616
3	Sundry Cost	26 375	44 220	31 218	106 746	168 225	376 784
4	Annual Cost	**178 614**	**394 585**	**585 948**	**542 775**	**1 835 668**	**3 537 590**

I herewith confirm that I have budgeted and financially provided for the total budget as identified in Regulation 7(1)(k).

CONFIRMED (Mark with an **X**)	**X**

13. REGULATION 7(1) (m): UNDERTAKING, SIGNED BY THE APPLICANT, TO ADHERE TO THE PROPOSALS AS SET OUT IN THE PROSPECTING WORK PROGRAMME

Herewith I, the person whose name and identity number is stated below, confirm that I am the Applicant or the person authorised to act as representative of the Applicant in terms of the resolution submitted with the application, and undertake to implement this prospecting work programme and adhere to the proposals set out herein.

Signature	
Full Names and Surname	Damian Smith
Identity Number	6711145084188

END

ANNEXURES

ANNEXURE A

CERTIFIED COPIES OF THE

CERTIFICATE OF INCORPORATION AND COMMENCEMENT OF BUSINESS OF NORTHAM PLATINUM LIMITED

(REG NO 1977/003282/06)

See attached PDF

ANNEXURE B

COPY OF TITLE DEED FOR THE REMAINING EXTENT OF PORTION 1 OF THE FARM KOPJE ALLEEN 422 KQ

See attached PDF

ANNEXURE C

CURRICULUM VITAE FOR THE VARIOUS TECHNICAL RESOURCES EMPLOYED

Dennis Hoffmann

ABRIDGED CURRICULUM VITAE

Personal Details

Phone Numbers: (w) 087 158 9154
(cell) 079 375 2770

E-mail (work): Dennis.Hoffmann@norplats.co.za

Date of Birth: 18 April 1962

Nationality: South African

Driver's License: Code 08

Tertiary Qualifications

1985 University of Witwatersrand B.Sc. (Geology & Chemistry)

1986 University of Cape Town B.Sc. Honours (Geology)

1993 University of Cape Town M.Sc. (Geology). **Degree awarded with distinction**

"Aspects of the geology, geochemistry and metamorphism of the Lower Orebody, Broken Hill deposit, Aggeneys."

2006 University of South Africa Certificate in "Mathematical Modeling of Derivatives"

Professional Associations

- Geological Society of South Africa, Fellow (FGSSA)
- SACNAS Registered as Professional (400220/10)

Industrial Experience

+30 years' experience in the fields of mining geology and brown field exploration in a range of commodities including base metal (Cu-Pb-Zn, Ni-Cu), placer gold, kimberlite diamonds and magmatic PGE's deposits. Strong focuses on applications to ore production, evaluation, geostatistical estimation and on-mine exploration.

Northam Platinum, Group Services (May-2018 to present)

- Appointed as Mineral Resources Manager accountable for managing the exploration data acquisition processes.
- Competent Person assisting with the reporting of Mineral Resources and Mineral Reserves.
- Consulting role with developing geological and grade models, standards and procedures, data systems and production reconciliation.
- Publication of one scientific paper as co-author.

Lonmin Platinum, Marikana (Jul-2007 to May-2018)

- Lonmin Platinum Manager Group Geology and Mineral Resources. Group Head of discipline within Mine Technical Services responsible for managing the group geology and mine evaluation, including RSA exploration and brown field exploration, and QAQC of Mine Laboratories. Earlier positions held with Lonmin were Manager Mineral Resources and Group Manager Geology.
- Competent Person for reporting all Lonmin's Mineral Resources (from 2013).
- Development of geological and mineral resource models and systems across Marikana, Akanani, Limpopo and Sudbury Canada.
- Technical lead for geology and mineral resources on multiple mine feasibility studies.
- Consulting, auditing and alignment functions.
- Publication of two scientific papers.

Debswana Diamond Company (Jwaneng, Botswana) (Dec-2003 to Jun-2007)

- Group Resource Extension Manager responsible for defining future resource extension programs for the Orapa and Jwaneng Mines. This consulting and strategic role involved integration of the geological models with conceptual underground mine designs.

- Project Manager of large capital resource extension project at Jwaneng Mine. Accountable for the data acquisition and delivery of an upgraded mineral resource of the world's richest kimberlitic deposit.

BCL Limited (Selebi Phikwe, Botswana) (Mar-1998 to Dec-2003)

- Chief Geologist and competent person for management of the mineral resources, grade control and ore accounting of the Selebi Phikwe Ni-Cu deposits.
- Exploration activity focuses on extension of existing deposits.
- Held legal appointment as sub-ordinate manager in terms of Botswana Mine's and Quarries Act, 9.4 & 9.5. Obtained Strata-control Certificate in Rock Mechanics
- Publication of two papers

Northam Platinum Limited (Thabazimbi, South Africa) (Mar-1995 to Feb-1998)

- Chief and Senior Geologist responsible for production geology activities of tabular Pt-Ni-rich Merensky Reef. Included water sealing of high yielding fissures and routine rock mechanic and strata-control function associated with deep level mining.

Gold Fields Ghana (Tarkwa Au Mine) (May-1994 to Feb-1995)

- Mine Geologist responsible for gold exploration of resource extensions in the areas surrounding the Tarkwa Gold Mine.

Black Mountain (Pty) Limited Aggeneys (Jan-1989 to Apr-1994)

- Mine Geologist responsible for production geology and grade control. Also included mineral resource modelling of massive Cu-Pb-Zn-Ag orebodies.
- Read for M.Sc. thesis by dissertation (three years part-time study).
- Publication of three papers

Publications

Frimmel, H.E., Hoffmann, D. and Moore, J.M. (1993). Preservation of syn-depositional geochemical characteristics of the Broken Hill massive sulphide deposits, South Africa, during upper amphibolite facies metamorphism. International Conference.

Frimmel, H.E. and Hoffmann, D. (1993). Internal buffering of the fluid composition during high-grade metamorphism of sedex massive sulphide bodies in Namaqualand, South Africa.

Frimmel, H.E., Hoffmann, D. and Watkins,R.T. (1995). A Fe analogue of kinoshitalite from Broken Hill massive sulphide deposit in the Namaqualand Metamorphic Complex, South Africa. American Mineralogist, Vol. 80.

Hoffmann, D. (1994). Geochemistry and genesis of manganiferous silicate-rich iron formation bands in the Broken Hill deposit, Aggeneys, South Africa. Canadian Exploration Journal.

Hoffmann, D. (2002). Structural control and metal zonation in the Selebi Phikwe Ni-Cu sulphide deposits, Botswana. International Conference on Mafic Magmatic Deposits, Namibia.

Hoffmann, D. and Gushee, G. (2002). Ni-Cu resource evaluation in the tabular South East extension massive sulphide orebody, BCL's Phikwe Mine, Botswana. Botswana First International Mining Conference.

Hoffmann, D. and Plumb, S. (2015). Predicting the probability of iron-rich ultramafic pegmatite (IRUP) in the Merensky Reef at Lonmin's Karee Mine. SAIMM.

Hoffmann, D. and Smith, P. (1992). The structural setting of the Broken Hill ore deposit, Namaqualand. TDOG Seminar.

Hoffmann, D. (2010). Statistical size analysis of potholes: an attempt to estimate geological losses ahead of mining at Lonmin's Marikana mining district. SAIMM. 4th International Platinum Conference.

Damian Smith

ABRIDGED CURRICULUM VITAE

Personal Details

Telephone	(W)	+27 (0) 11 759 6025
	(Cell)	+27 (0) 82 456 4530
E-mail	damian.smith@norplats.co.za	
Date of Birth	14th November 1967	
Nationality	British	
Professional Affiliation	Pr. Sci. Nat. (SACNASP) Reg. No. 400323/04	
	FGSSA	

Professional Experience

July 2020 to present — **Northam Platinum Holdings Ltd**
Executive: New Business

I report to the CEO and board, and am responsible for all aspects of new business, acquisitions, projects and technology, whilst retaining my role as Group Geologist and Group Lead Competent Person for declaring Mineral Resources and Mineral Reserves.

October 2017 to July 2020 — **Northam Platinum Ltd**
Group Geologist

I reported to the CEO and board and coordinated all aspects of geology and ore resources within the Northam Platinum Group, as well as assessing and advising on new projects and managing exploration/evaluation programs for PGM, Iron and Manganese deposits. The company's resource base included: Northam Platinum Mine, Booysendal PGM exploration project, a portion of Dwaalkop PGM exploration project, a portion of Pandora PGM Mine and the Middeldrift PGM exploration project, all located within the Bushveld Igneous Complex of South Africa. I advised on resource matters pertaining to Bankable Feasibility Studies concerning the Booysendal and Middeldrift PGM exploration projects.

February 2009 to October 2017 — **Prospect Geoservices**
Principal Member

As principal member of Prospect Geoservices I consult to the mineral resources sector in the fields of geology, ore resource evaluation, mine planning and project management. I am currently, or have recently been involved in the following:

- Managing the planning and implementation of three new build PGM mines from concept to production
- Planning, managing and auditing exploration programs for PGM, chrome, gold, copper and coal
- Compiling and auditing SAMREC and JORC compliant PGM, chrome and gold resource and reserve estimates
- Developing PGM, chrome and gold resource models
- Generating PGM, chrome and gold targets for exploration within Southern Africa
- Advising on ground water and rock consolidation strategies for various operations
- Conducting due diligence studies of various exploration and mining operations
- Negotiation and conclusion of acquisitions of mining operations

March 2006 to January 2009 **Northam Platinum Ltd**

Group Geologist

I reported to the CEO and board, and coordinated all aspects of geology and ore resources within the Northam Platinum Group, as well as assessing and advising on new projects and managing exploration/evaluation programs for PGM, Iron and Manganese deposits. The company's resource base included; Northam Platinum Mine, Booysendal PGM exploration project, a portion of Dwaalkop PGM exploration project, a portion of Pandora PGM Mine and the Middeldrift PGM exploration project, all located within the Bushveld Igneous Complex of South Africa. I advised on resource matters pertaining to Bankable Feasibility Studies concerning the Booysendal and Middeldrift PGM exploration projects.

June 2001 to February 2006 **Northam Platinum Ltd**

Chief Geologist

I reported to the CEO and board, and was responsible for all aspects of geology and ore resources within the company. Furthermore, up to December 2002, I was concurrently appointed as Chief Rock Engineer, and thereby responsible for the Rock Engineering Department of Northam Platinum Mine.

My role as Chief Geologist involved the following:

- Compiling and Signing off ore reserve/resource statements
- Determining departmental budgets
- Coordinating the mine's Geology Department, consisting of Geologists and Geological Observers
- Assessing personnel performance and defining training requirements
- Managing cover and prospect drilling programs, as well as fissure water sealing projects
- Defining and negotiating drilling contracts

- Developing standard procedures covering drilling activities
- Coordinating risk assessments for drilling and sealing procedures, machinery and materials
- Managing a surface grout injection plant
- Contributing to the company's environmental monitoring program (specifically w.r.t. hydrogeology)
- Evaluating new business proposals and prospects
- Performing due diligence studies
- Developing exploration programs
- Chairing the divisional health and safety forum

I have working experience of the following software; ArcGIS, Cadsmine, Microstation, Datamine, Surpac, Oasis Montaj and UDEC.

Nov. 1998 to June 2001	**Northam Platinum Ltd.** **Senior Mine Geologist**
Nov 1996 - Nov 1998	**Gold Fields of South Africa Ltd** **Sectional Geologist - Northam Platinum mine**
Oct 1992 - Sep 1996	**Compania Minera del Sur (COMSUR) Ltda** **Exploration Geologist - Project Huayna Porco**
Apr 1992 – Sep 1992	**Royal School of Mines** **Research Postgraduate**
Oct 1991 - Mar 1992	**Gold Fields of South Africa Ltd** **Sectional Geologist - Kloof Gold mine**

Tertiary Qualifications

Qualification	**Year**	**Institution**
BSc (Hons) Geology (First Class) Boswell Prize for Excellence	1991	University of Liverpool, UK
MSc Mining Geology	1992	Camborne School of Mines, UK
Rock Engineering Ticket	1999	Chamber of Mines, RSA

Other Qualifications

SACNASP Professional Natural Scientist (Pr. Sci. Nat.) Reg. No. 400323/04
Chamber of Mines Elementary Rock Mechanics Certificate, 1999.

Currently studying for B.Com. (Economics/Business Management) through UNISA

Professional Affiliations

Fellow of the Geological Society of South Africa (FGSSA), 2012
Master of the Camborne School of Mines (MCSM), 1992

Member of the South African Institute of Rock Engineers (SANIRE), 1997

Associate member of the Association of Mine Managers, South Africa (MAMMSA), 2004

Publications

Reid, D.L., Roberts, M.D., Miller, J.A., Basson, I.J., Roberts, M. and **Smith, D.S.** (2006): Lateral persistence of the Merensky Cyclic unit and the significance of footwall reconstitution with Normal and Regional Pothole reef types in the Bushveld Complex. Geochmica et Cosmochimica Acta 70, 18.

Roberts, M.D., Basson, I.J., Miller, J.A., Reid, D.L., Roberts, M. and **Smith, D.S.** (2007): Petrology and whole-rock geochemistry of Normal and Regional Pothole Reef Sub-facies at Northam Platinum Mine: Implications for PGE mineralization in the Rustenburg Layered Suite, Bushveld Complex, South Africa. Mineralium Deposita 42, 271-292.

Smith, D.S. & Basson, I.J. (2006*): *Shape and distribution analysis of Merensky Reef potholing, Northam Platinum Mine, western Bushveld complex: Implications for pothole formation and growth. *Mineralium Deposita 41, 281-295.*

Smith, D.S., Basson, I.J. & Reid, D.L. (2004): The Normal Reef Sub-Facies of the Merensky Reef at Northam Platinum Mine, Zwartklip Facies, western Bushveld Complex, South Africa. *Canadian Mineralogist 43, 875-892*.

Mccall, M., Miller, J.A., Basson,I., du Plessis, A. and **Smith, D.** (2015): The application of XCT in determining the 3-D environment of in- situ PGM grains and associated minerals from the Bushveld Complex, South Africa. *12th International Platinum Symposium, Yekaterinburg, Russia.*

Smith, D.S. (2007): IRUP; challenges to mining. AMMSA abstracts 2007.

Reid, D.L., Roberts, M.D., Miller, J.A., Basson, I.J., Roberts, M. and **Smith, D.S.** (2006): Lateral persistence of the Merensky Cyclic unit and the significance of footwall reconstitution with Normal and Regional Pothole reef types in the Bushveld Complex. *Goldschmidt 2006 conference, Perth, Australia.*

Smith, D.S. and Basson, I.J. (2005): Shape and distribution analysis of FWP2 potholing on the Merensky Reef, Northam Platinum Mine: Implications for pothole formation and growth. *GEO2005, Durban*.

Roberts, M.D., Roberts, M., Reid, D.L., Basson, I.J., Miller, J.A. and **Smith, D.S.** (2005): Continuity of PGE mineralization associated with the Merensky Event in the regional pothole sub-facies at Northam Platinum Mine, *GEO2005, Durban*.

Smith, D.S., Basson, I.J. & Reid, D.L. (2003): Normal Merensky Reef on Northam Platinum Mine, Zwartklip Facies, Upper Critical Zone, Western Bushveld Complex. *Ninth International Platinum Symposium (Billings, Montana), extended abstracts.*

Smith, D.S., Basson, I.J. & Reid, D.L. (2002): Normal Merensky Reef in proximity to the Regional Pothole Sub-Facies of the Zwartklip Facies, Upper Critical Zone, Western Bushveld Complex. *Eleventh Quadrennial IAGOD Symp. and Geocongress (Windhoek, Namibia), extended abstracts.*

Suan Mulder

ABRIDGED CURRICULUM VITAE

Residence: Pretoria

Phone number: 083 779 1730

E-mail address: Suan.mulder@norplats.co.za

An Environmental Professional with 26+ years of experiencing in the environmental management field, in particular within the mining industry. Worked as an Environmental Management Consultant for numerous clients over the past 10 years, before joining Northam Platinum in January 2022 as Group Environmental Consultant. Prior to undertaking environmental consultancy work in 2011, employed by Impala Platinum (a member of the Implats group of companies) as the Group Environmental Consultant.

Developed a vast range of skills and have the ability to deal with a wide range of environmental risks, requirements and challenges. A proven track record for excellent personal, communication and organisation skills to lead, improve and built on various aspects of environmental management, including reporting, within an organisation. Team player with integrity, high quality of work, driven, self-motivated and able to work independently.

Skills/Knowledge base

• Development and implementation of environmental strategies and operational plans • Environmental compliance monitoring and reporting • Principles, framework and requirements of South African environmental and mineral law • Environmental management systems • Environmental authorisation and licencing applications • Operational environmental management and compliance • Environmental impact assessments • Environmental auditing • Environmental reporting (Global Reporting Initiative, Carbon Disclosure project, FTSE/JSE Responsible Investment Index (previously SRI Index)) • Greenhouse gas accounting and reporting protocols • International environmental and social Standards (Equator Principles, • International Finance Corporation Performance Standards, • The World Bank standards, ISO14001) • Climate change • Mining and Biodiversity Guidelines • Mine closure and rehabilitation • Water, waste and air quality management

Experience

JANUARY 2022 – PRESENT

Group Environmental Consultant / Northam Platinum Holdings Ltd

Joined Northam in January 2022 to primarily monitor and consult to operations on aspects related to the physical environment, environmental legal compliance and environmental management systems to

ensure Northam obtains and maintains its licence to operate. Additional responsibilities include internal and external reporting and disclosures.

OCTOBER 2014 – DECEMBER 2021

Environmental Consultant & Owner / Emerald Sustainable Solutions (Pty) Ltd

Offers a wide range of environmental support and consulting services to clients in specifically the mining environment, which includes the following:

- development of sustainability, climate change and environmental strategies and policies;
- development of strategic and operational management plans and the monitoring of its implementation to ensure compliance to local environmental legislative requirements as well as internal best practice such as the International Finance Corporation (IFC) Equator Principles and The World Bank requirements;
- assisting clients preparing for sustainability funding requirements such as green and sustainability-linked bonds;
- environmental compliance assessments and audits;
- facilitating, managing and coordinating multi-disciplinary environmental impact assessment teams, environmental authorisation processes and licence applications;
- implementation of environmental management plans, conditions and requirements associated with environmental authorisations and licenses and environmental monitoring programmes;
- environmental due diligence investigations;
- identification of continual improvement opportunities;
- liaison with government officials regarding environmental authorisations and license applications and compliance thereof;
- compilation of internal/external monthly, quarterly and annual environmental reports, including greenhouse gas emissions;
- strategic environmental risk identification and solution formulation; and
- sustainability assessments and alternative land use analysis in partnership with financial consultants for various environmental impact assessment projects in the mining industry.

OCTOBER 2011 – SEPTEMBER 2014

Environmental Consultant / SLR Consulting (Africa) (Pty) Ltd

Main responsibilities included environmental impact assessments and environmental auditing. Auditing expertise included assessments of environmental and socio-economic management practices, environmental management programmes, environmental authorisations and environmental licences (water, waste, air emission) as well as assessments against the Equator Principles, IFC (International Finance Corporation) standards and World Bank guidelines. Other areas of expertise include the development and implementation of environmental strategies and operational plans to address a range of environmental aspects and development of numerous IS014001 based environmental managements systems. Assisted client with the development and implementation of management plans to ensure compliance to Equator Principles, IFC standards and relevant guidelines for funding purposes. This included liaison with funding institutions.

FEBRUARY 1996 – SEPTEMBER 2011

Numerous positions; last position held: Group Environmental Consultant / Impala Platinum (Pty) Ltd

Joined the Implats group in 1996 as a metallurgist and proceeded a career within the environmental field. Was appointed Group Environmental Consultant in 2009 responsible for environmental management at the various South African and Zimbabwean based operations. Member of the Implats Safety Heath and Environmental Executive Committee.

Primary objective was to define strategy, manage and monitor aspects related to the physical environment, environmental legal compliance, environmental management systems (ISO14001 based) and relationships with external and internal stakeholders, including landowners, to ensure Implats obtained/maintained licenses to operate. Involved in a number of community development initiatives.

Overseen a number environmental authorisation processes and was responsible for coordinating multidisciplinary Environmental Impact Assessment (EIA) teams and for the review and quality control of the EIA and Environmental Management Programme (EMPr) and related reports. Liaison with key stakeholders, including project engineering teams. Developed and implemented management strategies, standards, monitoring programs and reporting structures for environmental management aspects, including waste, water, air, biodiversity, closure and rehabilitation and climate change.

Responsible for corporate reporting and initiated the first Implats Corporate Responsibility Report; coordinating the compilation of the report for four years. Compliance standards included the Global Reporting Initiative. Responsible for Carbon Disclosure Project response as well as the Water Disclosure Project. Represented Implats at various national forums, including the Minerals Council of South Africa and the National Business Initiative.

Education

1996: B Eng Chemical, with Mineral Processing/University of Stellenbosch
2016: Qualified Master Life Coach/InnerlifeSkills, Johannesburg

References

References available on request.
List of projects available on request.

Activities

• Literature • Enneagram studies • Cycling •Oil Painting

Sandra Gore

ABRIDGED CURRICULUM VITAE

Personal Details

Telephone	(Cell) +27 (0) 71 678 9990
E-mail	Sandra.Gore@norplats.co.za
Date of Birth	3 March 1975
Nationality	South African
Professional Affiliation	Member of the Law Society and Environmental Law Association

Tertiary Qualifications

Qualification	Year	Institution
LLB	1998	Rhodes University
LLM	2011	UNISA

CAREER

Sandra Gore specializes in a wide range of environmental, health and safety, mining title, energy, land use, administrative and regulatory law issues.

Sandra completed her articles in the Commercial Law Department of De Vries Incorporated. From her admission in 2001 she directed High Court Litigation Departments in various law firms. She joined Bowman Gilfillan Inc. in 2008 and was a senior associate in their Energy and Environment, Natural Resources and Climate Change Practice Area. Sandra completed a master's degree part time, with courses in environmental, international economic, sustainable development and development law. Sandra joined Cliffe Dekker Hofmeyr as a director in 2012, where she practiced until 2020.

Since March 2020 she has been an independent legal consultant. Sandra is regarded as one of the leading specialists in environmental law, evidenced from her She has been rated in several directories including Chambers Global (2017 - 2022) – Band 3; Who's Who Legal (2017 - 2021); International Who's Who of Business Lawyers (2016); Legal 500 EMEA Series; and The Best Lawyers in South Africa (2020).

One of her particular areas of specialization is in the mining sector. She has an in-depth practical understanding of the legislation governing mines and the implications of their recent developments,

including mineral rights and environmental licenses; pollution; rehabilitation; environmental management; and stakeholder engagement.

Sandra has represented several mining companies in High Court review proceedings and interdicts and a wide range of administrative appeals. She has also successfully defended mining companies against criminal and administrative enforcement proceedings and actions by interested and affected parties.

She has represented mining companies in high profile transactions, which included undertaking due diligences; advising on liability issues, transfer of licenses and mining title; and other transactional advise. Sandra regularly undertakes audits of mining companies, to assess high risk areas and provide practical advice on on-going environmental management.

Sandra is widely published on environmental regulation in the mining sector and is regularly invited to present seminars or give radio interviews.

Examples of her experience is set out below.

EXPERIENCE

Recent examples of mining companies Sandra has furnished advice to include:

- Northam Platinum Ltd
- Lonmin Platinum (Pty) Ltd
- De Beers Consolidated Mines (Pty) Ltd
- Shanduka Group (Pty) Limited
- Platinum Group Metals Ltd
- Anglo Operations Ltd
- Coal of Africa Ltd
- Northam Platinum Ltd
- Jagersfontein Developments (Pty) Ltd for Reinet Investments SCA
- Rooipoort Developments (Pty) Ltd for Reinet Investments SCA
- Vergenoeg Mining Company (Pty) Ltd
- Sudor Coal (Pty) Ltd
- Chromex Mining Company (Pty) Ltd
- Sasol Mining (Pty) Ltd
- Pengxin International Mining Company Ltd for China African Precious Metals (Pty) Ltd
- African Exploration Mining and Finance Corporation {Pty) Ltd
- Royal Bafokeng Platinum Ltd

Transaction advice and due diligence

Examples of recent transactions include:

- Northam Platinum Ltd, Zondereinde Mine - purchase of a portion of Rustenburg Platinum Mines (Pty) Ltd's Amandelbult Mining Right
- De Beers Consolidated Mines (Pty) Ltd - sale of Kimberly Mine
- Lonmin Pie - rights issue
- Northam Platinum Ltd - acquisition of Everest Mine
- Pengxin International Mining Company Ltd for China African Precious Metals (Pty) Ltd -

acquisition of Pamodzi Gold Orkney (Pty) Ltd
- Cargill Inc. and Shanduka Group - various transactions relating to Pembani Coal Carolina (Pty) ltd
- Sudor Coal (Proprietary) Limited for its potential acquisition by Lanclot Trading and Investments (Proprietary) Limited;
- Royal Bafokeng Platinum Ltd for its listing,
- Acquisition of De Beers Namaqualand Mine by TransHex and transfer of the Mine's sustainability agreements
- Acquisition of Mashala (Pty) Ltd by Cargill Inc.
- Acquisition of Riversdale Mining Ltd for Rio Tinto PLC
- Northam Platinum Ltd in the restructuring of the Mvelaphanda Group

High Court litigation, administrative appeals and directives

- Representing Jagersfontein Developments (Pty) Ltd, a subsidiary of Reinet Investments (SCA), in interdict and review proceedings in respect of environmental issues arising from its tailings operations.
- Representing Coal of Africa (Pty) Ltd in the various administrative appeals; interdict proceedings and directives arising from its Vele Colliery, situated near Mapungubwe National Park.
- Representing Absa Property Development in opposing the grant of mineral rights over a property planned for a Township Development.
- Representing Anglo Operations Ltd in various administrative appeals, including successfully opposing the grant of an environmental authorisation to Rustenburg Platinum Mine over its property; submitting replying statements in an appeal bought by the Phumelela Racecourse in respect of an environmental authorisation for the expansion of the New Vaal Colliery and submitting an appeal against an environmental authorisation granted to Khongoni Haaskraal Coal (Pty) Ltd over properties held under Anglo's exploration right for coal bed methane.
- Representing Northam Platinum in lodging an administrative appeal against the acceptance of a prospecting right application over properties held under the Zondereinde Mine.
- Advising Eskom Holdings SOC in responding to a directive issued by the Department of Environmental Affairs for its Camden Power Station.
- Representing Chromex Mining Company (Pty) Ltd in respect of a pre-directive relating to alleged environmental permits required.
- Advising Platinum Group Metals Ltd in relation to a complaint issued by another mining company regarding alleged defects in the licences held for its tailings facility.
- Representing Dino Properties (Pty) Ltd in submitting administrative appeals against the grant of mineral rights over ORD Gold Ltd's previous mine area due to the establishment of Goudrand Extension Township Development.
- Representing TWK Agriculture Limited in its objection against Lingret (Pty) Limited's application for a mineral right over its plantation.
- Review proceedings and administrative appeals on mining titles issues (representing African Exploration Mining and Finance Corporation (Pty) Ltd).
- Representing Oil Pollution Control South Africa in submitting administrative appeals against the grant of mining rights and environmental authorisations due to oil pollution risks.

Waste and hazardous substances

- Advising on all aspects of waste management, including storage, transport and disposal, under the various legislation, regulations and guidelines.
- Advising Sasol Mining (Pty) Ltd on the permitting requirements for its tailings facilities due to the various amendments and proposed amendments of the MPRDA.
- Advising Platinum Group Metals Ltd on all aspects in relation to the development of its tailings facility on the Maseve Mine.
- Advising Jagersfontein Developments (Pty) Ltd on the potential classification of its tailings as waste and the possible backfilling of the Jagersfontein Pit, a national heritage site.
- Representing Sasol Chemical Industries (Pty) Ltd in a R10 million civil action for recovery of damages incurred from unlawful waste disposal on its property.
- Furnishing opinion to Impala Platinum Ltd on the export of hazardous substances.
- Advising S.A. Metals Equity (Pty) Ltd on an agreement for purchase of dangerous goods from

Xstrata South Africa (Pty) Ltd.

- Advising Puma Energy on an Agreement relating to storage facilities for dangerous goods at the Richards Bay Port.

Health and Safety

- Assessing health and safety liability in due diligence for companies listed above.
- Sole legal representative for Rand Mutual Assurance Company for over 4 years.
- Representing Graftech International in an internal fatality enquiry.
- Drafting health and safety legal registers for Eskom Holdings SOC.
- Drafting health and safety contractual provisions for Telkom SA Ltd and Neotel (Pty) Ltd.

PUBLICATIONS

Sandra has authored or co-authored several publications, including:

- "Crippling 2015 Mining Financial Provision Regulations - possible deadline extensions for likely rehabilitation liability increases and income tax penalties due to legislative riddles - ***Business Report***
  - ***"Breathing space for mines as Department of Water and Sanitation relaxes tailing lining requirements"***
  - ***"Progress in the transition of regulations for mining operations".*** http://www.golegal.co.za/legislation/progress-transition-regulation-mining-operations environmental-management. April 2015
  - **"One *Environmental system required"*** - Business Brief *http://www.bbrief.co.zalresourceslmagazine-articleslone-environmental-system-required.* December 2014
- "NEMA Amendments may freeze entire projects". Business Day Business Law and Tax Review Http:f/www.legalbrief.co.za/article.php?Story=20140902104756918 October 2014
- "NEMA: Not thought through". **August 2014 Http://www.financialmail.co.za/features/2014/08/28/nema-not-thought-through**
- "One Environmental System: Reduced time frames for environmental authorisations". Cape Times, Pretoria News, The Mercury, The Star. Http://www.polity.org.za/article/one-environmental-system-reduced-time-frames-for environmental-authorisation-applications. October 2014.
  - *"Potential delays to mining operations due to the requirements for waste management* licenses", September 2014: Potential delays to mining operations due to the requirements for waste management licenses (polity.org.za)
  - ***The Environmental Law Rubicon regulating Mineral Operations - Latest Developments.*** *https:llwww.lexology.com/libraryldetail.aspx?g=6410f599-bf75-47a7-bbd8-336f855009f5* September 2014
- "New legal framework for mine dumps defines ownership". ***Mining Weekly.*** *http:llwww.miningweekly.com/topiclsandra-gore.*March 2014.
  - ***"The risks of the Green Scorpion's Sting increases"*** Https://www.lexology.com/library/detail.aspx?G=b30ead78-1697-407b-914f-8659ca673875. October 2014.
  - ***"Government publishes new fracking regulations".*** Http://www.thegreentimes.co.za/stories/action/item/2352-government-publishes-new-fracking regulations. October 2013.
  - ***"The Broadening Landscape of Rectification Applications to Include listed Air Emission and Waste Management Activities and significantly increased penalties"*** (Legalbrief Environmental. October 2013. http://www.bizcommunity.com/Article/196/638/101054.html
  - ***"Ministers squabble and mining law maze".*** Business Day and Radio 702 Midday Report. Http://www.bdlive.eo.za/business/mining/2013/06/05/ministers-squabble-amid-mining-law

maze. June 2013.

- ***"New Land Restitution Bill to open flood gates".*** Pretoria News, Cape Times Business Report, Mercury Business Report, the Star Business Report, SAFM). Http://www.iol.co .za/business/business-news/new-land-restitution-bill-to-o pen-flood-gates-1.1530217. June 2013.
- ***"Mines grapple with water use problem"*** Business Day Business Law and Tax Review. May 2013
- ***"Protecting the Continent from Environmental Degradation".*** Without Prejudice May 2013.
- ***"The remaining rifts between environmental regulation under NEMA and the MPRDA*** http://www.polity.org.za/article/the-remaining-rifts-between-environmental-regulation-under nema-and-the-mprda-2013-02-15 February 2013
- "Streamlining water use licence applications Into environmental mining regulation" http://www.bizcommunity.com/Article/196/547/92264.html April 2013
- ***"Environmental compliance Is key"*** - Business Report
- ***"Environmental Authorisations Required for associated activities in mining and prospecting - the Maccsand's case".*** International Law Office. October 2010. http://www.intemationallawoffice.oom/newsletters/detail.aspx?g=384aaace-65d0-44d8-b48a-79587b65c273
- Chapter on mining legislation and commercially related issues in South Africa (Getting the Deal 2008; 2009 and 2010).
- Chapter on environmental legislation and commercially related issues in South Africa *(International Environmental Comparative Law Journal 2009).*

PRESENTATIONS

- Shale Gas Africa Seminar 2014: "***Environmental and Mining Legal Developments in respect of Shale Gas"***
- Salvo Global 2013: ***'Water and Waste Management in Mining".***
- Melrose Training 2013: ***"EIA Regulations Conference"***
- Embassy of the Republic of Korea 2013:***"Proposed amendments to the Mineral and Petroleum Resources Development Act, 2002 - status of the South African mining Industry, recent developments and investor concerns".***
- SEIFSA 2012: "The Net of Environmental Liability- Avoiding the Green Sting"
- The Fracking Association of South Africa 2011:***"Environmental protection in mining under South Africa's legislation".***
- The Law Society of South Africa, LEAD course 2008: ***"Implications for non-compliance with the Minerals and Petroleum Resources Development Act".***
- Legal Advisors at Eskom Holdings Ltd and also members of the Right of Way Association 2010 and 2011: ***"Rights of surface right holder under the Minerals and Petroleum Resources Development Act".***

ANNEXURE D

THE ANNUAL FINANCIAL STATEMENTS FOR NORTHAM PLATINUM LIMITED,

AS OF 30 JUNE 2021

See attached PDF

ANNEXURE E

ANNUAL SCHEDULES FOR THE PROSPECTING WORK PROGRAMME DETAILING INDIVIDUAL SUB-TASKS, INCLUDING REHABILITATION OF SITES DISTURBED BY INVASIVE ACTIVITIES

Year 1 schedule

year 1

No.	Task	Number	Basis	Unit cost	Total Cost	Labour Costs (Direct)	Prospecting Costs (Direct)	Sundry Costs	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
A	**Desktop Study & Application Preparation**																			
1	Collection & collation of existing exploration data	2	Daily	4500	9000	9000	0													
2	Data cost	1	Total	5000	5000	0	5000													
3	Procurement of aerial photographs over prospective areas	5	Per	6	30	0	30													
4	Procurement of ortho photographs over prospective areas	5	Per	8	40	0	40													
5	Examination and re-interpretation of geological map of general area	1	Daily	4500	4500	4500	0													
6	Interpretation of exisiting data	1	Daily	4500	4500	4500	0													
7	Budget and logistical planning	1	Daily	4500	4500	4500	0													
8	Preparation & submission of application for EPL	2	Daily	4500	9000	9000	0													
9	Preparation & monitoring of EMPR	1	Per	25000	25000	25000	0													
10	Consultation with affected parties	2	Daily	4500	9000	9000	0													
11	6-monthly reporting on exploration progress	1	Daily	4500	4500	4500	0													
12	Borehole layout	1	Daily	4500	4500	4500	0													
	Sub-total				***79570***	***74500***	***5070***	***0***												
B	**Borehole Sampling & Assay Analysis**																			
1	Sampling of boreholes	0	see below	4500	0	0	0													
2	QA/QC & audit	1	Total	10000	10000	5000	5000													
3	4E, Pt, Pd, Rh, Au, Cu, Ni, Cr2O3, SG	0	Each	800	0	0	0													
4	Data handling and interpretation	3	days	4500	13500	13500	0													
	Sub-total				***23500***	***18500***	***5000***	***0***												
C	**Borehole Drilling, trenching & logging**																			
1	Dry percussion (NQ)	0	Metre	240	0		0													
2	Diamond coring (NQ) boreholes	0	Metre	1450	0	Undertaken over 5 year period	0													
3	trenching	0	Per	10000	0	Undertaken over 5 year period	0													
4	Core logging and sampling of drill chips and core	0	Daily	4500	0	Undertaken over 5 year period	0													
5	Rehabilitation of drill, trench sites		Per	5000		built in	0													
	Sub-total				***0***	***0***	***0***	***0***												
D	**Geophysical Surveys**																			
1	Mobilisation & acquisition of seismic data	0	line km	78000	0	Outsourced	0													
2	Mobilisation & acquisition of aeromagnetic data	0	line km	85	0	Outsourced	0													
3	Data interpretation	0	Daily	5000	0	Outsourced	0													
4	Incorporation into geological model and interpretation	0	Daily	8000	0	Outsourced	0													
	Sub-total				***0***	***0***	***0***	***0***												
E	**Modelling & Resource Estimation**																			
1	Data manipulation	1	Daily	4500	4500	Outsourced	4500													
2	Ore body modelling	2	Daily	5000	10000	Outsourced	10000													
3	QA/QC	1	Daily	5000	5000	Outsourced	5000													
4	Presentation & report compilation	1	Daily	5000	5000	Outsourced	5000													
	Sub-total				***24500***	***0***	***24500***	***0***												
F	**Other Work - including prospecting fees**																			
1	Surface Mapping	3	Daily	4500	13500	13500	0													
2	Per hectare cost of licence (approx 16150 ha, based on a 10km by 5km area)	1169	per annum	1.0	1169	0	1169													
3	other costs for site access to farms	0	total	10000	0	0	0													
4	SAHRA audit	1	total	10000	10000	0	10000													
					24669	***13500***	***11169***	***0***												
G	**Sundry Items**																			
1	Road travel	3750	Km	6	21375			21375												
2	Air travel	0	Flight	2200	0			0												
3	Accommodation & meals	5	Nightly	1000	5000			5000												
	Sub-total				***26375***	***0***	***0***	***26375***												
	Total year cost			**ZAR**	**178614**	**106500**	**45739**	**26375**												

Year 2 schedule

Note: Prospecting activities for Year 2 will be subject to positive results from the first prospecting year

No.	Task	Number	Basis	Unit cost	Total Cost	Labour Costs (Direct)	Prospecting Costs (Direct)	Sundry Costs	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
A	**Desktop Study & Application Preparation**																			
1	Collection & collation of existing exploration data	0	Daily	4950	0	0	0													
2	Data cost	0	Total	5500	0	0	0													
3	Procurement of aerial photographs over prospective areas	0	Per	6	0	0	0													
4	Procurement of ortho photographs over prospective areas	0	Per	8	0	0	0													
5	Examination and re-interpretation of geological map of general area	0	Daily	4950	0	0	0													
6	Interpretation of exisiting data	0	Daily	4950	0	0	0													
7	Budget and logistical planning	1	Daily	4950	4950	4950	0													
8	Preparation & submission of application for EPL	0	Daily	4950	0	0	0													
9	Preparation & monitoring of EMPR	0.5	Per	27500	13750	13750	0													
10	Consultation with affected parties	0	Daily	4950	0	0	0													
11	6-monthly reporting on exploration progress	1	Daily	4950	4950	4950	0													
12	Borehole layout	0	Daily	4950	0	0	0													
	Sub-total				***23650***	***23650***	***0***	***0***												
B	**Borehole Sampling & Assay Analysis**																			
1	Sampling of boreholes	0	see below	4950	0	0	0													
2	QA/QC & audit	1	Total	11000	11000	5000	6000													
3	4E, Pt, Pd, Rh, Au, Cu, Ni, Cr2O3, SG	10	Each	880	8800	0	8800													
4	Data handling and interpretation	1	Daily	4950	4950	4950	0													
	Sub-total				***24750***	***9950***	***14800***	***0***												
C	**Borehole Drilling & Core Logging**																			
1	Dry percussion (NQ)	0	Metre	264	0		0													
2	Diamond coring (NQ) boreholes	30	Metre	1595	47850	Undertaken over 5 year period	47850													
3	trenching	1	Per	11000	11000	Undertaken over 5 year period	11000													
3	Core logging and sampling of drill chips and core	10	Daily	4950	49500	Undertaken over 5 year period	49500													
4	Rehabilitation of drill, trench sites	0.5	Per	5500		built in	0													
	Sub-total				***108350***	***0***	***108350***	***0***												
D	**Geophysical Surveys**																			
1	Mobilisation & acquisition of seismic data (3 x 0.5km dip lines)	0	line km	85800	0	Outsourced	0													
2	Mobilisation & acquisition of aeromagnetic data (100m line spacing, area 4kmstrike x 3km dip)	240	line km	94	43440	Outsourced	43440													
3	Data interpretation	2	Daily	5500	11000	Outsourced	11000													
4	Incorporation into geological model and interpretation	10	Daily	8800	88000	Outsourced	88000													
	Sub-total				***142440***	***0***	***142440***	***0***												
E	**Modelling & Resource Estimation**																			
1	Data manipulation	1	Daily	4950	4950	Outsourced	4950													
2	Ore body modelling	2	Daily	5500	11000	Outsourced	11000													
3	QA/QC	1	Daily	5500	5500	Outsourced	5500													
4	Presentation & report compilation	1	Daily	5500	5500	Outsourced	5500													
	Sub-total				***26950***	***0***	***26950***	***0***												
F	**Other Work**																			
1	Surface Mapping	0	Daily	4950	0	0	0													
2	Per hectare cost of licence (approx 16150 ha, based on a 10km by 5km area)	16150	per annum	1.5	24225	0	24225													
3	other costs for site access to farms	1	total	0	0	0	0													
					24225	***0***	***24225***	***0***												
G	**Sundry Items**																			
1	Road travel	2000	Km	6	12540			12540												
2	Air travel	4	Flight	2420	9680			9680												
3	Accommodation & meals	20	Nightly	1100	22000			22000												
	Sub-total				***44220***	***0***	***0***	***44220***												
	Total year cost			**ZAR**	**394585**	**33600**	**316765**	**44220**												

Year 3 schedule

Note: Prospecting activities for Year 3 will be subject to positive results from the second prospecting year

Note: Prospecting activities for Year 3 will be subject to positive results from the second prospecting year

No.	Task	Number	Basis	Unit cost	Total Cost	Labour Costs (Direct)	Prospecting Costs (Direct)	Sundry Costs	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
A	**Desktop Study & Application Preparation**																			
1	Collection & collation of existing exploration data	0	Daily	5445	0	0	0													
2	Data cost	0	Total	6050	0	0	0													
3	Procurement of aerial photographs over prospective areas	0	Per	7	0	0	0													
4	Procurement of ortho photographs over prospective areas	0	Per	9	0	0	0													
5	Examination and re-interpretation of geological map of general area	0	Daily	5445	0	0	0													
6	Interpretation of exisiting data	0	Daily	5445	0	0	0													
7	Budget and logistical planning	1	Daily	5445	5445	5445	0													
8	Preparation & submission of application for EPL	0	Daily	5445	0	0	0													
9	Preparation & monitoring of EMPR	1	Per	30250	30250	30250	0													
10	Consultation with affected parties	0	Daily	5445	0	0	0													
11	6-monthly reporting on exploration progress	1	Daily	5445	5445	5445	0													
12	Borehole layout	1	Daily	5445	5445	5445	0													
	Sub-total				***46585***	***46585***	***0***	***0***												
B	**Borehole Sampling & Assay Analysis**																			
1	Sampling of boreholes	0	see below	5445	0	0	0													
2	QA/QC & audit	1	Total	12100	12100	5000	7100													
3	4E, Pt, Pd, Rh, Au, Cu, Ni, Cr2O3, SG	10	Each	968	9680	0	9680													
4	Data handling and interpretation	1	days	5445	5445	5445	0													
	Sub-total				***27225***	***10445***	***16780***	***0***												
C	**Borehole Drilling & Core Logging**																			
1	Dry percussion (NQ)	0	Metre	290	0		0													
2	Diamond coring (NQ) boreholes	30	Metre	1755	52635	Undertaken over 5 year period	52635													
3	trenching	1	Per	12100	12100	Undertaken over 5 year period	12100													
3	Core logging and sampling of drill chips and core	2	Daily	5445	10890	Undertaken over 5 year period	10890													
4	Rehabilitation of drill, trench sites	0.5	Per	6050	3025	built in	3025													
	Sub-total				***75625***	***0***	***78650***	***0***												
D	**Geophysical Surveys**																			
1	Mobilisation & acquisition of seismic data (3 x 0.5km dip lines)	1.5	line km	94380	141570	Outsourced	141570													
2	Mobilisation & acquisition of aeromagnetic data (100m line spacing, area 4kmstrike x 3km dip)	0	line km	103	0	Outsourced	0													
3	Data interpretation	2	Daily	6050	12100	Outsourced	12100													
4	Incorporation into geological model and interpretation	1	Daily	9680	9680	Outsourced	9680													
	Sub-total				***163350***	***0***	***163350***	***0***												
E	**Modelling & Resource Estimation**																			
1	Data manipulation	1	Daily	5445	5445	Outsourced	5445													
2	Ore body modelling	2	Daily	6050	12100	Outsourced	12100													
3	QA/QC	1	Daily	6050	6050	Outsourced	6050													
4	Presentation & report compilation	1	Daily	6050	6050	Outsourced	6050													
	Sub-total				***29645***	***0***	***29645***	***0***												
F	**Other Work**																			
1	Surface mapping	0	Daily	5445	0	0	0													
2	Pre-feasibility study	1	Per	180000	180000	outsourced	180000													
3	Per hectare cost of licence (approx 16150 ha, based on a 10km by 5km area)	16150	per annum	2.0	32300	0	32300													
4	other costs for site access to farms	1	total	0	0	0	0													
					212300	***0***	***212300***	***0***												
G	**Sundry Items**																			
1	Road travel	2000	Km	7	13794			13794												
2	Air travel	2	flight	2662	5324			5324												
3	Accommodation & meals	10	Nightly	1210	12100			12100												
	Sub-total				***31218***	***0***	***0***	***31218***												
	Total year cost			**ZAR**	**585948**	**57030**	**500725**	**31218**												

Year 4 schedule

Note: Prospecting activities for Year 4 will be subject to positive results from the third prospecting year

No.	Task	Number	Basis	Unit cost	Total Cost	Labour Costs (Direct)	Prospecting Costs (Direct)	Sundry Costs	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
A	**Desktop Study & Application Preparation**																			
1	Collection & collation of existing exploration data	0	Daily	5990	0	0	0													
2	Data cost	0	Total	6655	0	0	0													
3	Procurement of aerial photographs over prospective areas	0	Per	7	0	0	0													
4	Procurement of ortho photographs over prospective areas	0	Per	10	0	0	0													
5	Examination and re-interpretation of geological map of general area	0	Daily	5990	0	0	0													
6	Interpretation of exisiting data	0	Daily	5990	0	0	0													
7	Budget and logistical planning	1	Daily	5990	5990	5990	0													
8	Preparation & submission of application for EPL	0	Daily	5990	0	0	0													
9	Preparation & monitoring of EMPR	1	Per	33275	33275	33275	0													
10	Consultation with affected parties	0	Daily	5990	0	0	0													
11	6-monthly reporting on exploration progress	1	Daily	5990	5990	5990	0													
12	Borehole layout	0	Daily	5990	0	0	0													
	Sub-total				***45254***	***45254***	***0***	***0***												
B	**Borehole Sampling & Assay Analysis**																			
1	Sampling of boreholes	0	see below	5990	0	0	0													
2	QA/QC & audit	1	Total	13310	13310	5000	8310													
3	4E, Pt, Pd, Rh, Au, Cu, Ni, Cr2O3, SG	10	Each	1065	10648	0	10648													
4	Data handling and interpretation	1	days	5990	5990	5990	0													
	Sub-total				***29948***	***10990***	***18958***	***0***												
C	**Borehole Drilling & Core Logging**																			
1	Dry percussion (NQ)	0	Metre	319	0		0													
2	Diamond coring (NQ) boreholes	30	Metre	1930	57899	Undertaken over 5 year period	57899													
3	trenching	1	Per	13310	13310	Undertaken over 5 year period	13310													
3	Core logging and sampling of drill chips and core	2	Daily	5990	11979	Undertaken over 5 year period	11979													
4	Rehabilitation of drill, trench sites	0.5	Per	6655		built in	0													
	Sub-total				***83188***	***0***	***83188***	***0***												
D	**Geophysical Surveys**																			
1	Mobilisation & acquisition of seismic data (3 x 0.5km dip lines)	0	line km	103818	0	Outsourced	0													
2	Mobilisation & acquisition of aeromagnetic data (100m line spacing, area 4kmstrike x 3km dip)	0	line km	113	0	Outsourced	0													
3	Data interpretation	0	Daily	6655	0	Outsourced	0													
4	Incorporation into geological model and interpretation	0	Daily	10648	0	Outsourced	0													
	Sub-total				***0***	***0***	***0***	***0***												
E	**Modelling & Resource Estimation**																			
1	Data manipulation	1	Daily	5990	5990	Outsourced	5990													
2	Ore body modelling	2	Daily	6655	13310	Outsourced	13310													
3	QA/QC	1	Daily	6655	6655	Outsourced	6655													
4	Presentation & report compilation	2	Daily	6655	13310	Outsourced	13310													
	Sub-total				***39265***	***0***	***39265***	***0***												
F	**Other Work**																			
1	Surface mapping	0	Daily	5990	0	0	0													
2	Pre-feasibility issues	1	Per	198000	198000	outsourced	198000													
3	Per hectare cost of licence (approx 16150 ha, based on a 10km by 5km area)	16150	per annum	2.5	40375	0	40375													
4	other costs for site access to farms	1	total	0	0	0	0													
					238375	***0***	***238375***	***0***												
G	**Sundry Items**																			
1	Road travel	2000	Km	8	15173			15173												
2	Air travel	4	flight	2928	11713			11713												
3	Accommodation & meals	60	Nightly	1331	79860			79860												
	Sub-total				***106746***	***0***	***0***	***106746***												
	Total year cost			**ZAR**	**542775**	**56244**	**379785**	**106746**												

Year 5 schedule

Note: Prospecting activities for Year 5 will be subject to positive results from the fourth prospecting year

No.	Task	Number	Basis	Unit cost	Total Cost	Labour Costs (Direct)	Prospecting Costs (Direct)	Sundry Costs	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
A	**Desktop Study & Application Preparation**																			
1	Collection & collation of existing exploration data	0	Daily	6588	0	0	0													
2	Data cost	0	Total	7321	0	0	0													
3	Procurement of aerial photographs over prospective areas	0	Per	8	0	0	0													
4	Procurement of ortho photographs over prospective areas	0	Per	11	0	0	0													
5	Examination and re-interpretation of geological map of general area	0	Daily	6588	0	0	0													
6	Interpretation of exisiting data	0	Daily	6588	0	0	0													
7	Budget and logistical planning	5	Daily	6588	32942	32942	0													
8	Preparation & submission of application for EPL	0	Daily	6588	0	0	0													
9	Preparation & monitoring of EMPR	1	Per	36603	36603	36603	0													
10	Consultation with affected parties	0	Daily	6588	0	0	0													
11	6-monthly reporting on exploration progress	5	Daily	6588	32942	32942	0													
12	Borehole layout	4	Daily	6588	26354	26354	0													
	Sub-total				***128841***	***128841***	***0***	***0***												
B	**Borehole Sampling & Assay Analysis**																			
1	Sampling of boreholes	0	see below	6588	0	0	0													
2	QA/QC & audit	0	Total	14641	0	5000	-5000													
3	4E, Pt, Pd, Rh, Au, Cu, Ni, Cr2O3, SG	0	Each	1171	0	0	0													
4	Data handling and interpretation	0	days	6588	0	0	0													
	Sub-total				***0***	***5000***	***-5000***	***0***												
C	**Borehole Drilling & Core Logging**																			
1	Dry percussion (NQ)	0	Metre	351	0		0													
2	Diamond coring (NQ) boreholes	0	Metre	2123	0	Undertaken over 5 year period	0													
3	trenching	0	Per	14641	0	Undertaken over 5 year period	0													
3	Core logging and sampling of drill chips and core	0	Daily	6588	0	Undertaken over 5 year period	0													
4	Rehabilitation of drill, trench sites	0	Per	7321		built in	0													
	Sub-total				***0***	***0***	***0***	***0***												
D	**Geophysical Surveys**																			
1	Mobilisation & acquisition of seismic data (3 x 0.5km dip lines)	0	line km	114200	0	Outsourced	0													
2	Mobilisation & acquisition of aeromagnetic data (100m line spacing, area 4kmstrike x 3km dip)	0	line km	124	0	Outsourced	0													
3	Data interpretation	0	Daily	7321	0	Outsourced	0													
4	Incorporation into geological model and interpretation	0	Daily	11713	0	Outsourced	0													
	Sub-total				***0***	***0***	***0***	***0***												
E	**Modelling & Resource Estimation**																			
1	Data manipulation	1	Daily	6588	6588	Outsourced	6588													
2	Ore body modelling	2	Daily	7321	14641	Outsourced	14641													
3	QA/QC	2	Daily	7321	14641	Outsourced	14641													
4	Presentation & report compilation	4	Daily	7321	29282	Outsourced	29282													
	Sub-total				***65152***	***0***	***65152***	***0***												
F	**Other Work**																			
1	Surface mapping	0	Daily	6588	0	0	0													
2	Feasibility issues (needs definition)	1	Per	1400000	1400000	outsourced	1400000													
3	Per hectare cost of licence (approx 16150 ha, based on a 10km by 5km area)	16150	per annum	3.0	48450	0	48450													
4	other costs for site access to farms	1	total	0	0	0	0													
5	SAHRA audit	1	Total	25000	25000	0	25000													
					1473450	***0***	***1473450***	***0***												
G	**Sundry Items**																			
1	Road travel	5000	Km	8	41727			41727												
2	Air travel	12	flight	3221	38652			38652												
3	Accommodation & meals	60	Nightly	1464	87846			87846												
	Sub-total				***168225***	***0***	***0***	***168225***												
	Total year cost			**ZAR**	**1835668**	**133841**	**1533602**	**168225**												

APPENDIX 5:

DFFE SCREENING REPORT

SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE ENVIRONMENTAL SENSITIVITY

EIA Reference number: None

Project name: None

Project title: None

Date screening report generated: 19/07/2022 10:08:31

Applicant: None

Compiler: JEMS Pty Ltd

Compiler signature:

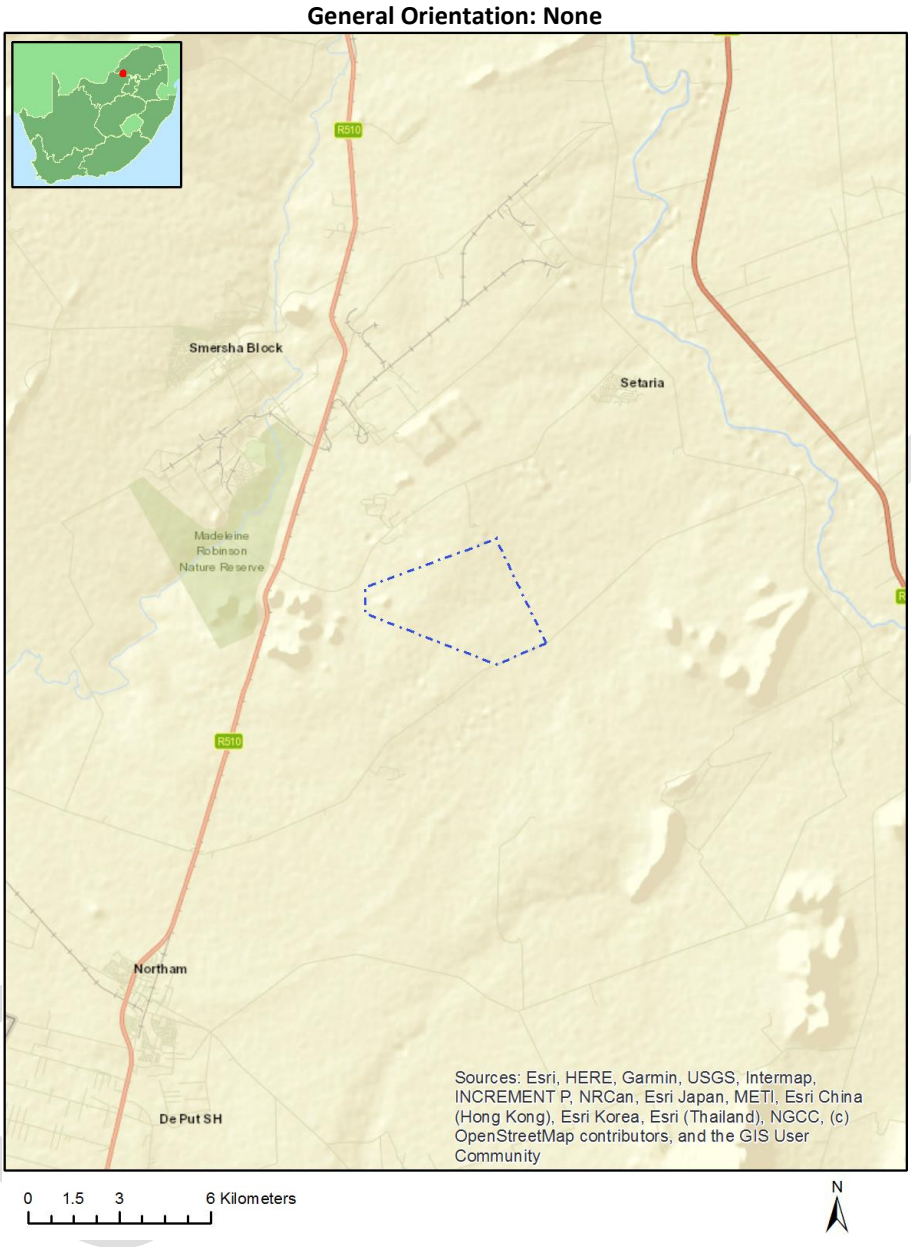
.....

Application Category: Mining|Prospecting rights

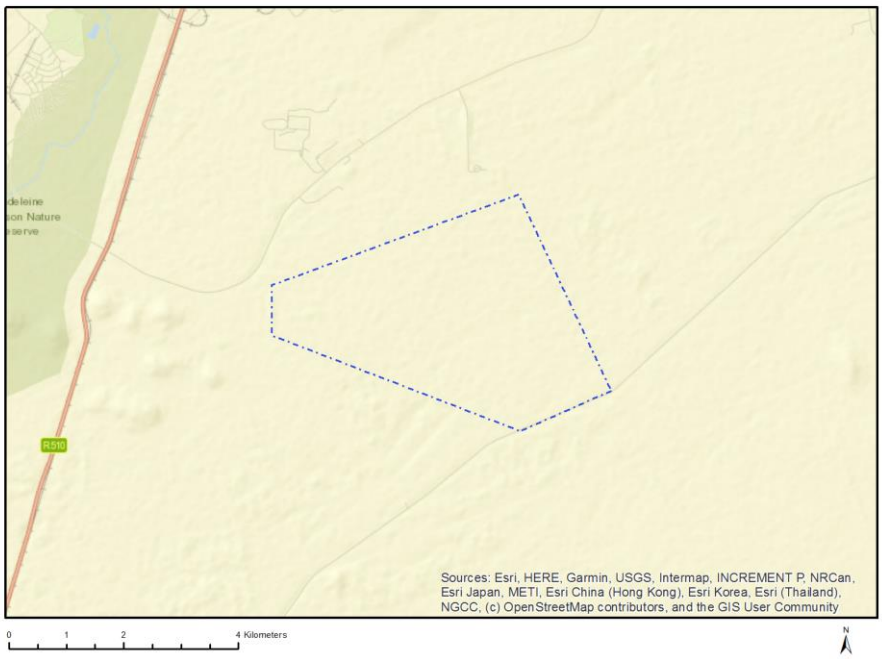
Table of Contents

Proposed Project Location

Orientation map 1: General location



Map of proposed site and relevant area(s)



Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1	KOPJE ALLEEN	422	0	24°51'46.67S	27°21'15.14E	Farm
2	WITVLEY	423	0	24°50'50.94S	27°23'57.2E	Farm
3	WITVLEY	423	1	24°50'48.1S	27°22'59.13E	Farm Portion
4	KOPJE ALLEEN	422	1	24°51'13.36S	27°21'33.43E	Farm Portion

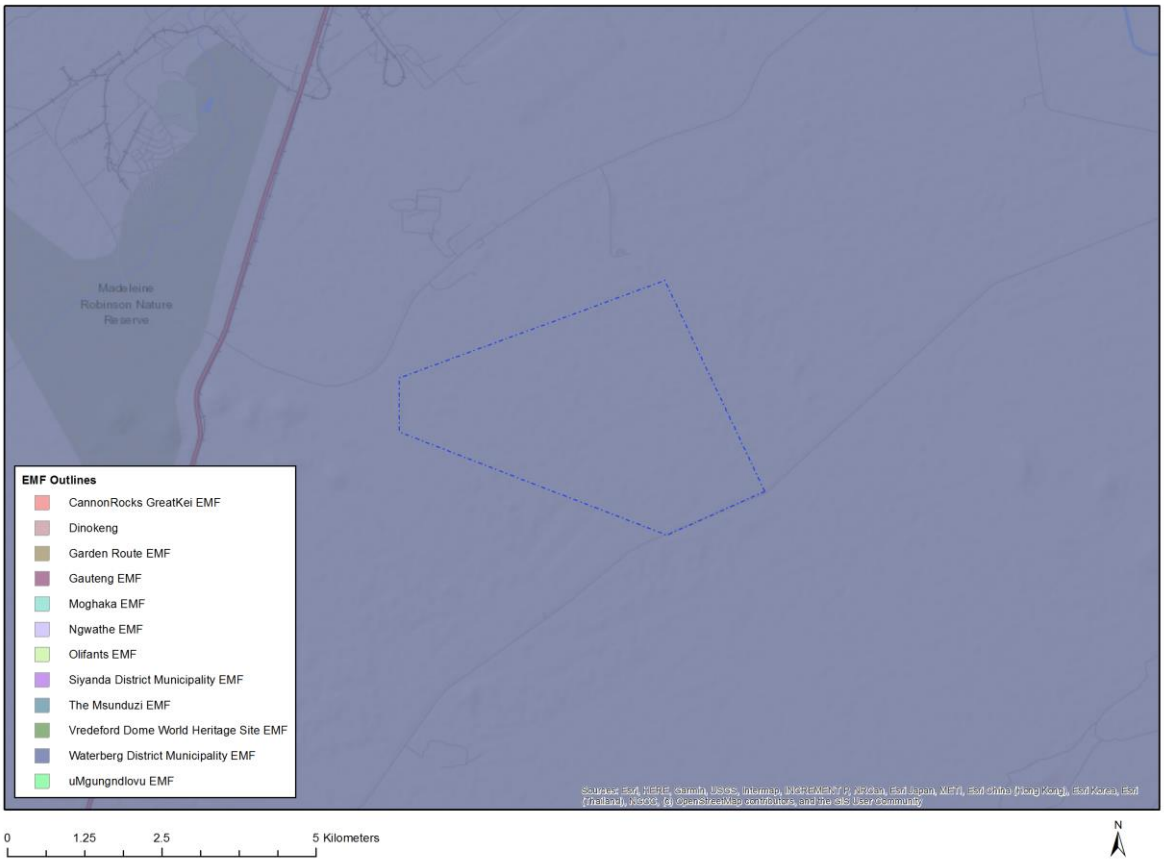
Development footprint[1] vertices:
No development footprint(s) specified.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No	EIA Reference No	Classification	Status of application	Distance from proposed area (km)
1	14/12/16/3/3/1/969	Solar PV	Approved	11.2
2	14/12/16/3/1/969	Solar PV	Approved	11.2
3	12/12/20/2129	Solar PV	Approved	15.2

[1] "development footprint", means the area within the site on which the development will take place and incudes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

Environmental Management Frameworks relevant to the application



Environmental Management Framework	LINK
Waterberg District Municipality EMF	https://screening.environment.gov.za/ScreeningDownloads/EMF/WDEMF_Final_EMF_Report.pdf

Environmental screening results and assessment outcomes

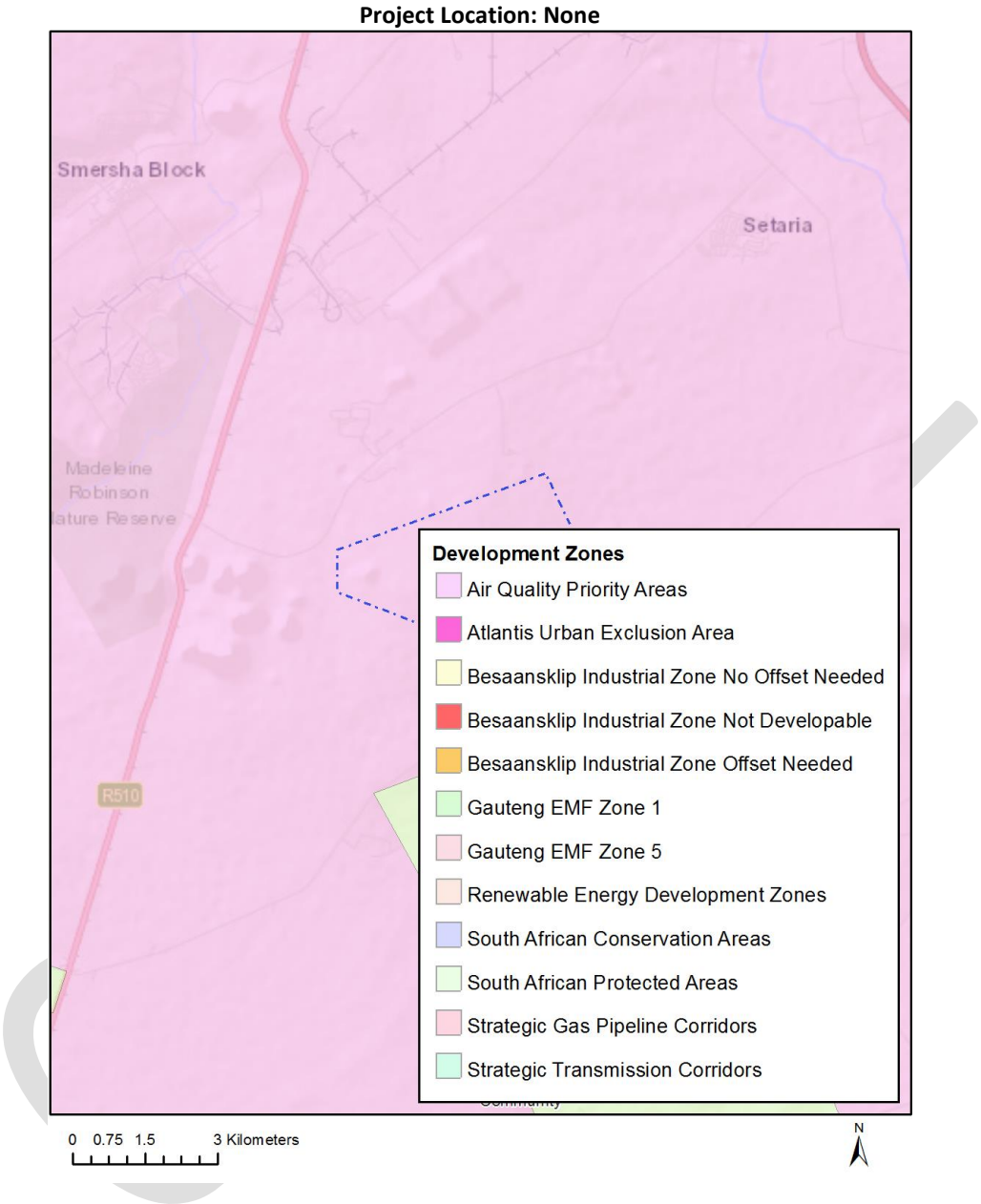
The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is: **Mining|Prospecting rights**.

Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

Incentive, restriction or prohibition	Implication
Air Quality-Waterberg-Bojanala Priority Area	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/gg39489_nn1207a.pdf

Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones



Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme		X		
Animal Species Theme			X	

Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme		X		
Defence Theme				X
Paleontology Theme			X	
Plant Species Theme				X
Terrestrial Biodiversity Theme				X

Specialist assessments identified

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

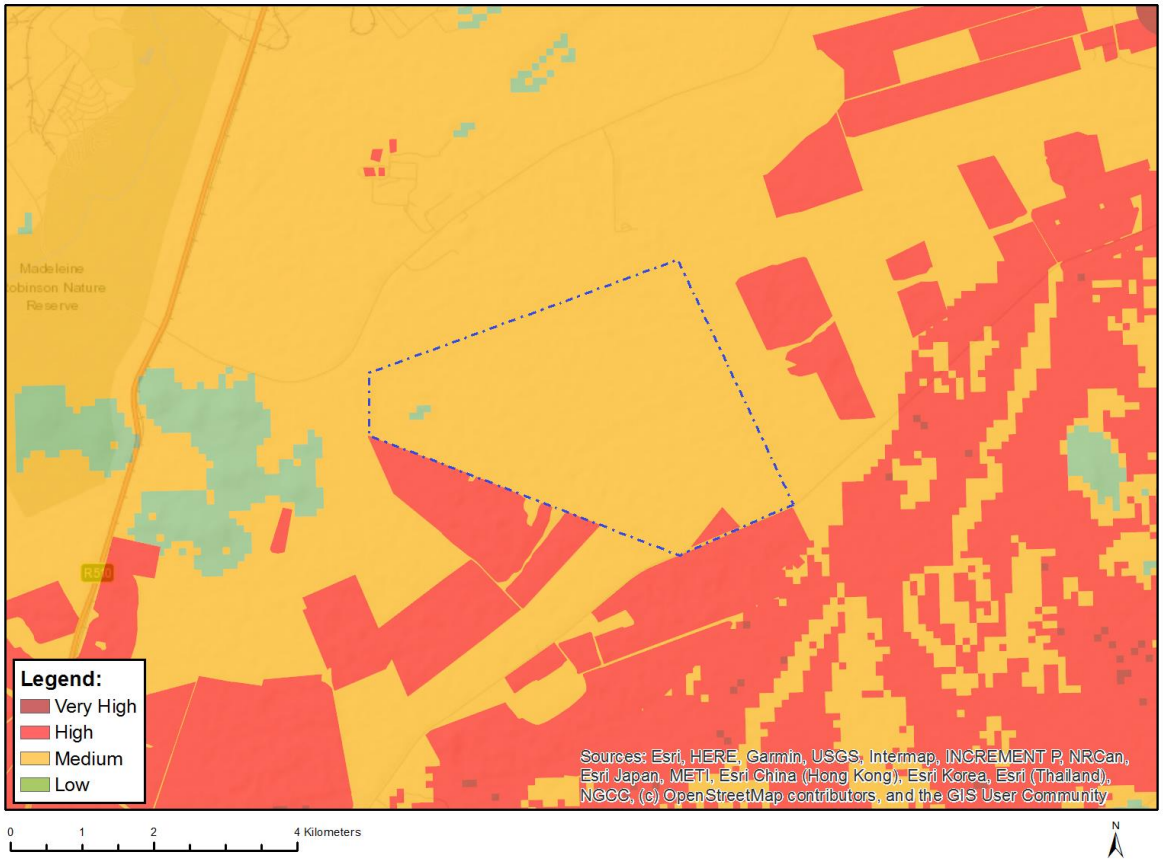
No	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Agriculture_Assessment_Protocols.pdf
2	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
3	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
4	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf
5	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Aquatic_Biodiversity_Assessment_Protocols.pdf
6	Noise Impact Assess	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Noise_Impacts_Assessment_Protocol.pdf

	ment	
7	Radioactivity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
8	Plant Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Plant_Species_Assessment_Protocols.pdf
9	Animal Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Animal_Species_Assessment_Protocols.pdf

Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

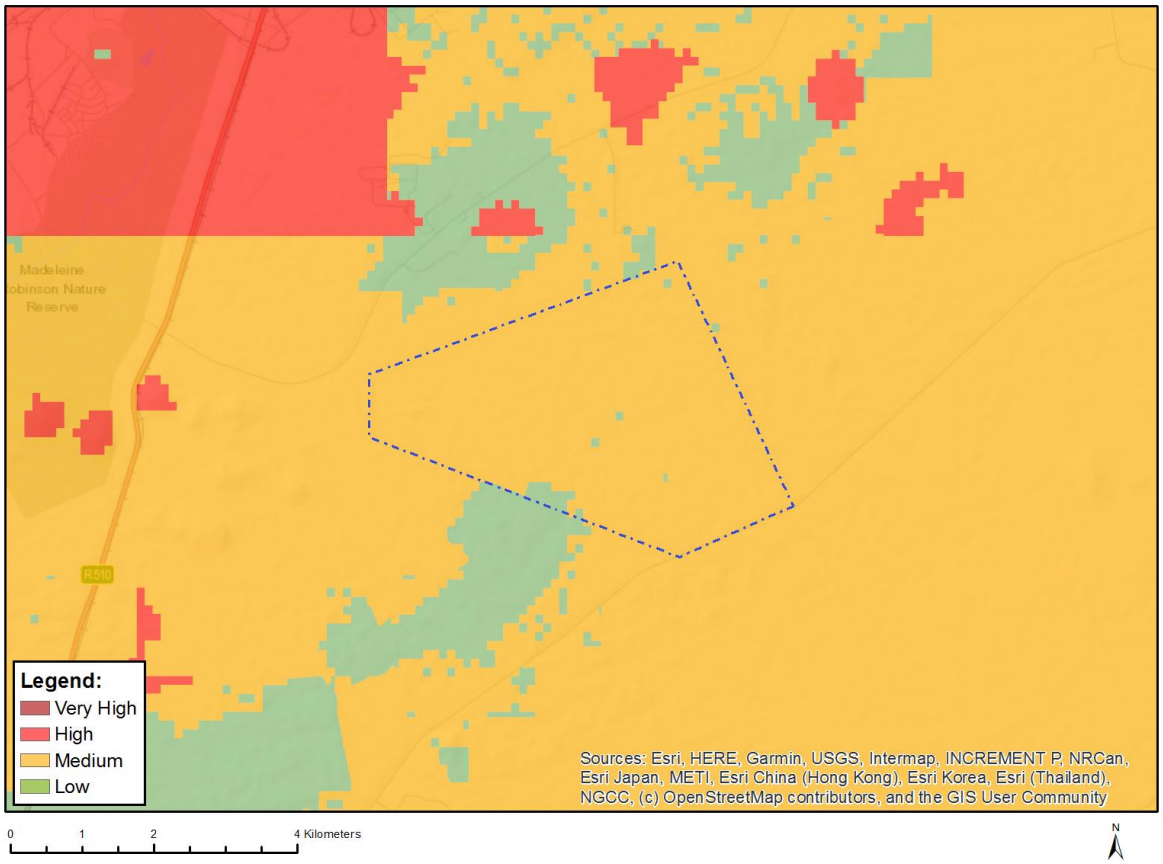


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate
High	Old Fields;Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate
Low	Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
Medium	Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



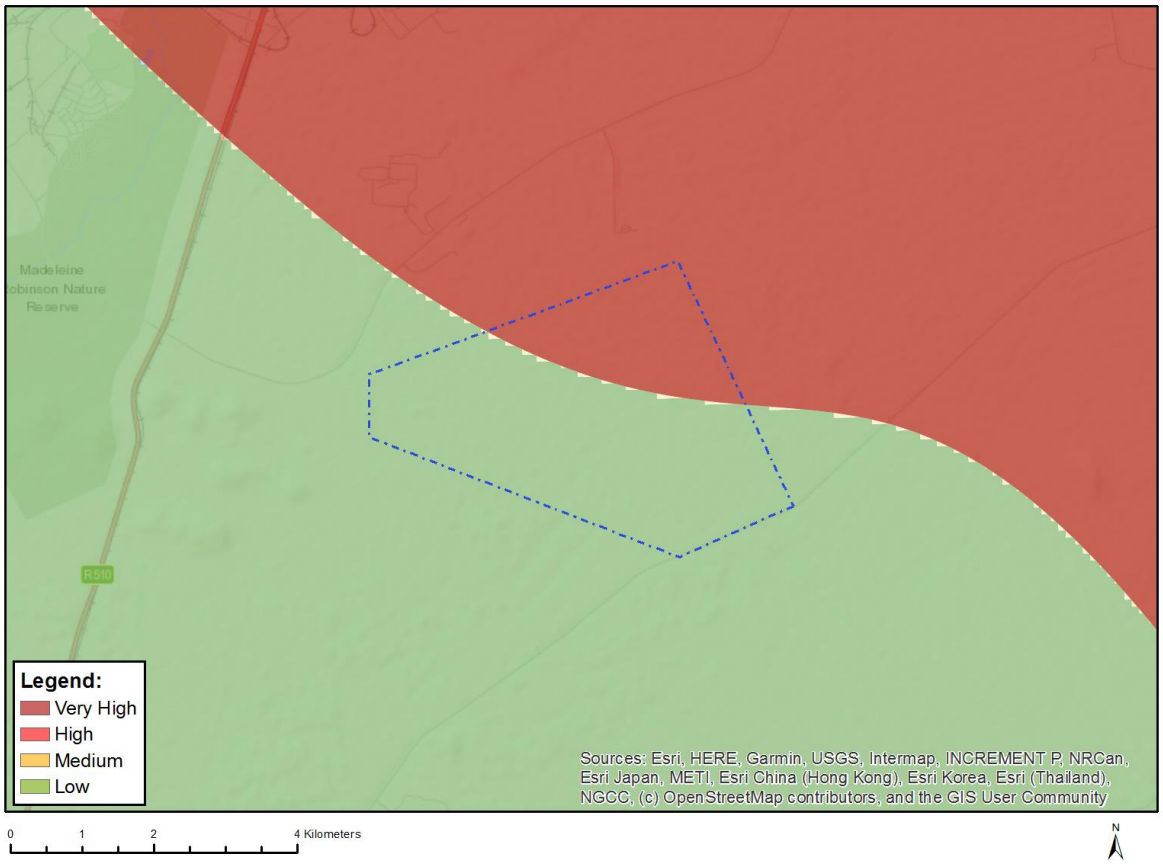
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Subject to confirmation
Medium	Aves-Aquila rapax
Medium	Sensitive species 5
Medium	Mammalia-Crocidura maquassiensis

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

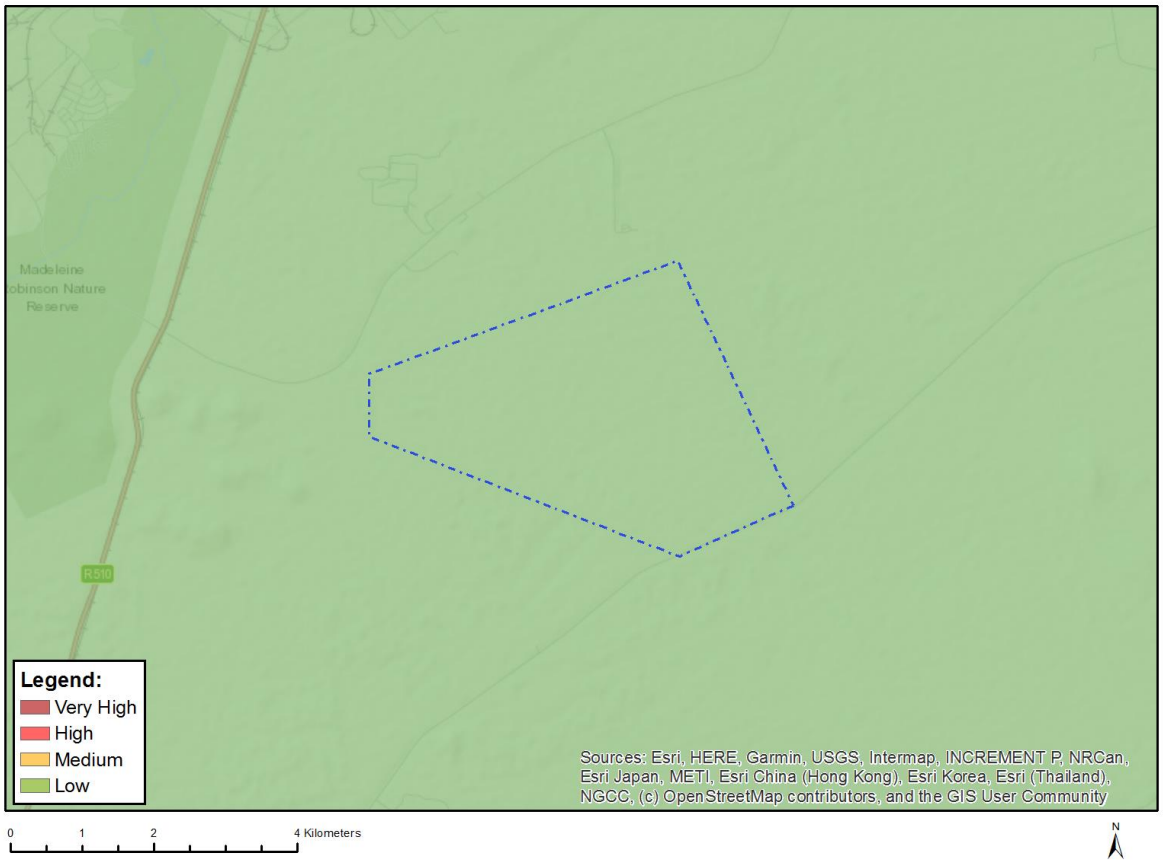


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity
Very High	Strategic water source area

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

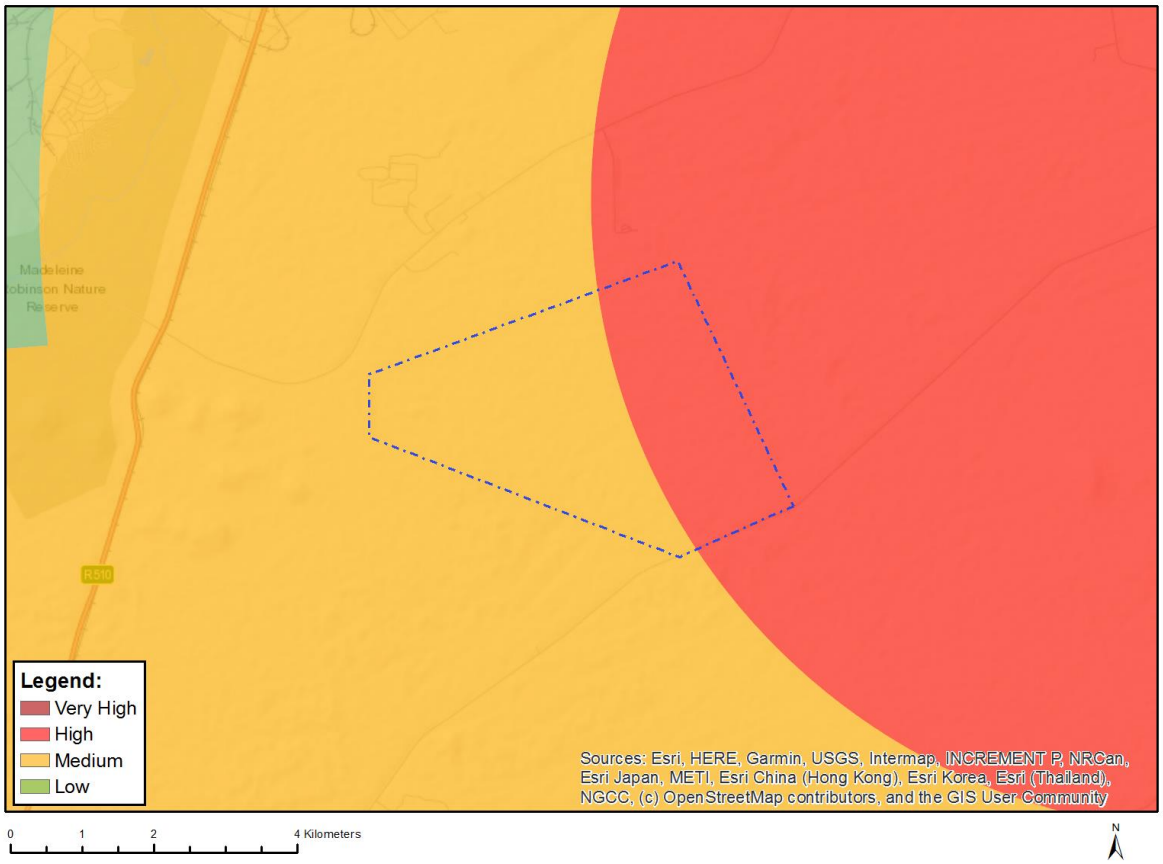


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY

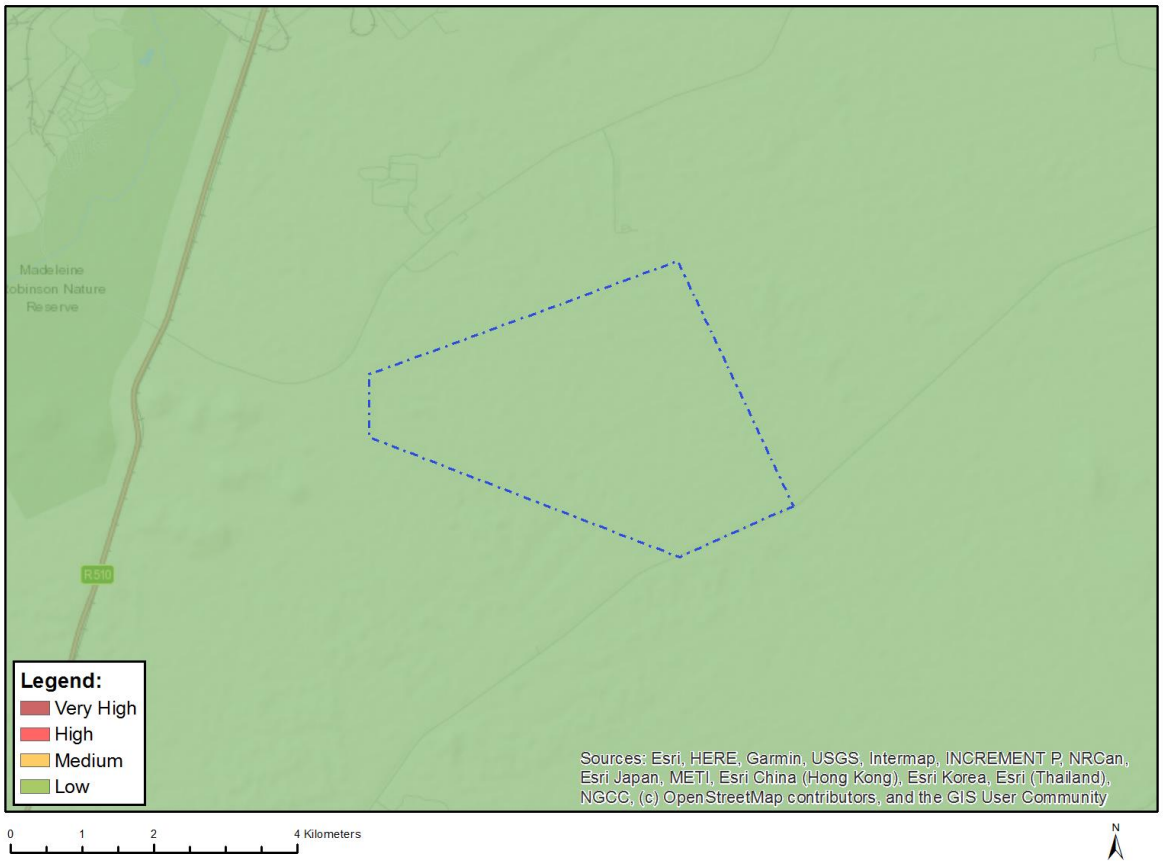


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Within 8 km of other civil aviation aerodrome
Medium	Between 8 and 15 km of other civil aviation aerodrome

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

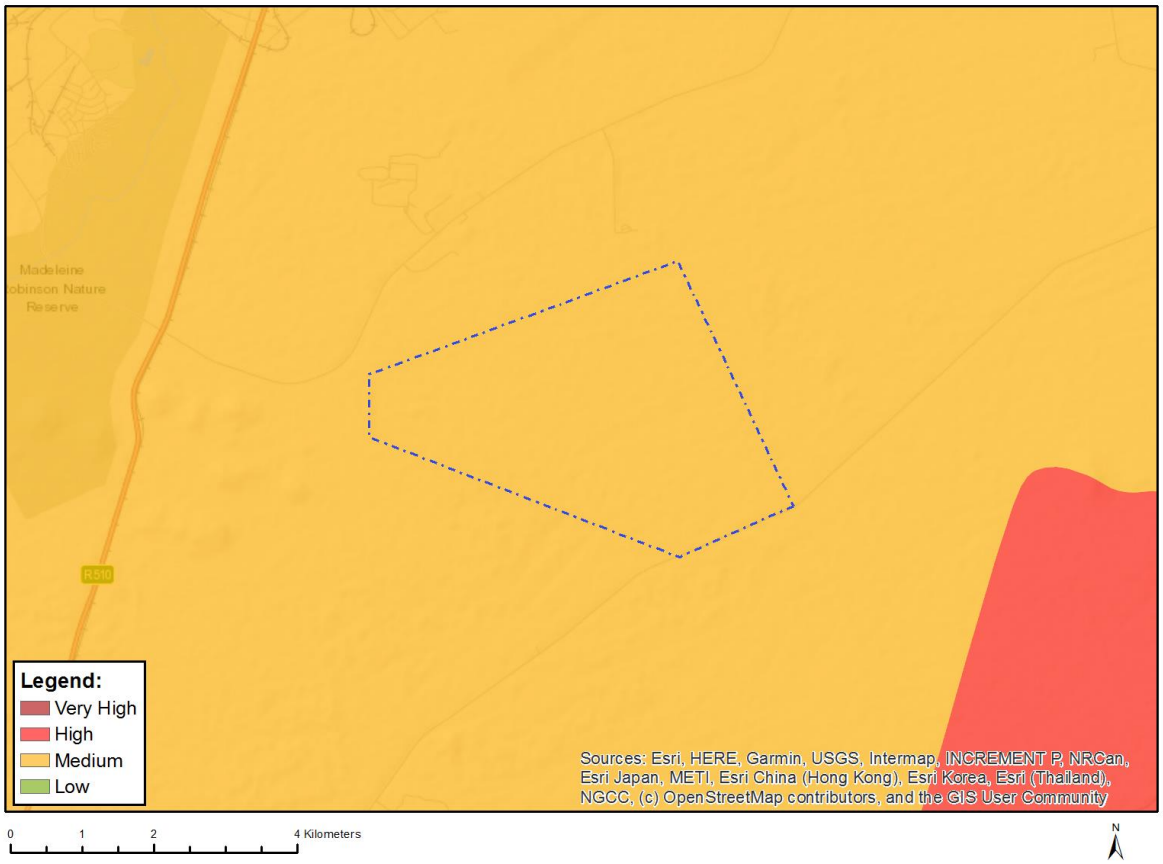


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

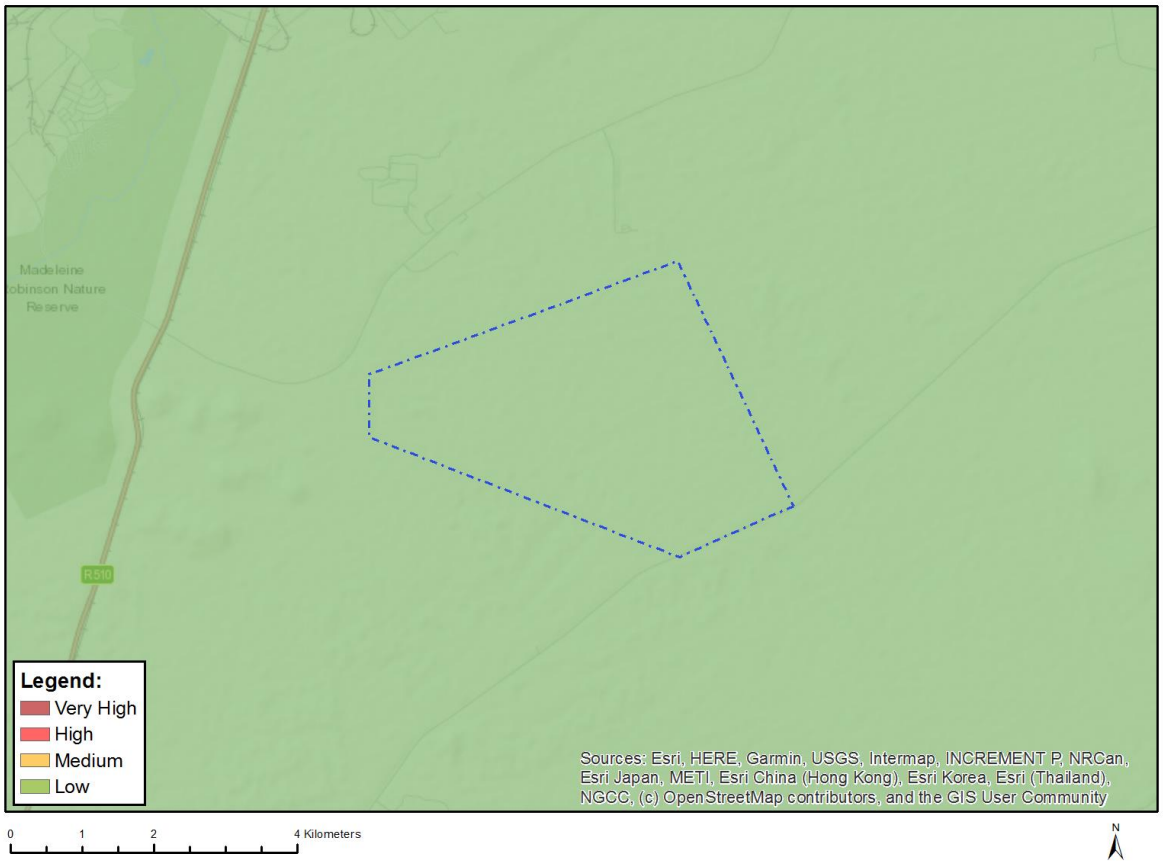


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Features with a Medium paleontological sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

APPENDIX 6:

CORRESPONDENCE FROM COMPETENT AUTHORITY

mineral resources & energy

Department:
Minerals Resources and Energy
REPUBLIC OF SOUTH AFRICA

Private Bag X 9467, Polokwane, 0700, Tel: 015-287 4700, Fax: 0867100996
101 Dorp Street, Polokwane, 0699
From: Directorate Minerals and Petroleum Regulation: Limpopo Region
Enquiries: Cate Phofele Ref: LP30/5/1/1/2/14909PR
e-mail: cate.phofele@dmre.gov.za

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CRAIGHALL
2024

Fax: 011 325 4795
Attention: Sandra Gore
Email: Sandra.Gore@norplats.co.za

Sir/Madam

ACCEPTANCE OF AN APPLICATION FOR A P ROSPECTING RIGHT IN TERMS OF SECTION 16 OF THE MINERAL AND PETROLEUM RESOURCES AND DEVELOPMENT ACT, ACT 28 OF 2002 AS AMENDED BY MINERAL AND PETROLEUM RESOURCES DEVELOPMENT AMENDMENT ACT, 2008 (ACT 49 OF 2008): NORTHAM PLATINUM LIMITED, IN RESPECT OF PORTION 01 OF KOPJE ALLEEN 422KQ, SITUATED IN THE MAGISTERIAL DISTRICT OF THABAZIMBI.

I refer to the abovementioned matter and I confirm that your application for a prospecting right of **Heavy Minerals (General), Iron, Vanadium and Titanium,** in terms of Section 16 of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002) as amended by Mineral and Petroleum Resources Development Amendment Act, 2008 (Act 49 of 2008) has been accepted.

In terms of Section 16(4) of the Act, you are therefore required to do the following:

(a) notify in writing and consult with the landowner or lawful occupier and any other affected party and;

(b) consult the Department of Land Affairs if it the is state-owned land, in the event the land is subject to land restitution consult office of the Commission of Land;

(c) and submit the result of such consultation to this office on or before the **02nd June 2023 (30 days).**

(d) **You are requested in terms of Section 17(4) of the Act to give effect to the object referred to in Section 2(d) of the Act. In this regard, you are required to submit by no later than the 02nd June 2023, the following documents:**

- **duly signed shareholder's agreement;**
- **share certificates and shareholder's registers;**
- **articles and memorandum of association of the company;**
- **details relating to funding (all relevant agreements); and**
- **any other agreement or documents relating to the agreement; and**
- **Identity documents of the shareholders.**

In light of the minimum requirements as stipulated on Regulation 16 (1) and 16 (2) of the EIA Regulations, your application for an Environmental Authorization was incomplete as it was not accompanied by this acceptance letter as per sub Regulation 16 (1) (ix) and considering that it is now completed by this acceptance letter, you are hereby required to submit the documents as stipulated on Regulation 19 (1) to 19 98) of the EIA Regulations (only in cases where Basic Assessment Report is applicable) or Regulations 21 (Scoping Report) and Regulation 23 (EIR and EMPr) (in case of Scoping and Environmental Impact Report). All timeframes are effective from the date of this letter.

Acceptance of your application does not grant you the right to commence with prospecting operations. Your application will be evaluated / processed and a recommendation on the granting / refusal of the right will be forwarded to the Minister or her delegate. Any person operating without a prospecting / mining right or mining permit will be in contravention of Section 5(4) of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002) as amended by Mineral and Petroleum Resources Development Amendment Act, 2008 (Act 49 of 2008).

N.B Notwithstanding the fact that reasonable care was taken in verifying the existence of rights, permits and prior applications this office reserves the right to consider and/or effect the provisions of sections 9(1) (a), 9 (1) (b) and 16 (2) (b of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002) as

amended by Mineral and Petroleum Resources Development Amendment Act, 2008 (Act 49 of 2008).

Should it transpire at later stage that an old encumber the area under application order right, the Department will be entitled to refuse this application based on the fact that an old order right for the same minerals, has already been granted to another entity, as the granting thereof would be contrary to the provisions of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002) as amended by Mineral and Petroleum Resources Development Amendment Act, 2008 (Act 49 of 2008).

Yours faithfully

.....

REGIONAL MANAGER
LIMPOPO REGION: POLOKWANE

DATE: 19/04/2023

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

Private Bag X 9467, Polokwane, 0700, Tel: 015 287 4765, Fax: 015 287 4729
DME Building, 101 Dorp Street, Polokwane, 0699
Enquiries: N.S Twala

E-mail address: Nkhesani.Twala@dmre.gov.za
Sub-Directorate: Mine Environmental Management
Ref: LP 30/5/1/1/3/2/1/14909M

REGISTERED MAIL

Northam Platinum Limited (Pty) Ltd
P.O.Box 412694
Craighall
2024
Email Address:Sandra.Gore@norplats.co.za

Attention: Sandra Gore

RE: APPLICATION FOR EXTENSION OF PRESCRIBED TIMEFRAMES IN TERMS OF REGULATION 3(7) OF THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REGULATIONS, GN NO. R.982 OF 2014 FOR PROSPECTING RIGHT IN RESPECT OF PORTION 1 OF THE FARM KOPJE ALLEEN 422KQ, SITUATED IN THABAZIMBI LOCAL MUNICIPALITY IN MAGISTERIAL DISTRICT OF WATERBERG: WITHIN LIMPOPO

Applicant : Northam Platinum (Pty) Ltd
Reference is made to your letter received by this Department dated **21 June 2023** requesting for additional days to submit BAR (EMPr), and this office would like to respond as follows:

After careful consideration of your request this Department is in support of 50 days extension indicated on the above mentioned letter, you are therefore granted additional **50 days** to finalise the outstanding work and to submit the BAR (EMPr), from signing date of this letter .

Kind Regards,

MA Mmamundr

REGIONAL MANAGER
MINERAL & PETROLEUM REGULATION-LIMPOPO REGION
LIMPOPO REGION
DATE: 29/06/2023

APPENDIX 7:

HERITAGE ASSESSMENT (CTS HERITAGE, 2023)

CTS HERITAGE

HERITAGE SCREENER

CTS Reference Number:	**CTS23_238**
SAHRIS Ref	**21871**
Client:	**JEMS**
Date:	**July 2023**
Title:	**KOPJE ALLEEN PROSPECTING RIGHT APPLICATION BY ZONDEREINDE MINE**

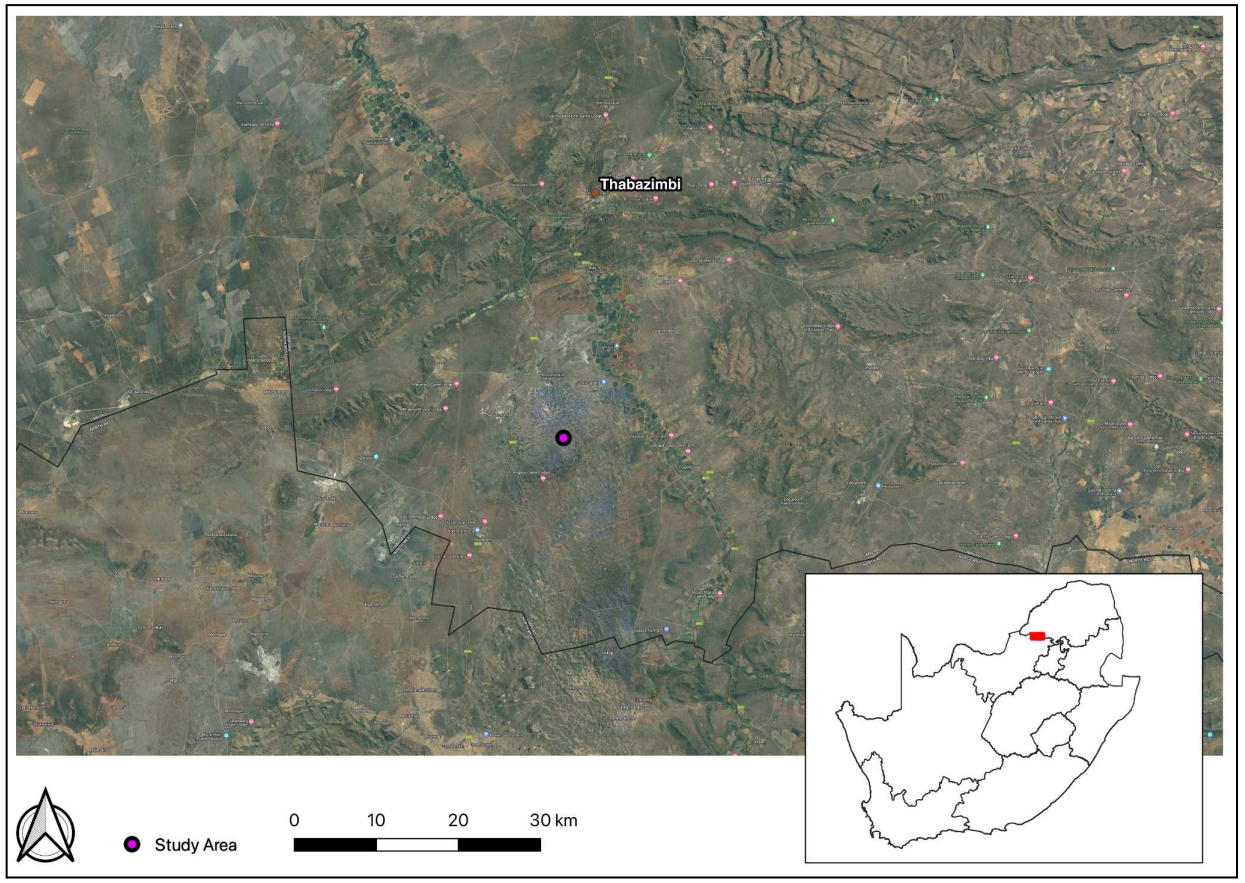

Figure 1a. Satellite map indicating the location of Northam Zondereinde Prospecting Application in the Limpopo Province

Recommendation:	**RECOMMENDATION** **On condition that the prospecting is limited to the proposed three trenches and two boreholes as proposed and mapped herein, there is no objection to the prospecting activities from a heritage perspective. Should a mining right application be investigated, it is strongly recommended that a full HIA be completed at an appropriate time of year to map the significant Iron Age resources evident here. It is also recommended that, in terms of best practice, a detailed Heritage Conservation Management Plan be developed for the significant archaeological resources located here to ensure their ongoing conservation and management regardless of whether or not mining rights are applied for due to the increased levels of activity in the area and the likely associated negative impacts to these significant resources.**

CTS Heritage
Bon Esperance, 238 Queens Road, Simons Town
Email: info@ctsheritage.com **Web:** www.ctsheritage.com

CTS HERITAGE

1. Proposed Development Summary

Northam Platinum Limited (Northam), has submitted an application for an environmental authorisation (EA Application) under the National Environmental Management Act 107 of 1998 (NEMA) to the Department of Mineral Resources and Energy (DMRE) for the prospecting right application (PR Application) on the Remaining Extent (RE) of Portion 1 of the Farm Kopje Alleen 422 KQ ("Proposed Prospecting Area"). The proposed Prospecting Area is located within the Limpopo Province (LP) of the Republic of South Africa (RSA) and falls under the local jurisdiction of the Thabazimbi Local Municipality (TLM), situated in the larger district of the Waterberg District Municipality (WDM). The Property extent on which prospecting activities will be undertaken is 1 167.3865 hectares in extent and is situated between the towns of Northam and Thabazimbi. The property extent is currently used for agricultural land that is used for cattle and game farming. The Amandelbult Mine of Anglo-American Platinum Limited is situated to the far west, whilst the Zondereinde Platinum Mine (ZM) of Northam (the current applicant) is immediately adjacent to the north of the Prospecting Area. The northern portion of the Prospecting Area is held under Northam's mining right LP37MR but for different minerals to that included in this prospecting right application.

The prospecting schedule will be for Iron, Vanadium and Titanium and related metals over the prospecting area will comprise the following activities:

- a desktop study,
- collation of existing data and project planning,
- surface geological mapping,
- geochemical sampling,
- geophysical sampling and analysis,
- **borehole drilling and sampling (two boreholes),**
- **trenching and sampling, and ultimately (three trenches)**
- modelling/ore resource estimation

collectively referred to as the "PR Application". The application has since been accepted by the DMRE, and the Applicant has been instructed to proceed with the relevant EA Application process. uKhozi Environmentalists Pty Ltd ("uKhozi") in association with JEMS Pty Ltd ("JEMS") was appointed by Northam as the independent EAP for the PR Application. The DMRE Limpopo Regional Office will be the competent authority ("CA") for the PR Application.

2. Application References

Name of relevant heritage authority(s)	SAHRA
Name of decision making authority(s)	DMRE

CTS HERITAGE

3. Property Information

Latitude / Longitude	-24.86193496, 27.37099307
Erf number / Farm number	Portion 1 of the Farm Kopje Alleen 422KQ
Local Municipality	Thabazimbi
District Municipality	Waterberg
Province	Limpopo
Current Use	Mining
Current Zoning	Mining

4. Nature of the Proposed Development

Total Surface Area	2500m^2
Depth of excavation (m)	Trenches will be 3m deep
Height of development (m)	NA

5. Category of Development

x	**Triggers: Section 38(8) of the National Heritage Resources Act**
	Triggers: Section 38(1) of the National Heritage Resources Act
	1. Construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier over 300m in length.
	2. Construction of a bridge or similar structure exceeding 50m in length.
	3. Any development or activity that will change the character of a site-
x	a) exceeding 5 000m^2 in extent
	b) involving three or more existing erven or subdivisions thereof
	c) involving three or more erven or divisions thereof which have been consolidated within the past five years

	4. Rezoning of a site exceeding 10 000m^2
	5. Other (state):

6. Additional Infrastructure Required for this Development

TBA

7. Mapping (please see Appendix 3 and 4 for a full description of our methodology and map legends)

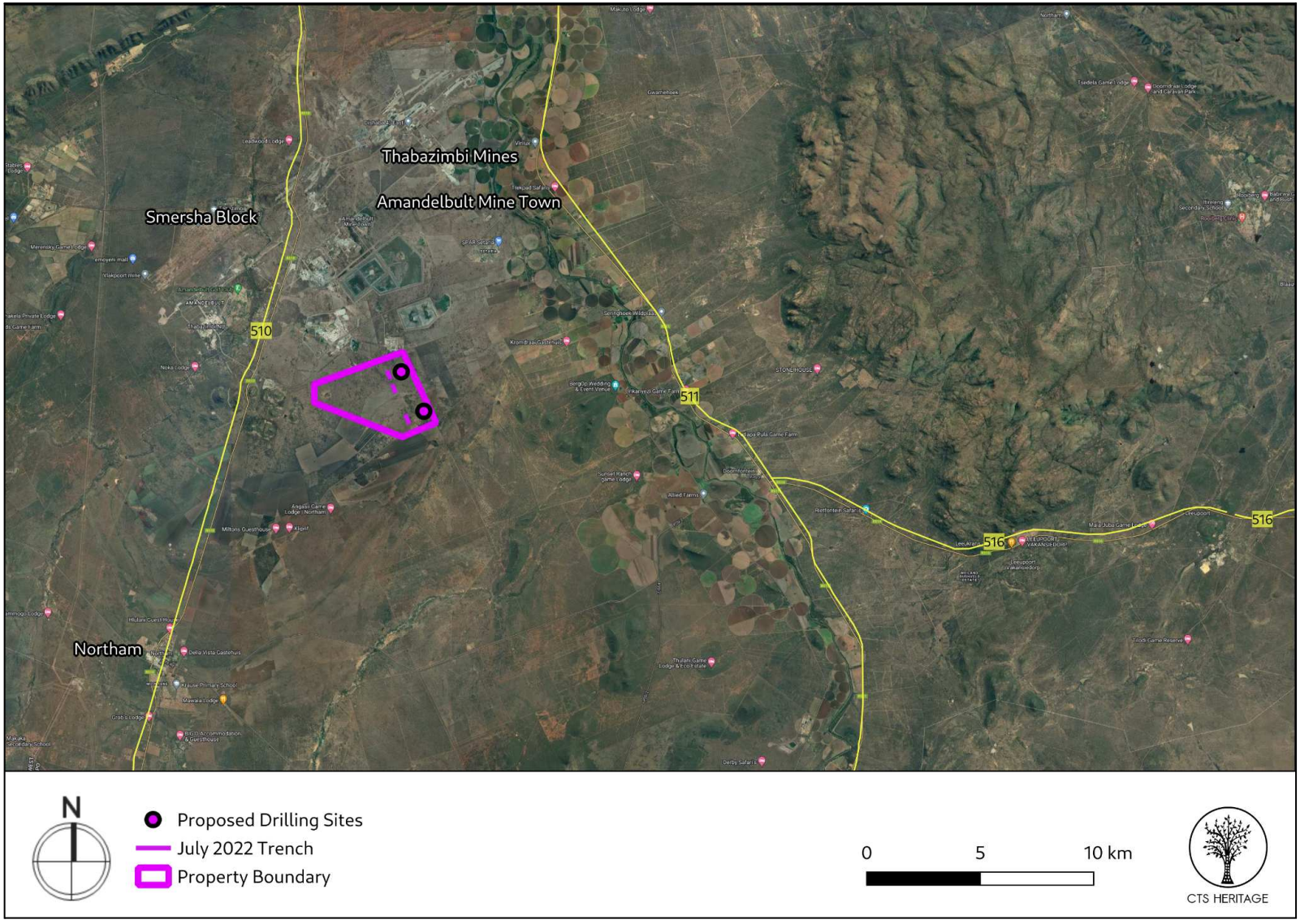

Figure 1b Overview Map. Satellite image (2023) indicating the proposed development area.

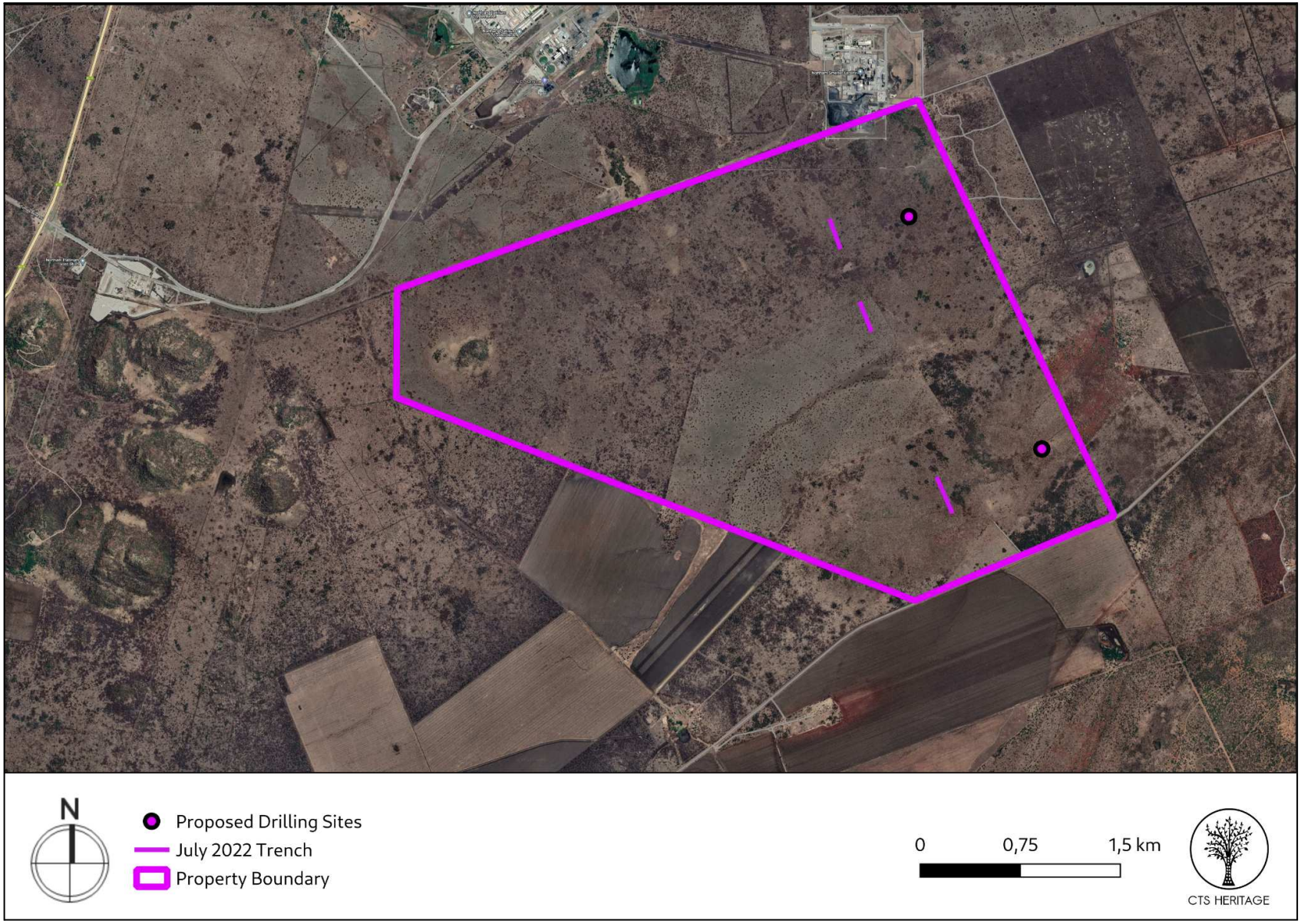

Figure 1c Overview Map. Satellite image (2021) indicating the proposed development area, close up.

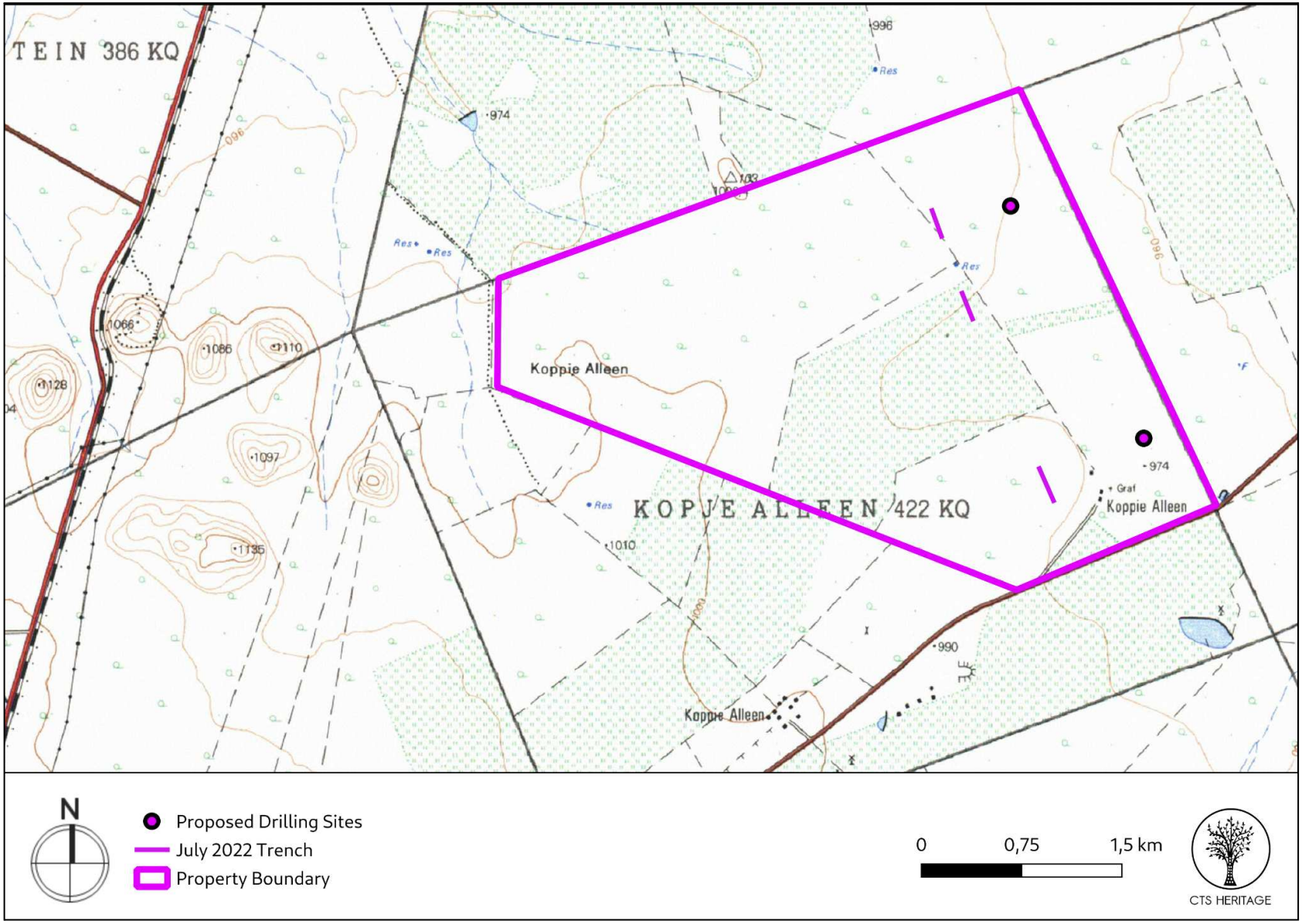

Figure 1e Overview Map. Extract from the 1:50 000 Topo map for the development area.

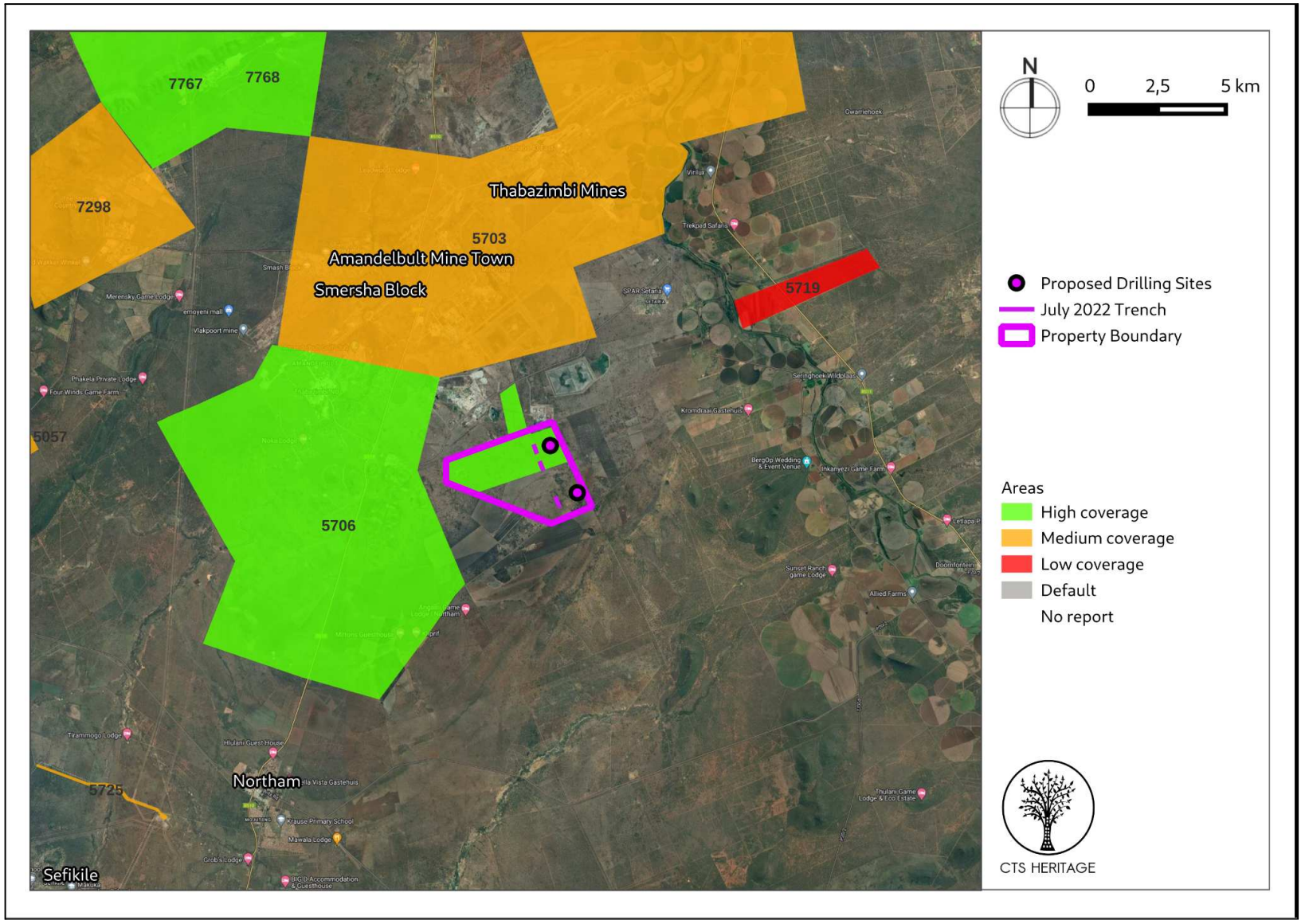

Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments surrounding the proposed development area within 15km, with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.

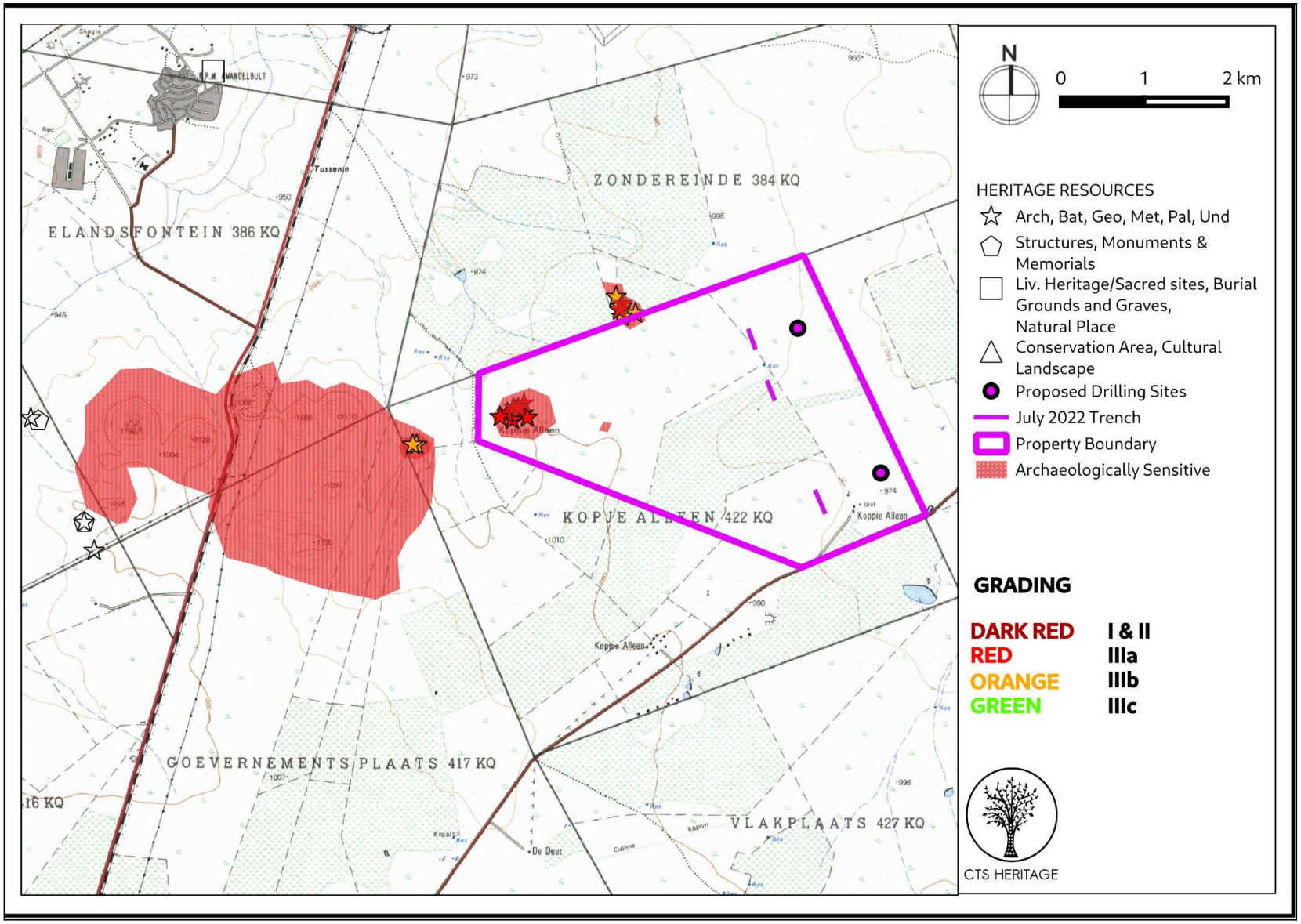

Figure 3a. Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated within 15km. Please See Appendix 4 for full description of heritage resource types.

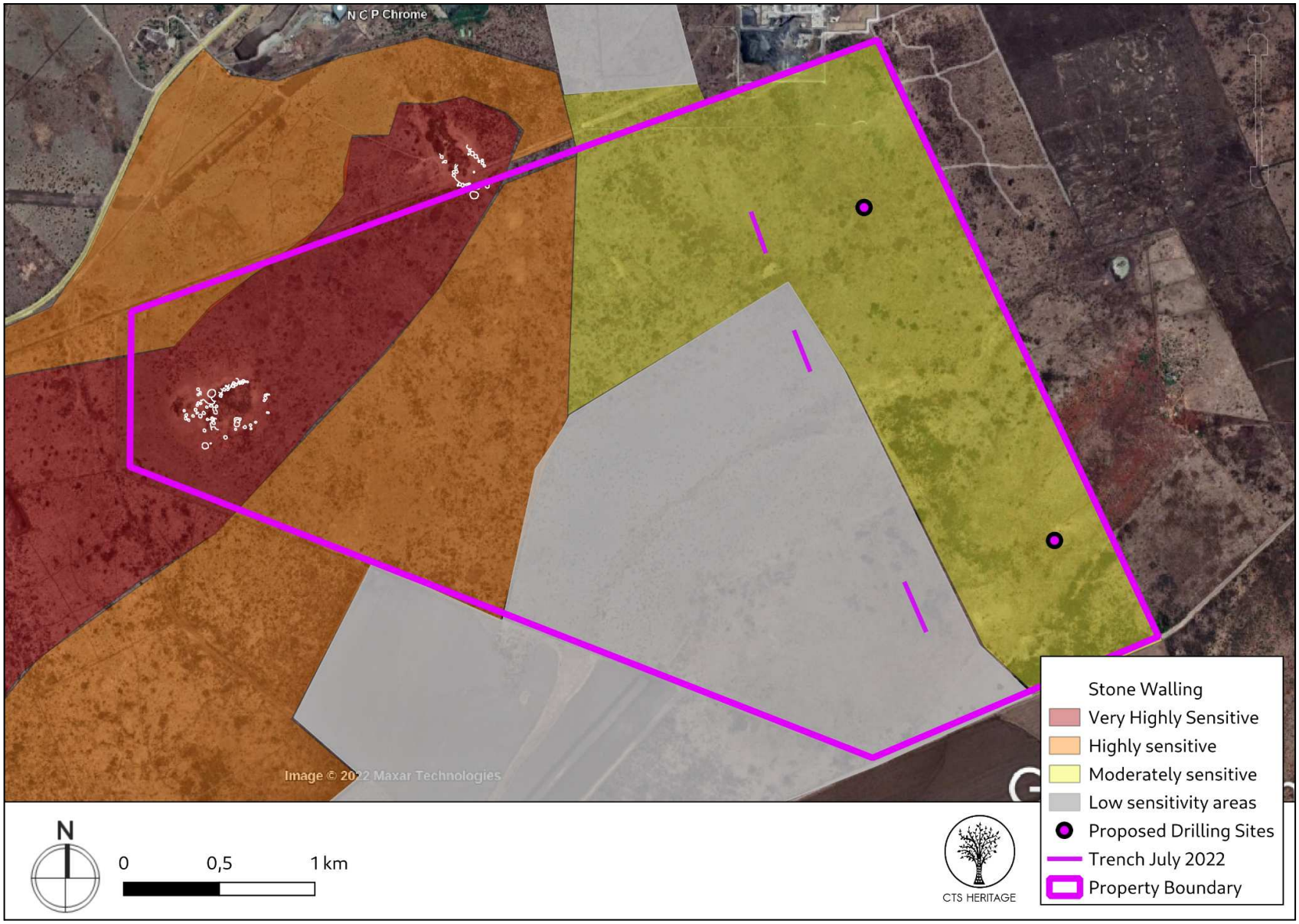

Figure 3b. Map of heritage resources identified during previous field assessment, relative to the development area.

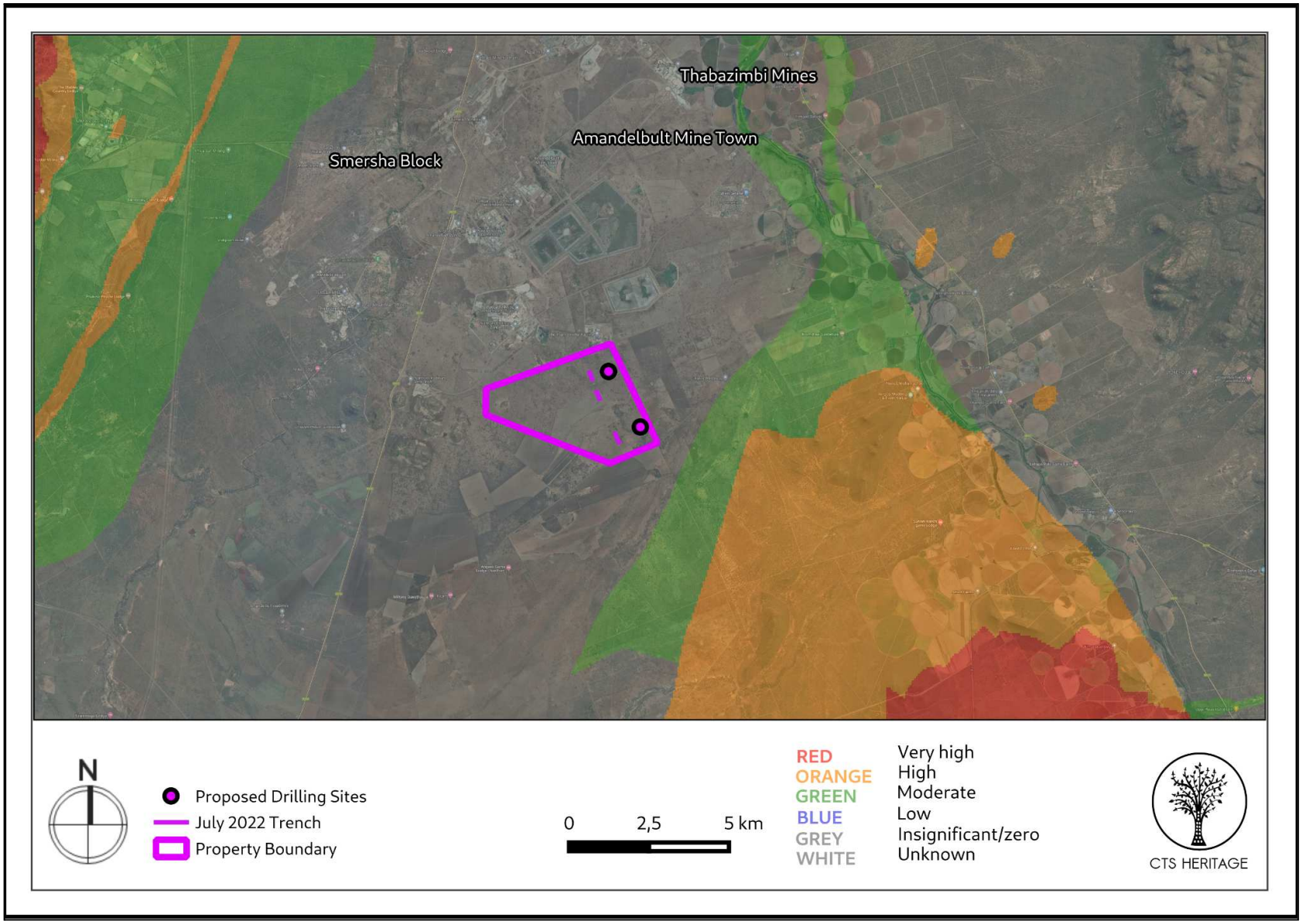

Figure 4a. Palaeosensitivity Map. Indicating zero fossil sensitivity underlying the development area. Please See Appendix 3 for a full guide to the legend.

8. Heritage Assessment

Background

The broader area assessed in this report is located immediately adjacent to the town of Thabazimbi and the existing Northam Platinum Mine. The area immediately surrounding both the town and the mine largely consists of agricultural lands used for crop cultivation. The name Thabazimbi means *mountain of iron* because of the large iron ore reef that was discovered in 1919 by J. H. Williams. The mine boasts one of the largest mining shafts in Africa. More than 2 million tons of ore are mined every year and hauled by train to Mittal's iron and steel works. The railway line from Rustenburg reached the area in the 1930s and full scale iron and steel production began. The town was proclaimed in 1953 and its history is intimately linked with that of the mines in the area. Much of the central landscape of the North West Province is defined by bushveld and grasslands scattered with trees and shrubs; the mountains, deep valleys, rivers and dams of the northeast; the flat and arid semi-deserts plains of the west; and the lush vegetation of areas bordering the Vaal River in the south.

Cultural Landscape

A broad history of the area is included in Murimbika (2010) and is referred to here. According to Murimbika (2010), the broader region has also yielded some significant Iron Age Sites such as the Mzonjani facies Broederstroom site (AD 430 to AD 780). According to Murimbika (2010), the broader region was subject to a number of instances of migration and settlement from 450 AD. Evidence indicates that Sotho-Tswana groups migrated in and out of the Magaliesberg region, and such groups are responsible for the many early stone-walled settlements in this region. One of the most documented migrations is the Mfecane (forced migration or scattering) which was a period of widespread chaos and warfare among indigenous ethnic communities in southern Africa during the period between 1815 and about 1840. During this time, the Ndebele under Mzilikazi reached the Magaliesberg region and are responsible for introducing the Doornspruit-type walled settlements that are known from this region (the Doornspruit River drains into the project area). According to Murimbika (2010) this type of stone-walled settlement represents “typical Nguni-Sotho-Tswana acculturation”. Murimbika (2010) further explains that one of the most acculturated groups in the region is known as the “Po”, whose Chief Mogale lends his name to the Magaliesberg Mountains and the Mogale City Municipality. By the mid-1800’s, Voortrekkers had begun to settle in the foothills of the Magaliesberg mountains and in so doing, clashed with Mzilikazi’s Ndebele in 1837. These early colonial battles forced the Ndebele north of the Limpopo River and effectively ended the independence of African Chiefdoms in the area. The Voortrekkers went on to establish the Republic of the Transvaal. As articulated by Murimbika (2010), it is in this context that the Magaliesberg area, in which the proposed development is located, is an important cultural landscape.

Archaeology

Previous Heritage Impact Assessments conducted in the immediate vicinity of the proposed study area (Von Vollenhoven, 2013 and van der Walt 2019) have identified a number of significant archaeological sites in the vicinity of the study area, dated to the Late Iron Age (Figure 3a and 3b). Van Vollenhoven (2013) noted three clusters of Late Iron Age sites consisting of a number of individual features of stone walling of a variety of heights and diameters. Similarly, Van der Walt (2019) identified clusters of stone packed kraals up to 20m in diameter and deflated middens. According to Van der Walt (2019), a number of Late Iron Age middens and stone-walled enclosures were identified as having high local significance (Grade IIIA). Van der Walt (2019) also identified individual artefacts outside of these kraal locations such as upper grindstones and undecorated ceramics. As mitigation against impacts to the identified Iron Age sites, Van der Walt (2019) recommended the implementation of buffer zones of 30m around the identified sites; however this author is of the view that this may not be sufficient for conservation of the broader cultural landscape.

In 2021, an archaeological assessment of the area proposed for development was completed by CTS Heritage. This assessment sought to clarify the extent of sites 4 and 5 in more detail and to provide guidance as to the areas that should be avoided by development activities. The distribution of artefactual material was noted on the ground and this was found in large numbers surrounding sites 4 and 5 in an among extensive stone walling enclosures and ruined remains. We were aware of the likely locations of the stone walls using satellite imagery and once the fieldwork was concluded we mapped out the areas with the benefit of historical and current satellite imagery. We are certain that even more detail would be possible should surveys be conducted during winter and with the use of drone footage - however, our main objective was to identify a substantial buffer area around these sites where no stone walling or significant artefact distributions would be found beyond the boundaries.

A more detailed photographic record was taken of the koppie complex lying just to the west of the study area along with the outcrops containing sites 4 and 5 previously recorded by Van Vollenhoven (2013). This has significantly improved the appreciation of the sense of place and nature of the area containing an extensive Late Iron Age settlement that we believe should be conserved and carefully managed for the remaining period of mining in the area.

Palaeontology
According to the SAHRIS Palaeosensitivity Map (Figure 4), the prospecting application area is underlain by sediments that have zero palaeontological sensitivity. As such, no palaeontological resources will be impacted by the proposed development and no further specialist palaeontological assessment is recommended.

Results and Recommendations
The proposed prospecting activities include the excavation of three trenches and two boreholes as mapped in this report. No other proposed interventions are anticipated at this stage. In order to provide recommendations regarding the proposed prospecting activities to ensure minimal impacts on heritage resources, sensitivity of the area from a heritage perspective was determined in the assessment completed in 2021. As part of the 2021 assessment, we have provided a map of the areas of very high and low archaeological and heritage sensitivity within the broader study area in order to inform the appropriate siting of the proposed prospecting activities. This map has also considered the broader natural veld and mining context.

Areas of high and moderate sensitivity from a visual, heritage and archaeological perspective have been identified within the study area. These are indicated in Figure 3b (orange and yellow). The area identified as having Moderate Sensitivity has been previously impacted by development in the form of two farm roads running through it and has already been assessed in detail archaeologically. There are no known archaeological resources located here despite two previous archaeological surveys. Any development located within this moderately sensitive and low sensitivity areas are located sufficiently far from the sensitive heritage zone. The proposed boreholes and trenches are located in areas of low and moderate sensitivity.

The field assessment has revealed that there is a large section of the broader study area that is highly sensitive for impacts to very significant archaeological resources. Although these significant archaeological resources have been previously identified by Van Vollenhoven (2013) and Van der Walt (2019), little proactive conservation interventions seem to have taken place.

Although the exposed stone walling associated with these LIA sites is located on top and immediately surrounding the granite koppies, it is clear that these sites were historically connected and as such form part of a complex of sites that stretches east-west. It is therefore very likely that archaeological evidence of this connection is located in the spaces between these granite koppies however this was not able to be verified during the field assessment in 2021 due the dense vegetation. Despite this, we are confident that the areas located between the granite koppies are as archaeologically sensitive as the koppies themselves. Any prospecting activities in the areas between the granite koppies is likely to negatively impact on significant archaeological heritage.

Conclusion
On condition that the prospecting is limited to the proposed three trenches and two boreholes as proposed and mapped herein, there is no objection to the prospecting activities from a heritage perspective. Should a mining right application be investigated, it is strongly recommended that a full HIA be completed at an appropriate time of year to map the significant Iron Age resources evident here. It is also recommended that, in terms of best practice, a detailed Heritage Conservation Management Plan be developed for the significant archaeological resources located here to ensure their ongoing conservation and management regardless of whether or not mining rights are applied for due to the increased levels of activity in the area and the likely associated negative impacts to these significant resources.

Table 1: Description of zones of heritage sensitivity in the study area in Figure 3a.

Sensitivity	*Description*	*Mitigation*
Very high	The two LIA sites (Sites 4 and 5) lie within this stretch with archaeological material found in areas connecting these outcrops and associated archaeological exposures.	No mining or prospecting permitted
High	There is a good chance of finding more archaeological material that is currently hidden by the dense bush cover in the orange shaded area.	Mining or prospecting undesirable here
Moderate	The remaining unshaded ground consists of undeveloped and relatively undisturbed bushveld with no known archaeological sites found during the various assessments conducted.	Mining or prospecting possible here
Low	These areas have been highly previously disturbed and no archaeological resources have been found here.	Mining or prospecting possible here

RECOMMENDATION

On condition that the prospecting is limited to the proposed three trenches and two boreholes as proposed and mapped herein, there is no objection to the prospecting activities from a heritage perspective.

Should a mining right application be investigated, it is strongly recommended that a full HIA be completed at an appropriate time of year to map the significant Iron Age resources evident here. It is also recommended that, in terms of best practice, a detailed Heritage Conservation Management Plan be developed for the significant archaeological resources located here to ensure their ongoing conservation and management regardless of whether or not mining rights are applied for due to the increased levels of activity in the area and the likely associated negative impacts to these significant resources.

CTS HERITAGE

APPENDIX 1: List of heritage resources in proximity to the development area

Site ID	Site no	Full Site Name	Site Type	Grading
134422	ZRM001	ZONDEREINDE MINE	Burial Grounds & Graves	Grade IIIa
134425	ZRM002	ZONDEREINDE MINE	Burial Grounds & Graves	Grade IIIa
134428	ZRM003A	ZONDEREINDE MINE	Stone walling	Grade IIIb
134431	ZRM003B	ZONDEREINDE MINE	Stone walling	Grade IIIb
134433	ZRM004A	ZONDEREINDE MINE	Stone walling	Grade IIIb
134434	ZRM004B	ZONDEREINDE MINE	Stone walling	Grade IIIb
134435	ZRM004C	ZONDEREINDE MINE	Stone walling	Grade IIIb
134436	ZRM004D	ZONDEREINDE MINE	Stone walling	Grade IIIb
134438	ZRM004E	ZONDEREINDE MINE	Stone walling	Grade IIIb
134443	ZRM005A	ZONDEREINDE MINE	Stone walling	Grade IIIa
134444	ZRM005B	ZONDEREINDE MINE	Stone walling	Grade IIIa
134445	ZRM005C	ZONDEREINDE MINE	Stone walling	Grade IIIa
134446	ZRM005D	ZONDEREINDE MINE	Stone walling	Grade IIIa
134448	ZRM005E	ZONDEREINDE MINE	Stone walling	Grade IIIa
89658	KWK001	Kwikstaart Agricultural Development 001	Structures	Grade IIIc

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APPENDIX 2: Reference List

Heritage Impact Assessments				
Nid	**Report Type**	**Author/s**	**Date**	**Title**
124316	Heritage Scoping	Johnny Van Schalkwyk	30/04/2010	SURVEY OF HERITAGE RESOURCES IN THE LOCATION OF THE PROPOSED MERENSKY MINING PROJECT, AMANDELBULT SECTION, RUSTENBURG PLATINUM MINE, LIMPOPO PROVINCE
186228	Heritage Impact Assessment Specialist Reports	Marko Hutten	13/10/2014	Heritage Impact Assessment for the Proposed Agricultural Development on Portion 2 of the Farm Kwikstaart 431 KQ, near Koedoeskop in the Limpopo Province.
186920	AIA Phase 1	Jaco van der Walt	05/12/2014	Archaeological Impact Assessment For the proposed Zwartkop Industrial Development, Amandelbult, Limpopo Province
278332	HIA Phase 1	Marko Hutten	02/06/2015	Heritage Impact Assessment for the Proposed Solar Park and Power Line Development on the Farm Liverpool near Koedoeskop, Limpopo Province.
5556	AIA Phase 1	Johnny Van Schalkwyk	19/01/2007	Survey of Heritage Resources in the Location of the Proposed Merensky Mining Project, Amandelbult Section, Rustenburg Platinum, Limpopo Province
5703	AIA Phase 1	Johnny Van Schalkwyk	01/09/1994	A Survey of Archaeological and Cultural Historical Resources in the Amandelbult Mining Lease Area
5704	AIA Phase 1	Johnny Van Schalkwyk	01/08/2001	A Survey of Cultural Resources in Two Development Areas, Amandelbult, Northern Province
5706	AIA Phase 1	Johnny Van Schalkwyk, Frank Teichert, Anton Pelser	01/06/2003	A Survey of Archaeological Sites for the Amandelbult Platinum Mine Seismic Exploration Program
5719	AIA Phase 1	Johnny Van Schalkwyk	28/08/2007	Heritage Impact Assessment: Portion 6 Aapieskraal
5729	AIA Phase 1	JM Maguire, Calvin van Wijk	12/06/2008	Phase 1 Archaeological Impact Assessment for Portion 128 of the Farm Koedoesdoorns KQ 414, Northam, Limpopo Province

Wiltshire, N. and Lavin, J. (2021). HERITAGE IMPACT ASSESSMENT In terms of Section 38(8) of the NHRA for the Proposed development of the Northam PV facility near Thabazimbi, North West Province. Unpublished HIA drafted for Savannah Environmental.

CTS HERITAGE

APPENDIX 3 - Keys/Guides

Key/Guide to Acronyms

AIA	Archaeological Impact Assessment
DARD	Department of Agriculture and Rural Development (KwaZulu-Natal)
DEFF	Department of Environment, Forest and Fisheries (National)
DEADP	Department of Environmental Affairs and Development Planning (Western Cape)
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism (Eastern Cape)
DEDECT	Department of Economic Development, Environment, Conservation and Tourism (North West)
DEDT	Department of Economic Development and Tourism (Mpumalanga)
DEDTEA	Department of economic Development, Tourism and Environmental Affairs (Free State)
DENC	Department of Environment and Nature Conservation (Northern Cape)
DMR	Department of Mineral Resources (National)
GDARD	Gauteng Department of Agriculture and Rural Development (Gauteng)
HIA	Heritage Impact Assessment
LEDET	Department of Economic Development, Environment and Tourism (Limpopo)
MPRDA	Mineral and Petroleum Resources Development Act, no 28 of 2002
NEMA	National Environmental Management Act, no 107 of 1998
NHRA	National Heritage Resources Act, no 25 of 1999
PIA	Palaeontological Impact Assessment
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
VIA	Visual Impact Assessment

Full guide to Palaeosensitivity Map legend

	RED:	VERY HIGH - field assessment and protocol for finds is required
	ORANGE/YELLOW:	HIGH - desktop study is required and based on the outcome of the desktop study, a field assessment is likely
	GREEN:	MODERATE - desktop study is required
	BLUE/PURPLE:	LOW - no palaeontological studies are required however a protocol for chance finds is required
	GREY:	INSIGNIFICANT/ZERO - no palaeontological studies are required
	WHITE/CLEAR:	UNKNOWN - these areas will require a minimum of a desktop study.

CTS HERITAGE

APPENDIX 4 - Methodology

The Heritage Screener summarises the heritage impact assessments and studies previously undertaken within the area of the proposed development and its surroundings. Heritage resources identified in these reports are assessed by our team during the screening process.

The heritage resources will be described both in terms of **type**:

- Group 1: Archaeological, Underwater, Palaeontological and Geological sites, Meteorites, and Battlefields
- Group 2: Structures, Monuments and Memorials
- Group 3: Burial Grounds and Graves, Living Heritage, Sacred and Natural sites
- Group 4: Cultural Landscapes, Conservation Areas and Scenic routes

and **significance** (Grade I, II, IIIa, b or c, ungraded), as determined by the author of the original heritage impact assessment report or by formal grading and/or protection by the heritage authorities.

Sites identified and mapped during research projects will also be considered.

DETERMINATION OF THE EXTENT OF THE INCLUSION ZONE TO BE TAKEN INTO CONSIDERATION

The extent of the inclusion zone to be considered for the Heritage Screener will be determined by CTS based on:

- the size of the development,
- the number and outcome of previous surveys existing in the area
- the potential cumulative impact of the application.

The inclusion zone will be considered as the region within a maximum distance of 50 km from the boundary of the proposed development.

DETERMINATION OF THE PALAEONTOLOGICAL SENSITIVITY

The possible impact of the proposed development on palaeontological resources is gauged by:

- reviewing the fossil sensitivity maps available on the South African Heritage Resources Information System (SAHRIS)
- considering the nature of the proposed development
- when available, taking information provided by the applicant related to the geological background of the area into account

DETERMINATION OF THE COVERAGE RATING ASCRIBED TO A REPORT POLYGON

Each report assessed for the compilation of the Heritage Screener is colour-coded according to the level of coverage accomplished. The extent of the surveyed coverage is labeled in three categories, namely low, medium and high. In most instances the extent of the map corresponds to the extent of the development for which the specific report was undertaken.

Low coverage will be used for:

- desktop studies where no field assessment of the area was undertaken;
- reports where the sites are listed and described but no GPS coordinates were provided.
- older reports with GPS coordinates with low accuracy ratings;
- reports where the entire property was mapped, but only a small/limited area was surveyed.
- uploads on the National Inventory which are not properly mapped.

Medium coverage will be used for

- reports for which a field survey was undertaken but the area was not extensively covered. This may apply to instances where some impediments did not allow for full coverage such as thick vegetation, etc.
- reports for which the entire property was mapped, but only a specific area was surveyed thoroughly. This is differentiated from low ratings listed above when these surveys cover up to around 50% of the property.

High coverage will be used for

- reports where the area highlighted in the map was extensively surveyed as shown by the GPS track coordinates. This category will also apply to permit reports.

RECOMMENDATION GUIDE

The Heritage Screener includes a set of recommendations to the applicant based on whether an impact on heritage resources is anticipated. One of three possible recommendations is formulated:

(1) The heritage resources in the area proposed for development are sufficiently recorded - The surveys undertaken in the area adequately captured the heritage resources. There are no known sites which require mitigation or management plans. No further heritage work is recommended for the proposed development.

This recommendation is made when:

- enough work has been undertaken in the area
- it is the professional opinion of CTS that the area has already been assessed adequately from a heritage perspective for the type of development proposed

(2) The heritage resources and the area proposed for development are only partially recorded - The surveys undertaken in the area have not adequately captured the heritage resources and/or there are sites which require mitigation or management plans. Further specific heritage work is recommended for the proposed development.

This recommendation is made in instances in which there are already some studies undertaken in the area and/or in the adjacent area for the proposed development. Further studies in a limited HIA may include:

- improvement on some components of the heritage assessments already undertaken, for instance with a renewed field survey and/or with a specific specialist for the type of heritage resources expected in the area
- compilation of a report for a component of a heritage impact assessment not already undertaken in the area

- undertaking mitigation measures requested in previous assessments/records of decision.

(3) The heritage resources within the area proposed for the development have not been adequately surveyed yet - Few or no surveys have been undertaken in the area proposed for development. A full Heritage Impact Assessment with a detailed field component is recommended for the proposed development.

Note:
The responsibility for generating a response detailing the requirements for the development lies with the heritage authority. However, since the methodology utilised for the compilation of the Heritage Screeners is thorough and consistent, contradictory outcomes to the recommendations made by CTS should rarely occur. Should a discrepancy arise, CTS will immediately take up the matter with the heritage authority to clarify the dispute.

APPENDIX 5 -Summary of Specialist Expertise

Jenna Lavin, an archaeologist with an MSc in Archaeology and Palaeoenvironments, and currently completing an MPhil in Conservation Management, heads up the heritage division of the organisation, and has a wealth of experience in the heritage management sector. Jenna's previous position as the Assistant Director for Policy, Research and Planning at Heritage Western Cape has provided her with an in-depth understanding of national and international heritage legislation. Her 8 years of experience at various heritage authorities in South Africa means that she has dealt extensively with permitting, policy formulation, compliance and heritage management at national and provincial level and has also been heavily involved in rolling out training on SAHRIS to the Provincial Heritage Resources Authorities and local authorities.

Jenna is a member of the Association of Professional Heritage Practitioners (APHP), and is also an active member of the International Committee on Monuments and Sites (ICOMOS) as well as the International Committee on Archaeological Heritage Management (ICAHM). In addition, Jenna has been a member of the Association of Southern African Professional Archaeologists (ASAPA) since 2009. Recently, Jenna has been responsible for conducting training in how to write Wikipedia articles for the Africa Centre's WikiAfrica project.

Since 2016, Jenna has drafted over 70 Heritage Impact Assessments throughout South Africa.