Application for a Prospecting Right and Associated Environmental Authorisation and Waste Management Licence (WML) for the Proposed Prospecting of Manganese and Iron Ore on Portion 4 of Kapstewel 436 in the Tsantsabane Local Municipality, Northern Cape Province

Draft Scoping Report

DMR Reference Number: NC30/5/1/1/2/13077PR

Report Prepared for

Refentse Mining Resources (Pty) Ltd

Report Prepared by

GEOLOGICAL CONSULTING SERVICES PTY (LTD)

July 2022

Title:	*Draft Scoping Report for Application for a Prospecting Right and Associated Environmental Authorisation and Waste Management Licence (WML) for Proposed Prospecting of Manganese and Iron Ore on Portion 4 of Kapstewel 436 in the Tsantsabane Local Municipality, Northern Cape Province*
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Executive Summary

Introduction

Refentse Mining Resources (Pty) Ltd (Refentse) applied for a Prospecting Right (PR) from the Department of Mineral Resources for the proposed prospecting of Manganese and Iron Ore on Portion 4 of Kapstewel 436 in Tsantsane Local Municipality, Northern Cape Province. The proposed prospecting project will cover an area of 780.50 hectares and is located approximately 23km north of the town of Postmasburg, approximately 40km southeast of the town of Olifantshoek, approximately 46km south of the town of Kathu in the Northern Cape Province.

Literature survey conducted on the proposed prospecting area led to the identification of Manganese and Iron Ore deposits. Refentse is therefore applying for a PR in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 22 of 2002) (MPRDA) from the Department of Mineral Resources (DMR) Northern Cape Province Regional Office for the proposed Manganese and Iron Ore prospecting on Portion 4 of Kapstewel 436. Before the PR will be granted, Refentse must also undertake the Environmental Authorisation (EA) and Waste Management Licence (WML) processes in terms of the National Environmental Management Act (Act No. 107 of 1998) (NEMA) and the National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM: WA). Since the proposed prospecting project triggers activities listed in Listing Notice 1 and 2 of the NEMA, a full Environmental Impact Assessment (EIA) including scoping and impact assessment phases will be required per the requirements of the NEMA Government Notice Regulation (GNR) 982 (as amended by GNR325 of 7 April 2017 and 21 June 2021).

Who is conducting the EIA?

Ndi Geological Consulting Services (Pty) Ltd has been appointed by Refentse as the independent Environmental Assessment Practitioner (EAP) to conduct the PRA/EA/WML application process for the project.

The reports and documentation for the integrated EA/WML application process will be compiled and finalised for submission to the DMR for the EA/WML in terms of the NEMA for consideration and decision making. The DMR will consult with other government authorities as required in terms of Section 24(K) of the NEMA.

Who will evaluate the EIA?

Before the proposed development can proceed, approval must be obtained from the regulatory authorities. The Scoping Report will be submitted to the DMR for review. The competent authorities will then advise the project team as to how the project should proceed for the impact assessment Phase of the project. The impact assessment phase will entail detailed specialist investigations, reporting and further stakeholder involvement. Only once a Final Environmental Impact Assessment and Environmental Management Programme (EIA/EMPr Report) have been submitted to DMR can a decision be taken by the Department as to whether the project may proceed or not.

Description of the Proposed Development

The PR/EA/WML applications are for the proposed prospecting of Manganese and Iron Ore. The prospecting of manganese and iron resources will require the excavation of pits and drill holes. It is expected that 2 pits with diameter of approximately 100m x 50m x 80m will be required but this will be confirmed during the Scoping Phase of the process. 5 diamond drill holes and 20 RC holes to the depth of 100m are planned for this project.

The required infrastructure will include:

- *Ablution facility*

- *Access roads*
- *Diesel storage*
- *Fences*
- *Office site*
- *Core and Chip sample storage and cutting facility*
- *Plant site*

The prospecting right and EA/WML will be required for a period of three (3) years.

Motivation for the Proposed Project

Iron ore is the most used metal followed by aluminium, copper and manganese. This has positive effects on the economy. These metals are clearly in demand and mining of such minerals is essential in balancing the supply and demand. Demand for iron ore and manganese in South Africa is driven by the construction, steel production and electrical conductivity.

The mining industry is still one of the major contributors to the South African economy. More resources need to be identified to keep up with the demand for iron ore and manganese. For that reason, prospecting for these minerals is the first step to identifying these resources.

There would be no minerals without mining and manufacturing. This suggests the importance of all mining operations in fuelling the million-dollar industry.

The definition of prospecting in terms of the MPRDA states: "intentionally searching for any minerals by means of any method which disturbs the surface or sub-surface of the earth, including any portion of the earth that is under the sea or under other water…". Prospecting is the physical search for minerals, fossils, precious metals or mineral specimens, which allows a company to survey or investigate an area of land for the purpose of identifying an actual or probable mineral deposit, before investments are made into the mining activities.

Assessment of the geological information available has determined that the area in question may have good quality manganese and iron deposits. In order to ascertain the above and determine the nature, location and extent of the deposits within the proposed prospecting area, it will be necessary that prospecting be undertaken. Prospecting will also determine if there are any features that may have an impact on the economic extraction of the manganese and iron ore.

The information that will be obtained from the prospecting to be undertaken will be necessary to determine, should manganese and iron ore be found, how and where the manganese and iron will be extracted and how much economically viable deposits are available within the proposed prospecting area.

Should good quality manganese and iron ore be found in the project area, Refentse will be able to mine the available reserves. This will result in job creation and boost to local businesses is continued. Refentse expects that substantial benefits from the project will accrue to the immediate project area, the sub-region and the province of the Northern Cape. This prospecting activity has a potential to decrease unemployment rates in proposed areas and surroundings. This prospecting activity will also bring revenue into the city and the province which will in turn boost the economy of the country and contribute to the supply of manganese and iron required in South Africa and globally. These benefits must be offset against the costs of the project, including the impacts to landowners.

Further to the above, it has been determined that the prospecting project activities will not have a conflict with the spatial development plans for the Tsantsabane LM and ZF Mgcawu DM, the Integrated Development Plans and the Environmental Management Framework (EMF) for the affected municipalities. A process that ensures consultation with Interested and Affected Parties (I&APs) for the project is being undertaken. The stakeholder engagement process is being conducted is a way to provide all interested and affected parties with an

opportunity to comment on the project, with several platforms that allow public commenting opportunities to be offered to the I&APs. All issues raised by the interested and affected parties will be recorded and addressed throughout the EIA process.

These benefits must be offset against the costs of the project, including the impacts to landowners. Further to the above, it has been determined that the mining project activities will not have a conflict with the spatial development plans for the Tsantsabane LM and ZF Mgcawu DM, their Integrated Development Plans and the Environmental Management Framework (EMF).

A process that ensures consultation with Interested and Affected Parties (I&APs) for the project is being undertaken. The stakeholder engagement process is being conducted is a way to provide all I&APs with an opportunity to comment on the project, with several platforms that allow public commenting opportunities to be offered to the I&APs. All issues raised by the interested and affected parties will be recorded and addressed throughout the EIA process.

Alternatives Considered

The alternatives considered were as follows:

- *Property/Location: The location of the proposed project is constrained to the location of manganese and iron ore. Literature review on the prospecting right area has proven that there is iron ore present. Exploration targets were generated by means of literature survey. The site is therefore regarded as the preferred site and as such, no property alternatives were viable to be considered for this project.*
- *Type of Activity: An alternative to the type of activity would be leaving the project area with no viable economic activities taking place. The current land use associated with the project area are mining related (prospecting and historical mining). A socio-economic impact assessment of the proposed Refentse project will be included in the impact assessment phase and the land use alternatives will also be investigated in more detail in the EIA phase once specialist investigations have been completed.*
- *Design or Layout of the Activity: The design or layout of a prospecting project is determined by the shape, position and orientation of the mineral resource. It is expected that prospecting and rehabilitation will be undertaken sequentially to keep disturbed areas to a minimum. The scoping assessment that has been conducted for the project shows that there are no fatal flaws associated with the project location. However, should sensitive environments such as heritage resources, SCC etc be affected by the project layout, the site layout plan will be revised. The significance of the impacts will be investigated in depth during the impact assessment phase of the project.*
- *The Technology to be used in the Activity: In terms of the proposed technologies, these have been chosen based on long term proven success in prospecting. The prospecting activities proposed in the Prospecting Works Programme are dependent on the preceding phase (desktop studies), therefore no alternatives have been indicated. The location of the invasive drilling and trenching activities will be determined during Phase 1 of the Prospective Works Programme. All infrastructure will be temporary and/or mobile.*
- *The Operation Aspects of the Activity: No permanent services in terms of water supply, electricity, and or sewage facilities will be required. Temporary access roads will however be constructed in areas where there are no existing access routes. The activities will commence with Phase 1 and undertaken as described in Section 5.*

- *No-go Option: The option of not approving the activities will result in a significant loss of valuable information regarding the mineral status (in terms of manganese and iron reserves), present on the*

identified properties. In addition, should economical reserves be present, and the applicant does not have the opportunity to prospect, the opportunity to utilize these reserves for future phases will be lost.

All the identified alternatives will be assessed in detail in the specialist studies and impact assessment phase.

Environmental Impact Assessment Process

An EIA seeks to identify the environmental consequences of a proposed project from the beginning, and helps to ensure that the project, over its life cycle, will be environmentally acceptable, and integrated into the surrounding environment in a sustainable way. The project triggers activities listed in Listing Notice1 and 2 of the NEMA and GNR921 and GNR633 of the NEM: WA and requires that a full EIA (scoping and impact assessment phases) be conducted.

Two parallel processes are followed during the scoping phase being the Environmental technical process and Stakeholder engagement process. This report is the draft Scoping Report and forms one of the first steps in the scoping process after which the EIA phase will be initiated. A summary of this process is shown in Figure ES-1.

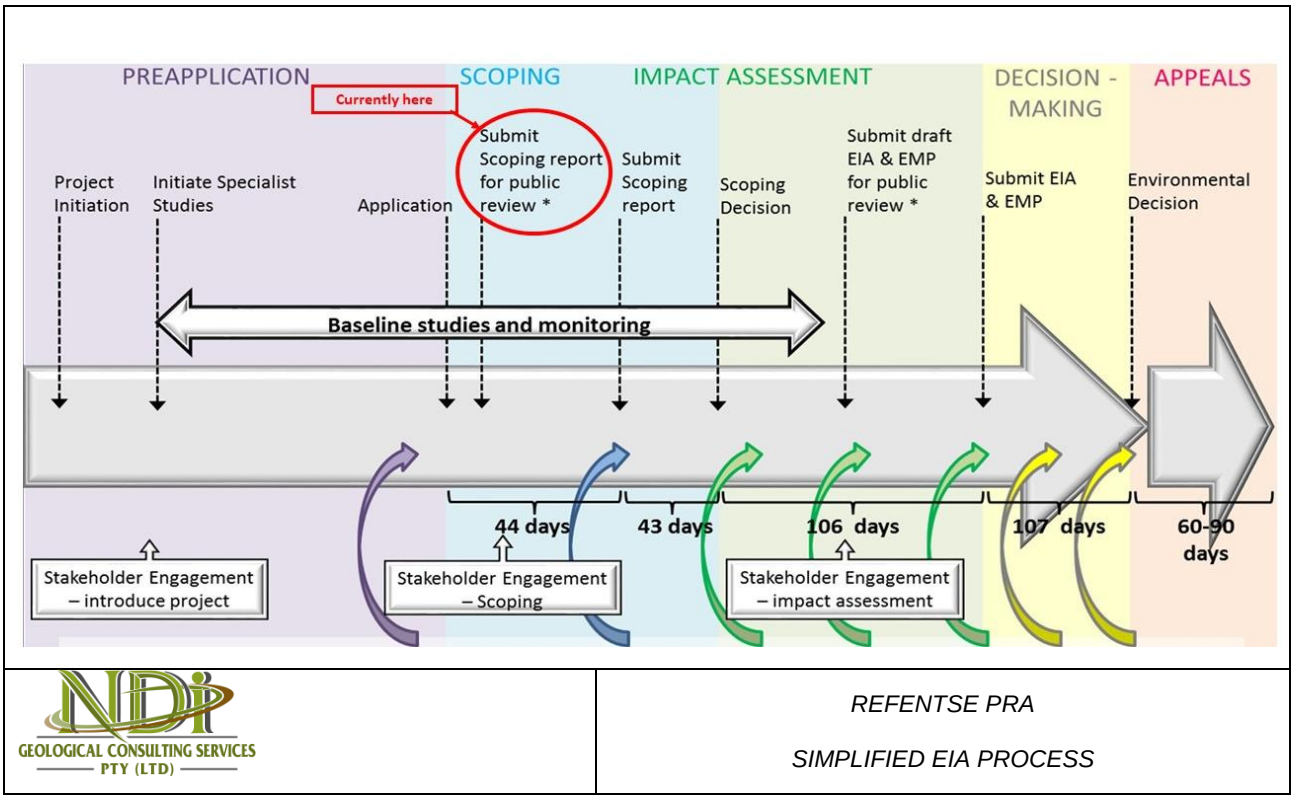

Figure ES-1: Illustration of the EIA process to be followed

Stakeholder Engagement Process

Activities that have been undertaken for the public involvement process during the scoping phase are:

- *Identification of Interested and Affected Parties (I&APs) and development of a stakeholder database: I&APs were identified using GIS and cadastral information to identify affected and adjacent properties. The affected and adjacent property owners were identified using the surveyor general website, www.deedsweb.gov.za. In addition, registered I&APs were also sourced from responses to the advertisements, site notices and written notification to I&APs associated with the project. The I&APs register will be maintained for the duration of the study where the details of stakeholders are captured and automatically updated upon communication to the EAP. The identification, registration, and comments from I&APs will be an on-going activity.*

The opportunity to participate in the EIA and to register as an I&AP was announced through the following means:

- *Letter of invitations to register and background information documents;*
- *Newspaper advertisements;*
- *Site notices erected at several places in and around the proposed prospecting area;*
- *Collation of comments received into a Comments and Responses table (CRR table); and*
- *Obtaining and documenting registration and comment sheets.*

The Draft Scoping Report will be made available for a 30-day commenting period. All issues, comments and suggestions received from stakeholders will be reviewed and collated into a CRR table to be included in all reports. Where necessary, comments from stakeholders will also be incorporated into the Final Scoping Report that will be submitted to the DMR for decision-making. Should it be required, a public meeting will be held during the Scoping Phase of the project.

Once the DMR has accepted the Final Scoping Report, the EAP will compile the EIA/ EMPr Report and specialist studies identified in this Scoping Report, which will also be made available to the stakeholders for a 30-day review and comment period. Where required, a public meeting to discuss the findings from the specialist studies and impact assessment phase will be held. Comments received will be incorporated into the Final EIA/EMPr Report which will be submitted to the DMR for decision making. The comments will also be collated into the CRR table, which will form an Appendix to the EIA/EMPr Report.

The stakeholders will be notified of DMR's final decision on the project once it has been communicated to the EAP and applicant (Refentse).

Profile of the receiving environment

The scoping report provides a general description of the status quo of the receiving environment in the project area. It serves to set the scene and provide context to the area within which the scoping exercise was conducted. This section also includes the main issues/impacts associated with each aspect and how the proposed expansion will affect the biophysical and social environment. A summary of the main baseline aspects is included in Table ES-1, with more detail included in Section 11 of the report

Table ES-1: Summary of the Profile of the Receiving Environment

Aspect	***Description***
Geographical	*The proposed project area is situated in the Tsantsabane Local Municipality's area of jurisdiction, within the ZF Mgcawu District Municipality, Northern Cape Province. The affected property is located approximately 23km north of the town of Postmasburg, approximately 40km south-east of the town of Olifantshoek, approximately 46km south of the town of Kathu.*
Topography	*The topography around Postmasburg contains small variations in elevation, with a maximum elevation change of 80 metres and an average elevation above sea level of 1 327 MASL.* *The topography map of the proposed prospecting area shows that the altitude of the site varies from approximately 1 453 mamsl to 1 440 mamsl.*
Climate	*Postmasburg has a Subtropical desert climate (Classification: BWh). The summers are long and hot whereas the winters are short, cold, dry, and windy. It is mostly clear*

Aspect	***Description***
	throughout the year and the temperature typically varies from 3°C to 32°C and is rarely below -1°C or above 36°C. *The highest rainfall season lasts for 5.7 months, from October 24 to April 15, with a greater than 14% chance of a given day being a rainy day. February has the highest rainfall with an average of 7 days with at least 1 mm of precipitation and a peak probability of 27%.* *The dry season lasts up to 6.3 months, from April 15 to October 24. July is the driest month with an average of 0.5 days with at least 1mm of precipitation.*
Geology	*The study area falls in the Postmasburg area which lies at the southern end of a domal structure termed the Maremane Anticline in which dolomites of the Campbell Rand Group are exposed. The Campbell Rand Group deposits in this area are overlain by the Kuruman Banded Iron Formation - the Kuruman Member of the Asbesheuwel Formation. The dolomite palaeosurface is karsted, leading to collapse structures where manganese and iron formation has fallen into karst cavities.* *The geology of the property is dominated by dolomitic limestone (puckered limestone) with subordinate coarsely crystalline dolomite, chert ad lenses of limestone (Vgl). To the middle of the property, small portions of banded ironstone with bands of amphibolites are observed (Vak). Banded chert and chert breccia, largely covered by rubble (Vgl) is mostly observed around the banded ironstone. Red to flesh coloured windblown sand; sand dune (Qs) covers some parts of the property. A small portion of coarse-grained brown quartzite and subgraywacke; conglomerate (Mmf) of the Olifantshoek Group is also observed towards the centre of the property and adjacent to it.*
Land use and land capability	*The majority of the affected area and surroundings are currently being used for prospecting and mining.*
Biodiversity	*The proposed mining area is located in the Savanna Biome. The Savanna Biome is the largest Biome in southern Africa, occupying 46% of its area, and over one-third the area of South Africa. It is well developed over the lowveld and Kalahari region of South Africa. It is characterized by a grassy ground layer and a distinct upper layer of woody plants. Where this upper layer is near the ground the vegetation may be referred to as Shrubveld, where it is dense as Woodland, and the intermediate stages are locally known as Bushveld.* *Most of the savanna vegetation types are used for grazing, mainly by cattle or game. In the southernmost savanna types, goats are the major stock. In some types, crops and subtropical fruit are cultivated. These mainly include the Clay Thorn Bushveld, parts of Mixed Bushveld, and Sweet Lowveld Bushveld.* *According to the SANBI remaining vegetation types database, there is no remaining natural vegetation on the affected area. The threatened ecosystems associated with the site are the Kuruman Mountain Bushveld and the Kuruman Thornveld, which are both classified at Least Threatened.*
Heritage Resources	*Heritage resources may be tangible, such as buildings and archaeological artefacts or intangible such as landscapes and living heritage. Their significance is based upon their aesthetic, architectural, historical scientific, social, spiritual, linguistic economic or technological values; their representation of a particular period; their rarity and their sphere of influence. There are a number of heritage and cultural resources in the Northern Cape Province.*

Aspect	***Description***
	A site-specific Phase 1 Heritage Impact Assessment (HIA) will be conducted where potential impacts on heritage resources will be assessed in the impact assessment phase of the project and mitigation measures to be implemented in the event that heritage and cultural resources are encountered will be included in the EMPr.
Wetlands	*The SANBI data shows that there are no wetlands occurring on the study area.*
Conservation Plan	*According to the Northern Cape Provincial Biodiversity Conservation Plan (C Plan), a negligible part of the affected property is classified as an Ecological Support Area (ESA). Ecological Support Areas are not essential for meeting biodiversity targets but play an important role in supporting the ecological functioning of Critical Biodiversity Areas (CBAs) and/or in delivering ecosystem services.*
Protected Areas	*The DFFE South African Conservation Areas Database (*SACAD*), South African Protected Areas Database (*SAPAD*) and the Important Biodiversity Area (IBA) database show that there are no protected areas or important bird areas affected by the proposed prospecting activities.*
Surface water	*The project is located within quaternary catchment D73A which is located within the Lower Vaal Water Management Area (WMA). There are drainage lines that traverse the project area. According to the SANBI Wetland Inventory (2006) National Freshwater Ecosystem Priority Areas (NFEPA) (2011), the affected quaternary catchment area is not regarded as important in terms of fish sanctuaries, rehabilitation or corridors. In addition, the quaternary catchment area is not considered important in terms of translocation and relocation zones for fish.*

Groundwater	• *The DWS launched the Reconstruction and Development Programme (RDP) in South Africa, which highlighted the importance of groundwater resources in the country as well as the role they will play in satisfying the targets of the RDP. According to the DWS aquifer classification the following applies for the prospecting area:*
	  ○ *The aquifer is classified as a Minor aquifer region;*
	  ○ *Aquifer Vulnerability is classified as Moderate;*
	  ○ *Aquifer Susceptibility is classified as Medium;*
	• *Groundwater Yield: The DWS National Groundwater Archive (NGA) shows that the groundwater yield in the prospecting area is between 0.5 and 2.0l/s and that the aquifer is classified as karst;*
	• *Groundwater Recharge: According to the DWS groundwater data, the study area groundwater recharge is between 0 and 1 000 l/s; and*
	• *Groundwater Quality: The groundwater quality is generally of good quality, with Electrical Conductivity (EC) levels between 70-300mS/m.*

Anticipated Impacts

*Table ES-2*Table 13-2 *provides a high-level assessment of the potential impacts and associated mitigation measures which could result from the proposed prospecting during construction, operation and decommissioning/closure. These impacts will be further refined and assessed according to the impact assessment methodology in Section 14.*

Table ES – 2: Anticipated Impacts

Element of Environment	***Potential Impact Descriptions***
Socio-Economic	*Possible job opportunities during the construction and operation.*
Geohydrology	*Possible groundwater contamination.*
Surface water	*Possible surface water contamination.*
Air Quality	*Possible impact on Air Quality in the area.*
Climate Change	*Possible contribution to climate change through emission of Green House Gases*
Drilling and Blasting	*Possible impacts on private properties and fauna due to drilling and blasting*
Noise	*Possible generation of noise during construction and operation.*
Visual	*Possible visual impacts during construction and operation*
Biodiversity	*Disturbance and loss of biodiversity, especially floral and faunal SCC.*
Aquatic ecology	*Possible loss, sedimentation and contamination of aquatic resources*
Heritage	*Possible impact on heritage and cultural resources (including graves) in the area.*
Traffic	*Potential safety issues due to the increased traffic.*
Cumulative Impacts	*Cumulative Impacts*

Specialist Studies

- *Based on the outcomes of the DEFF screening tool and associated protocols for specialist assessment, specialist themes for which the site is rated as being of Low or Medium sensitivity generally require a "Compliance Statement" by the EAP or specialist. Those rated as High or Very High sensitivity will require detailed Specialist Impact Assessment to describe aspects of the baseline and assess potential impacts of the project. Based on the findings of the screening tool, the following specialist studies will be conducted:*
- *Biodiversity (flora and fauna);*
- *Heritage Resources and Palaeontology; and*
- *Surface water study, wetlands and aquatic studies.*
- *In addition, the following will continue during the EIA phase:*
- *Public participation and consultation;*
- *Environmental Management Programme;*
- *Comparative alternatives assessment; and*
- *Amend site layout designs and Prospecting Works Programme, if required.*
- *Certain impacts that are anticipated to be of limited or lower significance, either by virtue of the scale of the impacts, their short duration (e.g., construction phase only), disturbed nature of the receiving environment and/or distance to communities, will be assessed by EAP Team and have been reported directly into the EIA Report.*

The EAP will make use of the impact assessment methodology described in Section 14 and will ensure that the specialist studies reports comply with the requirements of Appendix 6 of the NEMA.

Quantification of Impacts

The anticipated impacts associated with the proposed project will be assessed according to a standardised impact assessment methodology which is presented Section 14. This methodology has been utilised for the

assessment of environmental impacts where the consequence (severity of impact, spatial scope of impact and duration of impact) and likelihood (frequency of activity and frequency of impact) have been considered in parallel to provide an impact rating and hence an interpretation in terms of the level of environmental management required for each impact.

Plan of Study for the EIA

The Scoping Report is concluded with a Plan of Study (PoS) for the EIA which explains how the EIA will be conducted for the project in accordance with the following:

- *Key environmental issues identified during the scoping phase to be investigated further in the EIA phase;*
- *Where applicable, feasible alternatives to be assessed further in the EIA phase;*
- *Development of the EMPr for the management of negative environmental impacts;*
- *The public participation process to be followed;*
- *Contents of the EIA/EMPr Report; and*
- *Consultation with the authorities.*

Conclusion and Recommendation

The aim of this Scoping Report is to provide an indication of the identified, positive and negative environmental and socio-economic impacts associated with the proposed project activities. The stakeholder engagement in the Scoping Phase will play an important role in determining possible impacts and allowing the concerns by the public to be adequately addressed in the Impact Assessment Phase of the EIA process. The Draft Scoping Report has presented:

- *The environmental assessment process undertaken so far;*
- *A brief description of the proposed project;*
- *A baseline description of the current environment;*
- *The potential environmental and social impacts identified to date; and*
- *The recommended environmental process to be followed to develop the EIA/EMPr Report (Plan of Study).*

A comprehensive public involvement process will be implemented during scoping. The EIA process is; however, iterative and therefore additional potential issues/impacts and alternatives may be identified during the impact assessment phase that may require further investigation/consideration. Once the Scoping Report comment period is concluded, the report will be updated with the additional issues, and submitted to DMR. An EIA/ EMPr Report will be compiled and subjected to a round of public comment. The EIA will then be presented to the authorities for decision-making. On submission of the EIA/ EMPr Report to the DMR, notification will be sent to registered I&APs to inform them of the submission of the documents; and the opportunity to request copies of the Final reports.

Extensive consideration has been given to the proposed design of the project. No fatal flaws have been identified during the scoping phase of this project. A comprehensive impact assessment will be undertaken and incorporated into the EIA/EMPr Report during the impact assessment phase. The proposed comprehensive stakeholder engagement process in the PoS will ensure that the stakeholders are involved in the process, from the conception of the EA/WML application process to the end. It is anticipated that implementation of the PoS presented in this report will result in an adequate EIA process which will result in the formulation of a sound EMPr to be implemented at the proposed mine.

It is anticipated that implementation of the PoS presented in this report will result in an adequate EIA process which will result in the formulation of a sound EMPr to be implemented throughout the prospecting activities by Refentse.

The process followed during the detailed impact assessment phase will meet the requirements of the legislation to ensure that the DMR receives enough information to enable informed decision-making.

YOUR COMMENT ON THE SCOPING REPORT

This Draft Scoping Report will be available for comment for a period of 30 days from 08 July 2022 to 08 August 2022. Copies of the Scoping Report have been made available at the following public places for review

Public Place	Locality	Telephone
Ndi Geological website	http://www.ndigeoservices.co.za/	053 842 0687

An electronic copy will also be available on CD on request from the stakeholder engagement officers. I&APs are requested to provide comments and information on the following aspects of the proposed project:

1. Information on how I&APs consider that the proposed activities will impact on them or their socio-economic conditions;
2. Written responses stating their suggestions to mitigate the anticipated impacts of each activity;
3. Information on current land uses and their location within the area under consideration;
4. Information on the location of environmental features on site to make proposals as to how and to what standard the impacts on site can be remedied; and
5. How to mitigate the potential impacts on their socio-economic conditions and to make proposals as to how the potential impacts on their infrastructure can be managed avoided or remedied.

DUE DATE FOR COMMENT

08 August 2022

Please submit comments to the EAP:

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Disclaimer

The opinions expressed in this Report have been based on the information supplied to Ndi Geological Consulting Services (Pty) Ltd by Refentse Mining Resources (Pty) Ltd (Refentse). The opinions in this Report are provided in response to a specific request from Refentse to do so. Ndi Geological Consulting Services (Pty) Ltd has exercised all due care in reviewing the supplied information. Whilst Ndi Geological Consulting Services (Pty) Ltd has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. Ndi Geological Consulting Services (Pty) Ltd does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of Ndi Geological Consulting Services (Pty) Ltd.'s investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which Ndi Geological Consulting Services (Pty) Ltd had no prior knowledge nor had the opportunity to evaluate.

List of abbreviations

CA:	Competent Authority
CRR:	Comments and Responses Register
DFFE:	Department of Forestry, Fisheries and the Environment
DMR:	Department of Mineral Resources
DMS:	Dense Media Separation
DWS:	Department of Water and Sanitation
EA:	Environmental Authorisation
EAP:	Environmental Assessment Practitioner
EIA:	Environmental Impact Assessment
EIAR:	Environmental Impact Assessment Report
EMPr:	Environmental Management Programme
GDP:	Gross Domestic Product
I&APs:	Interested and Affected Parties
IDP:	Integrated Development Plan
IWUL:	Integrated Water Use Licence
LM:	Local Municipality
Mamsl:	Meters above mean sea level
MPRDA:	Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002)
NEM: WA:	National Environmental Management: Waste Act, 2008 (Act 59 of 2008)
NEMA:	National Environmental Management Act, 1998 (Act 107 of 1998)
NFEPA:	National Freshwater Ecosystems Priority Areas
PAIA:	Promotion of Access to Information Act (Act No. 2 of 2000)
PHRA:	Provincial Heritage Resources Agency
PoS:	Plan of Study
PPE:	Personal Protective Equipment
SAHRA:	South African Heritage Resources Agency

SCC:	Species of Conservation Concern
SDF:	Spatial Development Framework
WMA:	Water Management Area
WML:	Waste Management Licence

mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

SCOPING REPORT

FOR LISTED ACTIVITIES ASSOCIATED WITH THE PROPOSED PROSPECTING OF MANGANESE AND IRON ORE ON PORTION 4 OF KAPSTEWEL 436 IN THE TSANTSABANE LOCAL MUNICIPALITY, NORTHERN CAPE 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).

NAME OF APPLICANT	Refentse Mining Resources (Pty) Ltd
TEL NO	071 888 2606
FAX NO:	
POSTAL ADDRESS	P.O. Box 1124, Kuruman, Northern Cape, 8460
PHYSICAL ADDRESS	P.O. Box 1124, Kuruman, Northern Cape, 8460
FILE REFERENCE NUMBER SAMRAD	NC30/5/1/1/2/13077PR

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 considered 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 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.

OBJECTIVE OF THE SCOPING PROCESS

1) The objective of the scoping process is to, through a consultative process—

(a) identify the relevant policies and legislation relevant to the activity;

(b) motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;

(c) identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process;

(d) identify and confirm the preferred site, through a detailed site selection process, which includes an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the environment;

(e) identify the key issues to be addressed in the assessment phase;

(f) agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; and

(g) identify suitable measures to avoid, manage, or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

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1 Project background

Refentse Mining Resources (Pty) Ltd (Refentse) applied for a Prospecting Right (PR) from the Department of Mineral Resources for the proposed prospecting of Manganese and Iron Ore (DMR Ref: NC30/5/1/1/2/13077PR) on Portion 4 of Kapstewel 436 in Tsantsane Local Municipality, Northern Cape Province. The proposed prospecting project will cover an area of 780.50 hectares and is located approximately 23km north of the town of Postmasburg, approximately 40km southeast of the town of Olifantshoek, approximately 43km south of the town of Kathu in the Northern Cape Province.

Literature survey and historical mining conducted on the proposed prospecting area led to the identification of Manganese and Iron Ore deposits potential on Portion 4 of Kapstewel 436. Refentse is therefore applying for a PR in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 22 of 2002) (MPRDA) from the Department of Mineral Resources Northern Cape Province (DMR) Regional Office for Manganese and Iron Ore prospecting on Portion 4 of Kapstewel 436. Before the PR will be granted, Refentse must also undertake an Environmental Authorisation (EA) and Waste Management Licence (WML) processes in terms of the National Environmental Management Act (Act No. 107 of 1998) (NEMA) and the National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM: WA). Since the proposed prospecting project triggers activities listed in Listing Notice 1 and 2 of the NEMA, a full Environmental Impact Assessment (EIA) including scoping and impact assessment phases will be required per the requirements of NEMA Government Notice Regulation (GNR) 982 (as amended by GNR325 of 7 April 2017 and 21 June 2021).

The Department of Forestry, Fisheries and the Environment (DFFE) has identified the need for the alignment of environmental authorisations and has promulgated a single environmental management system under NEMA whereby the DMR has become the competent authority for the authorisation of mining-related projects under the NEMA Environmental Impact Assessment (EIA) Regulations. This will result in simultaneous decisions in terms of NEMA and other environmental management Acts. The competent authority for the EA/WML process is the DMR.

Refentse appointed Ndi Geological Consulting Services (Pty) Ltd (Ndi Geological) as the independent Environmental Assessment Practitioner (EAP) to facilitate the EA/WML process for the proposed Manganese and Iron ore prospecting project.

Before an EAP submits a final report, they must have given registered I&APs access to, and an opportunity to comment on the report prior to the submission of the final report to the competent authority for approval. The registered I&APs will be provided with an opportunity to review and comment on this draft Scoping Report and the draft Impact Assessment Report once the Scoping Report has been finalised and approved by the DMR.

The stakeholder engagement process is conducted in terms of NEMA (as amended) which provides clear guidelines for stakeholder engagement during an EIA, as part of the EA/WML process. One of the general objectives of integrated environmental management set out in Section 23(2) of NEMA is to ensure the "*adequate and appropriate opportunity for public participation in decisions that may affect the environment*". The stakeholder engagement process is primarily aimed at affording stakeholders and Interested and Affected Parties (I&APs) the opportunity to gain an understanding of the project. In addition, the purpose of consultation with the landowners, affected parties and communities is to provide them with the necessary information about the proposed project so that they can make informed decisions as to whether and to which degree the project will affect them. The purpose of consultation with the stakeholders and I&APs is to provide the competent authority with the necessary information in order for them to make informed decisions.

Before an EAP submits a final report, they must have given registered I&APs access to, and an opportunity to comment on the report prior to the submission of the final report to the competent

authority for approval. The registered I&APs will be provided with an opportunity to review and comment on this draft Scoping Report and the Impact Assessment Report once the Scoping Report has been finalised and approved by the DMR.

The reports and documentation for the integrated EA/WML application process will be compiled and finalised for submission to the DMR for the EA/WML in terms of the NEMA for consideration and decision making. The DMR will consult with other government authorities as required in terms of Section 24(K) of the NEMA.

2 Purpose and context of this document

The project triggers activities listed in terms of Listing Notice 1, 2 and 3 of the NEMA (as amended) and will require an EA) from the DMR. The proposed slimes dams will trigger activities listed in GNR 921 (Category B) NEM: WA and will therefore require a WML from the DMR. An integrated application for an EA and WML will be conducted where a full Environmental Impact Assessment (EIA) including Scoping and Impact Assessment will be followed as stipulated in GNR 326 of the NEMA and GNR921 of the NEM: WA.

- This document serves as the draft Scoping Report for the first phase of the overall EIA process and includes the following objectives as a minimum:
- To establish the legal framework relevant to the proposed project;
- To identify and engage with Interested and Affected Parties (I&APs) and allow for adequate participation in the process;
- To assess the receiving environment in terms of current state and determine potential positive or negative impacts which may result due to the proposed development;
- To consider alternatives for achieving the project's objectives;
- To identify significant issues to be investigated further during the execution of the EIA phase; and
- To determine the scope of the EIA phase, specialist studies, public participation, assessment of impacts and alternatives; and allow for informed decision-making regarding the EIA process.
- .

2.1 Integrated Environmental Authorisation and Waste Management Licence Application Process

The first Phase of the EA/WML application process is the scoping phase, which will inform the impact assessment phase. This phase provides I&APs an opportunity to provide the EAP with issues and concerns with respect to the proposed project in order to inform the technical studies so that they can evaluate these concerns during the impact assessment phase of the project.

This Scoping Report provides a description of the proposed project and sets out the proposed scope of the EIA and EMPr that will be undertaken for the proposed project. This includes alternatives that will be evaluated for various aspects of the project, the anticipated potential environmental impacts, issues raised by stakeholders, the specialist studies that will be undertaken including the terms of reference of the specialist studies, and the qualifications and experience of the study team.

Stakeholder engagement is a key element of the environmental decision-making process, and stakeholder engagement forms part of the scoping phase as well as the impact assessment phase.

The Draft Scoping Report will be made available for public review prior to submission to DMR for decision making. All the comments received will be captured and addressed where feasible in the final Scoping Report as well as the EIAR/EMPr Report.

Figure 2 1 provides an illustration of the proposed EIA process that will be followed.

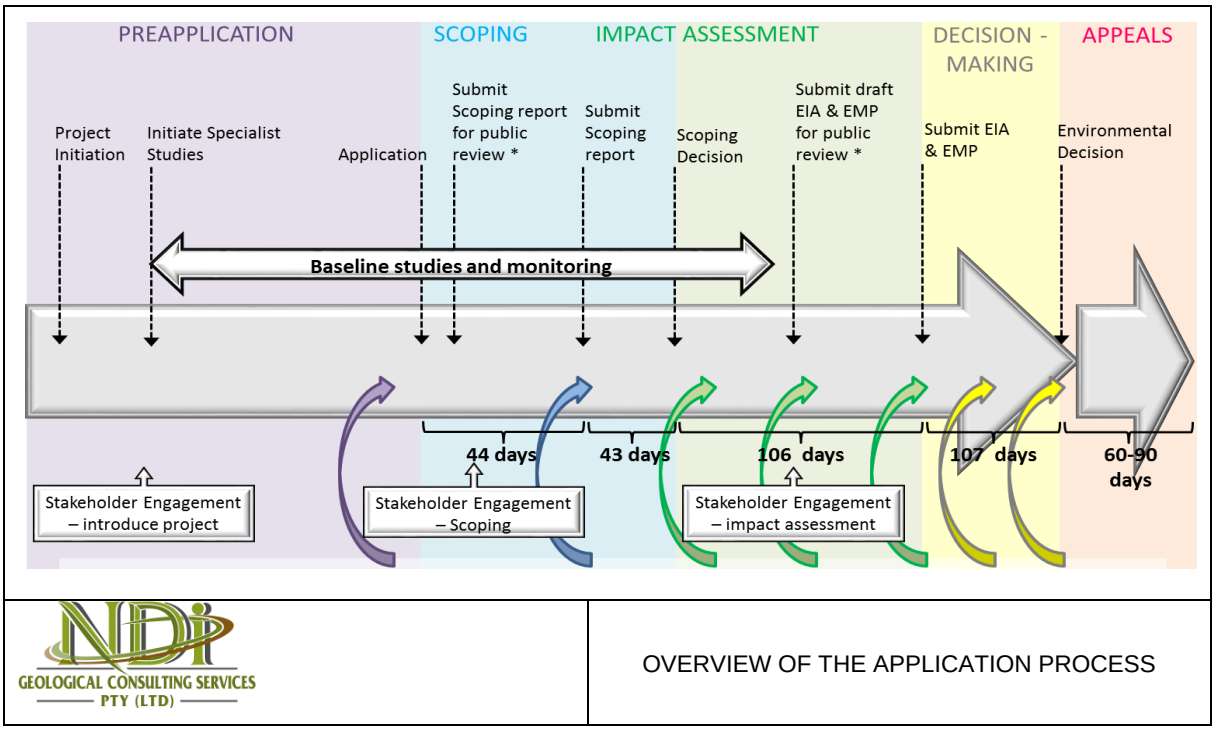

Figure 2-1: Overview the Environmental Impact Assessment Process

2.2 Report Index in Relation to the NEMA Regulations

Regulation 2, Appendix 2 of GNR 982 published in terms of NEMA stipulates the minimal requirements and issues that need to be addressed in the Scoping Report. This report strives to address all these requirements as per regulations. Table 2-1 indicates the regulations that have been addressed and the section of the Scoping Report where these requirements can be found.

Table 2-1: Requirements of Regulation 2 of GNR 982

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Scoping Reports	Section
Appendix 2 (a)	Details of – the EAP who prepared the report; and the expertise of the EAP, including a curriculum vitae	Section 3
Appendix 2 (b)	The location of the activity, including – The 21-digit Surveyor General code of each cadastral land parcel; Where available, the physical address and farm name; Where the required information in items (i) and (ii) is not available, coordinates of the boundary of the property or properties.	Section 4 Figure 4-1
Appendix 2 (c)	A plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is – A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or On land where the property has not been defined, the coordinates within which the activity is to be undertaken; or.	Figure 5-1
Appendix 2 (d)	A description of the scope of the proposed activity, including – All listed and specified activities triggered; A description of the activities to be undertaken, including associated structures and infrastructure.	Section 5

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Scoping Reports	Section
Appendix 2 (e)	A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process.	Section 6
Appendix 2 (f)	A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location.	Section 7
Appendix 2 (g)	A full description of the process followed to reach the proposed preferred activity, site and location within the site, including-	Section 9
	Details of all alternatives considered;	Section 10
	Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Table 10-6
	A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	Section 11
	The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	
	The impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which the impacts-	Section 13
	(aa) can be reversed;	
	(bb) may cause irreplaceable loss of resources; and	
	(cc) can be avoided, managed, or mitigated.	
	The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	Section 14
	Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographic, physical, biological, social, economic, heritage and cultural aspects;	Section 13
	The possible mitigation measures that could be applied and level of residual risk;	Section 13
	The outcome of the site selection matrix;	Section 17
	If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such and;	Section 18
	A concluding statement indicating the preferred alternatives, including preferred location of the activity.	Section 19

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Scoping Reports	Section
Appendix 2 (h)	A plan of study for undertaking the environmental impact assessment process to be undertaken including- A description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity; A description of the aspects to be assessed as part of the environmental impact assessment process; Aspects to be assessed by specialists; A description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists; A description of the proposed method of assessing duration and significance; An indication of the stages at which the competent authority will be consulted; Particulars of the public participation process that will be conducted during the environmental impact assessment process; A description of the tasks that will be undertaken as part of the environmental impact assessment process; Identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.	Section 20
Appendix 2 (i)	An undertaking under oath or affirmation by the EAP in relation to- The correctness of the information provided in the report; The inclusion of the comments and inputs from stakeholders and interested and affected parties; and Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties.	Section 21
Appendix 2 (j)	An undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment.	Section 22
Appendix 2 (k)	Where applicable, any specific information required by the competent authority.	Section 20.10
Appendix 2(l)	Any other matter in terms of Section 24(4)(a) and (b) of the NEMA	Section 20.10.3

3 Contact Person and Correspondence

Ndi Geological Consulting Services (Pty) Ltd has been appointed by Refentse as the independent Environmental Assessment Practitioner (EAP) to undertake the necessary environmental authorisation process and associated stakeholder engagement process to meet the requirements of NEMA and NEM: WA.

3.1 Details of EAP who prepared the report

The EAP involved in the compilation of this Scoping Report and contact details are provided in Table 3-1.

Table 3-1: EAP Contact Details

EAP Name	Contact Number	Fax Number	Email Address
Ndivhudzannyi Mofokeng	082 760 8420/ 053 842 0687	086 538 1069	atshidzaho@gmail.com ndi@ndigeoservices.co.za

3.2 Expertise of the EAP

3.2.1 Qualifications of the EAP

The qualifications of the EAP are provided for in Table 3-2 below, and copies of the qualifications are provided in Appendix B.

Table 3-2: EAP Qualifications

EAP Name	Qualifications	Professional registration	Years' Experience
Ndivhudzannyi Mofokeng	BSc (Hons) Earth Sciences in Mining and Environmental Geology	EAPASA Reg Number 2020/1554 GSSA Prof Reg	12

3.2.2 Summary of EAPs past experience

The EAP, Mrs Ndivhudzannyi is a registered EAP (EAPASA Reg Number 2020/1554) with a BSc (Hons) Earth Sciences, majoring in Mining and Environmental Geology. She is a self-motivated and hardworking Geologist with 13 years of experience in environmental, mining exploration, open cast work and consulting in the mining industry. She has proven leadership skills from supervising exploration rigs (Reverse Circulation and Percussion Drilling). Proven field experience in exploration, i.e. mapping, borehole logging, borehole sampling, sample preparation for laboratory analysis, supervisory duties in the field. Her responsibilities involve but are not limited to managing all Environmental matters: Environmental Impact Assessment and Environmental Management Programme, Environmental Authorizations, Environmental Auditing & Risk Assessment, Mine Closure & Rehabilitation, and conducting & reviewing Environmental specialists' studies. Ndivhudza also has experience in writing geological reports, including Prospecting Work Programmes and Mining Work Programmes Environmental Management Plans, handling Department of Mineral Resources and Energy documents in general like the submission of Mining & Prospecting Right Applications and Renewals.

Please refer to Appendix 2 for a copy of the EAP's Curriculum Vitae and Professional Registration Certificate.

4 Project Location

4.1 Property Description

The description of the affected property is provided in Table 4-1 and map showing the affected property is provided in Figure 4-1.

Table 4-1: Description of Properties affected by the Prospecting Project

Farm Name:	Portion 4 of Kapstewel 436
Application area (Ha)	780.50 ha
Magisterial district:	Hay District Municipality
Distance and direction from nearest town	Kapstewel is situated approximately 23km north of the town of Postmasburg, approximately 40km south-east of the town of Olifantshoek and approximately 46km south of the town of Kathu in the Northern Cape Province.
21-digit Surveyor General Code for each farm portion	C03100000000043600004

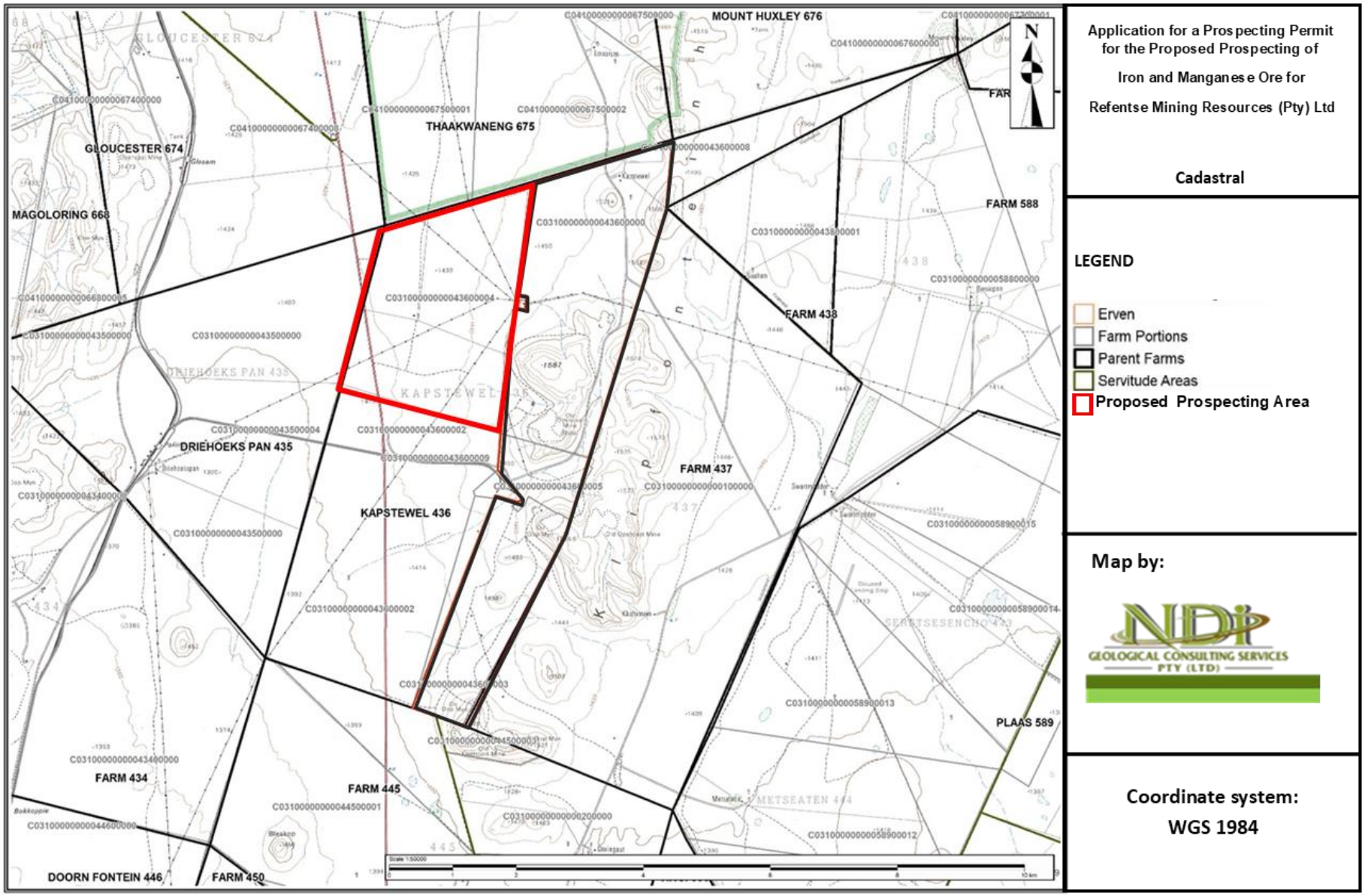

Figure 4-1: Cadastral Map

4.2 Locality map

The proposed Refentse Manganese and Iron Ore Prospecting project is located in the Northern Cape Province of South Africa, 15km north of the town of Postmasburg and approximately 40km south-east of the town of Olifantshoek, approximately 46km south of the town of Kathu, Tsantsabane Local Municipality.

A copy of the locality map is provided in Appendix 3.

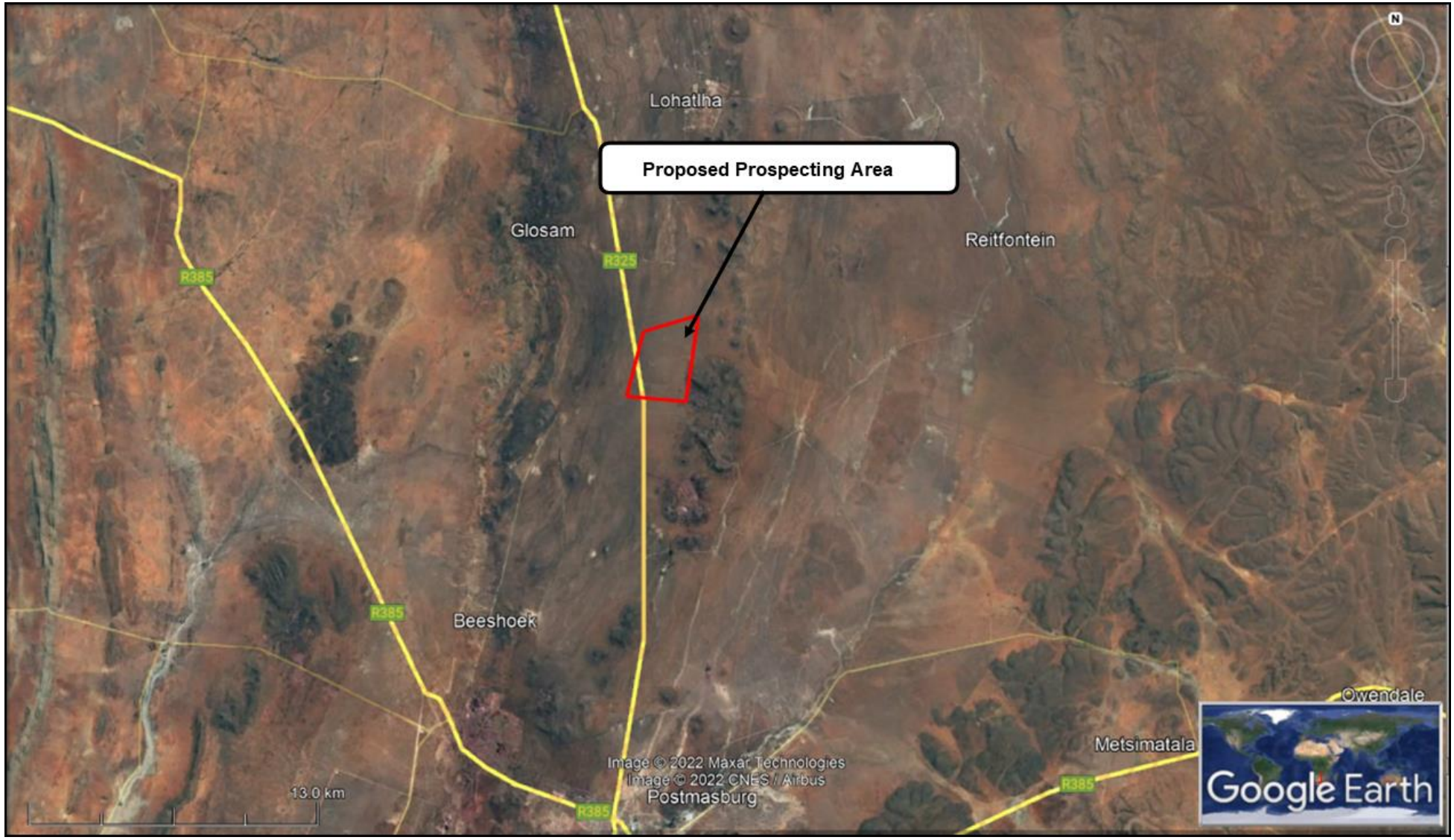

Figure 4-2: Locality map

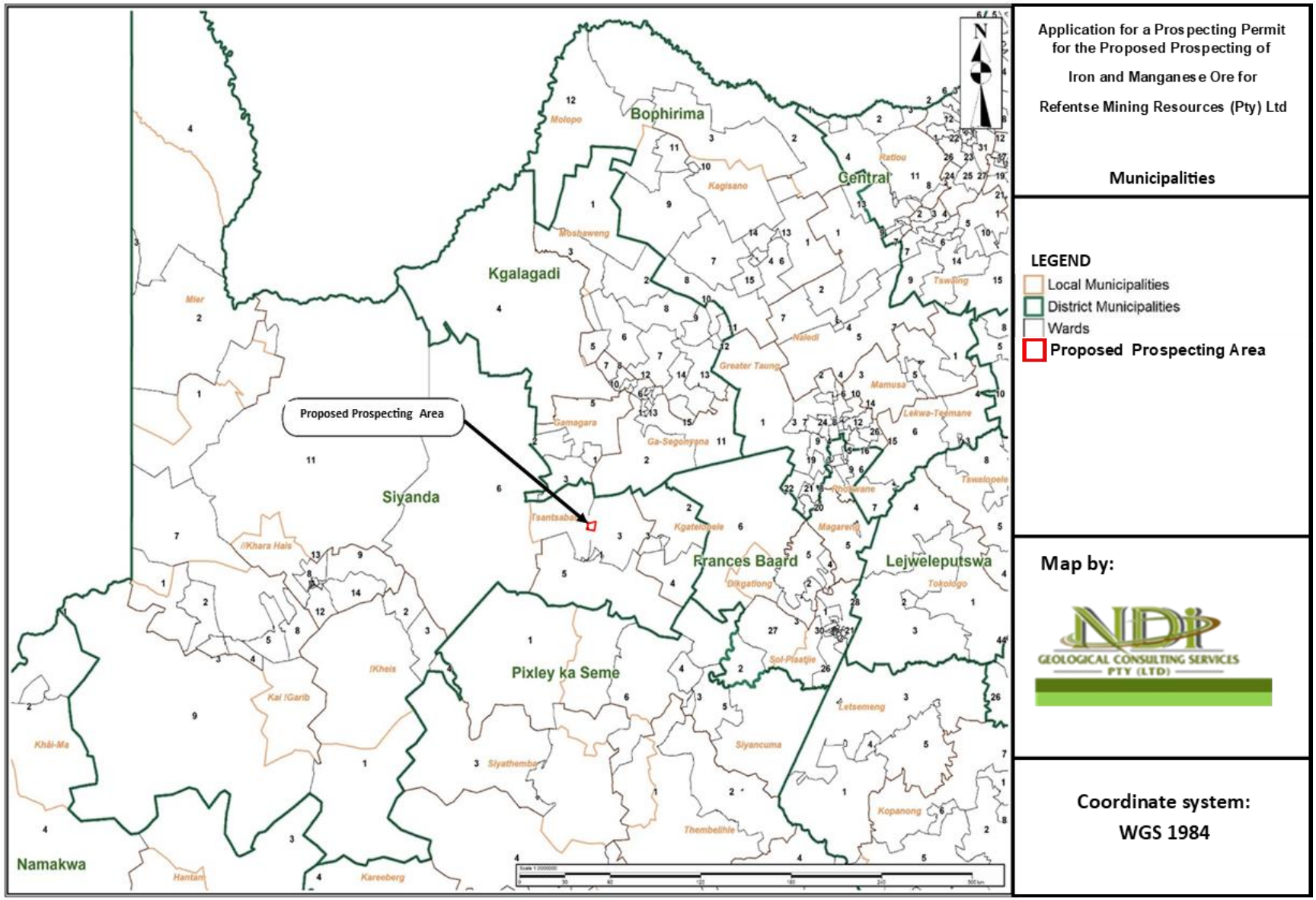

Figure 4-3: Locality map (Municipality Boundaries)

5 Project description

5.1 Overview

This prospecting will consist of non-invasive and invasive (drilling Sampling) activities. The review of available information that exists over the area of interest will be undertaken by means of conducting a literature review from satellite images and other available information.

Prospecting will be conducted over a period of three years and will be categorized into phases, wherein phase 1 will be desktop study and geological mapping followed by RC drilling and bulk sampling in phase 2. Phase 3 will be analytical desktop studies. The machines and vehicles that will be used have been proven to be trusted to carry out the prospecting activities optimally. These machines and vehicles make use of hydrocarbon fuels such as diesel, petrol and oil.

5.2 Phase 1 (Literature Review)

Existing data on the area of study with relation to the topography, geology, mineralogy, geophysics, hydrology etc. will be to be analysed. This data will aid in determining the amount of potential that the area carries in terms of manganese and iron mineralisation and the factors that affect it and its extraction thereof. The report that will be produced from this study will inform the next stage which is geological mapping. The non-invasive prospecting work will take approximately six months and will compile the relevant data and observations from the recent and historical work done on site. The deliverables will be a detailed report and maps highlighting areas with the best potential to contain manganese and iron. Once this information has been assessed in detail, it will be used to further develop and refine the ongoing prospecting activities. Aerial photographs and a high-resolution satellite image will be acquired for the prospecting right application so that a target identification process using both desktop study and geological mapping. Both desktop study and geological mapping interpretations will be used to focus future prospecting activities. After the Desktop Study, a site geological mapping will be undertaken. This is a process of physically locating the manganese and iron ore body outcrop while obtaining detailed information about it. This information includes the strike and dip of the outcrop, the colour, the grain size and shape amongst others. The end result of this stage will be a detailed geological map of the farm which will be correlated with the other maps obtained during the desktop study.

5.3 Phase 2 (Drilling) and Trenching

This phase of drilling and trenching will consist of 20 RC drillholes, five diamond drilholes and two pits. The prospecting drilling campaign will be aimed at defining the extent of mineralisation and will demonstrate geological continuity of the mineralized zone across the entire area under investigation (application area). Numerous samples will be collected and tested in a registered laboratory. RC drilling involves the process of crushing the rock material into fragments. Using air pressure, the rock fragments are lifted up the hole into the cyclone where they are collected into sample bags. A rifle splitter is used to homogenize the sample and to split it into two. The weights of the samples are recorded. Part of the one sample is washed and placed into a labelled chip tray after logging by the Field Geologist. This sample is stored for future reference. The remainder of the logged sample is labelled while still in the sample bag and taken to an accredited laboratory for analysis.

After diamond drilling, the core is placed on core trays and metre-marked by a competent drill site attendant and transported to a core yard where a geologist will log the core and mark areas of interest for sampling. Marked portions of the core will be split in half by a diamond core cutting machine. Half of the split core is taken to the lab for analysis and the other half remains for safe keeping. Photographs of the core must be taken before and after cutting for record keeping.

The initial step in bulk sampling will be to remove vegetation followed by the topsoil (overburden) which will be stockpiled for rehabilitation purposes of the mined-out areas.

Earth moving machinery such as excavators and dump trucks will be used to remove the waste and mineralized materials. Because of the proposed dimensions and depths of the pits, proper pit planning is of utmost importance, thus the expertise of a qualified engineer familiar with open pit/open cast mining will be utilised. The right slopes (angles) and positions of the ramps (haul roads) into and out of the pits are important to ensure optimum and safe movement of machinery in and out of the pits. The depth of the water table must be determined by means of a drill hole to ensure that the proposed depth of the pit will be at least 5M above the water table. Preservation of groundwater resources is crucial. Stopping the pit well above the water table will also avoid the risk of flooding inside the pit. The overburden materials excavated from the pits must be stockpiled closest to the mined-out areas so that during rehabilitation, moving this material back into the pit will not be a costly exercise. The shape of the pits will be determined by the strike and dip of the lithologies. Highwall stability must be assessed and always maintained to avoid possible slope failure. Dressing down the highwalls to remove overhangs must be done frequently. A risk assessment checklist of the site and machinery must be done at the start of every working shift and identified risks must be addressed and fixed. The material (both ore and waste) removed from the pits will be loaded and transported from the pit using dump trucks and taken to either the plant for processing or the waste stockpile. Dump trucks transporting material to the plant must be put through a weigh bridge so that the exact tonnage of the material can be recorded before tipping. A weekly survey of stockpiled material must be done so that exact tonnage of material removed from the pit and stockpiled can be reconciled.

Detailed geological, grade resource models and mineral resource estimates will be the end result of this phase. Each drill borehole and sample site will be rehabilitated as prospecting proceeds.

5.4 Phase 3: Analytical desktop studies and decision making

During the final stage of prospecting all data will be compiled, interpreted, summarized evaluated and put into a final report. The appointed project geologist monitors the programme, consolidates and processes the data and amends the programme depending on the results. This is a continuous process throughout the programme and continues even when no prospecting is done on the ground.

Each physical phase of prospecting is followed by desktop studies involving interpretation and modelling of all data gathered. These studies will determine the manner in which the work programme is to proceed in terms of activity, quantity, resources, expenditure and duration. This stage involves a lot of expertise in fields such as prospecting, geohydrology, rock mechanics, statistical grade distribution, metallurgy, and finance among others. The cost of executing this phase of the project is high as this work is mostly outsourced.

Table 5-1: Project Phases and Requirements

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)
1	Setup	Contractors	Month 1	Prospecting ready	Month 1	Mining Engineer
	Non-invasive: Desktop Study including a Literature Survey of remotely sensed data	Geologist	Month 1-3	Geological Report	Month 3	Geologist
	Geological mapping and drillholes' positions planning and layout	Geologist	Month 4-6	Detailed progress report.	Month 6	Geologist
	Earth moving	Contractors	Month 6		Month 6	Geologist and Contractor
2	**Invasive:** Bulk Sampling (trenching) Diamond and Reverse Circulation drilling including core and chip logging and sampling	Geologist Qualified Contractors Open Cast Mining Engineer Metallurgist	Month 7-28	Detailed Geological and Grade Resource Models, Mineral Resource Estimates to Indicated level of confidence	Month 28	Geologist
	Rehabilitation	Contractors	Month 28	Rehabilitated Land	Month 28	Surveyor
3	**Non-Invasive** Feasibility Studies	Multi-disciplinary team of consultants	Month 29-36	Feasibility Study report	Month 36	Professional Competent Person

5.5 Listed and specified activities

Section 16 of the MPRDA requires, upon request by the Minister that an Environmental Management Programme (EMPr) be submitted, and that the applicant must notify and consult with Interested and Affected Parties (I&APs). Section 24 of the NEMA requires that listed activities, which may potentially affect the environment negatively, must obtain an environmental authorisation from a relevant authority before the activities may commence.

Such activities are listed under the EIA Regulations (2014 which has been amended in 2017 and 2021) and consist of:

- EIA Process (Government Notice Regulation (GNR) 982);
- Listing Notice 1 GNR 983 – Basic Assessment process,
- Listing Notice 2 GNR 984 – Scoping and EIA process;
- Listing Notice 3 GNR 985 – Activities in specific identified geographical areas only.

GNR 982, 983, 984 and 985 have been amended in 2017 and in 2021 through GNR 324, 325, 326 and 327, respectively.

The purpose of these regulations is to avoid negative impacts on the environment, and where these cannot be avoided, ensure the mitigation and management of the impacts to acceptable levels, while optimising positive environmental impacts.

The proposed prospecting, with bulk sampling activity triggers activities listed in NEMA Listing Notice 1 and 2. Table 5-2 provides a summary of the identified NEMA listed activities that will be triggered by the prospecting project.

Table 5-2: Applicable Activities

NAME OF ACTIVITY (E.g., For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc…etc…etc E.g., for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)	Aerial extent of the Activity Ha or m²	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (*GNR 983, GNR 984 or GNR 985)*	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
Prospecting with bulk sampling and associated activities	780.50 ha	X	GNR 983 (20)	[redacted]
Non-invasive Preparation Literature review and desktop studies Surface Mapping Airborne surveys and geophysical prospecting Determining sampling locations	780.50 ha			
Vegetation Clearance The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or	<20ha	X	GNR 983 (27) GNR 985 (12 g (ii)	

NAME OF ACTIVITY (E.g., For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc…etc…etc E.g., for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)	Aerial extent of the Activity Ha or m²	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (*GNR 983, GNR 984 or GNR 985)*	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
(ii) maintenance purposes undertaken in accordance with a maintenance management plan. *Site Clearance and removal of vegetation* *Drilling of blasting boreholes when necessary* *Stockpiling material from site clearance* *Discarding material from pits/trenches site* *Rehabilitation of pits/trenches* *Construction of temp/mobile site infrastructure and access routes* *Stormwater management* *Storage of diesel and vehicle/machinery maintenance area.* *Waste generation and management.* *Demolition and/or removal of temporary infrastructure/equipment* *Rehabilitation and restoration of disturbed areas* *Topsoil storage*				
The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), 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; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies. -Prospecting of Manganese and iron General Excavation of trenches.	<1 ha (100 X 50m X 80m)-pits	X	GNR 983 (27) GNR 983 (19) GNR 984 (19) GNR 985 (12 g (ii)	
Processing Plant (crusher)				
The development and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage with a daily throughput capacity of 15 000 cubic metres or more. -Ablution facility	<0.025 ha	X	GNR 983 (25) GNR 985 (12 g (ii)	
Topsoil Stockpile	<0.2 ha	X	GNR 983 (27)	

NAME OF ACTIVITY (E.g., For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc…etc…etc E.g., for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)	Aerial extent of the Activity Ha or m²	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (*GNR 983, GNR 984 or GNR 985)*	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
			GNR 985 (12 g (ii)	
The development of a road—but excluding a road— (a) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010, in which case activity 24 in Listing Notice 1 of 2014 applies; (b) which is 1 kilometre or shorter. (12g) The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. ii. Within critical biodiversity areas identified in bioregional plans;	0.5 ha	X	GNR 983 (24, 27) GNR 985 (4 g (ii) (ee) (gg)) GNR 985 (12 g (ii)	
10g. The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres. (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; -Chemical storage - Diesel storage	<0.025 ha	X	GNR 983 (14) GNR 985 (10 g (ee), (gg) GNR 985 (12 g (ii)	
Fences	0.3ha	X	GNR 983 (27) GNR 985 (12 g (ii)	
Office site	<0.025ha	X	GNR 983 (27) GNR 985 (12 g (ii)	
Vehicle parking area	<0.2ha	X	GNR 983 (27) GNR 985 (12 g (ii)	
Contractors' Camp	0.025 ha	X	GNR 983 (27 GNR 985 (12 g (ii)	

5.6 Activities to be undertaken

5.6.1 Prospecting

Please refer to Sections 5.1 to 5.3 for a detailed description of the prospecting activities to be undertaken.

5.6.2 Accommodation

No accommodation for staff and workers will be provided on-site and all persons will be accommodated in nearby Postmasburg town. Workers will be transported to and from the prospecting site on a daily basis. Night security staff will be employed once equipment has been established on-site.

5.6.3 Water Supply

Water will be used for dust suppression and other non- production purposes. This water will either be obtained from the Tsantsabane Municipality or underground. The Department of Water and Sanitation (DWS) will be contacted to seek their recommendation on the use of water:

- Regarding the Section 21(a) WUL for abstraction of Groundwater;
- Regarding Schedule 1 water use where no WUL is required;
- Regarding Section 21(g) WUL Disposing of wastewater; and
- Regarding Section 21(b) WUL Storage of water

JoJo tanks will be used to water storage. The water from the JoJo tanks will be for potable use and general use by personnel.

5.6.4 Power Supply

Diesel powered vehicles and machinery will be used for the proposed project

5.6.5 Access Roads

The proposed prospecting area already has existing roads through which it can be accessed. The R325 Road which connects with a secondary road is currently being used to access the prospecting area.

5.6.6 Waste Management Areas

Hazardous waste

Hazardous waste to be generated includes mineral residue, hydrocarbon wastes (oil and liquid fuel wastes) and sewage waste. Hydrocarbon waste will be collected in drums for storage. The removal of the drums or any other appropriate receptacle will be undertaken by a registered waste disposal company, for disposal at a registered licensed waste disposal site. The drums will be placed on protected ground. Mineral residue will include muds and drilling chips generated during the drilling of the exploration boreholes. The mineral residue will be removed from the site and disposed of at a registered waste disposal site. Oil waste and liquid fuel waste include used oils from mine machinery and vehicles and diesel/petrol waste.

General Waste

General waste to be generated from the proposed project area will include domestic waste which includes old food, polystyrene, old stationary, discarded Personal Protective Equipment (PPE) and old clothing generated from the drilling and campsites. General waste will be collected in drums and disposed of at a registered domestic waste disposal site.

Storage of Dangerous Goods (Hydrocarbons)

During the drilling activities, limited quantities of diesel fuel, oil and lubricants will be stored on site. The only dangerous good that will be stored in any significant amount will be the diesel fuel. No more than 30 m3 will be stored above ground in diesel storage tanks.

5.6.7 Stockpile Areas

The required stockpile areas will include:

- Tailings Stockpile Areas: Temporary stockpile areas will be required from where waste will be used for back filling or hauled to waste rock dump areas; and
- Topsoil stockpile areas for the temporary storage of topsoil which will be used for rehabilitation of disturbed areas

5.6.8 Temporary Site Offices

A temporary site office area will be erected at the drill sites.

5.6.9 Sewage Management

Sewage waste will be generated from the campsite and drilling sites. Portable chemical toilets will be used for the management of sewage waste generated on site.

5.6.10 Blasting

It is expected that blasting may be required as part of the bulk sampling.

The map in Figure 5-1 shows the plan contemplated in Regulation 2(2) of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA), depicting the land to which application relates. The map also denotes the directly affected farms and the boundary coordinates of the application area.

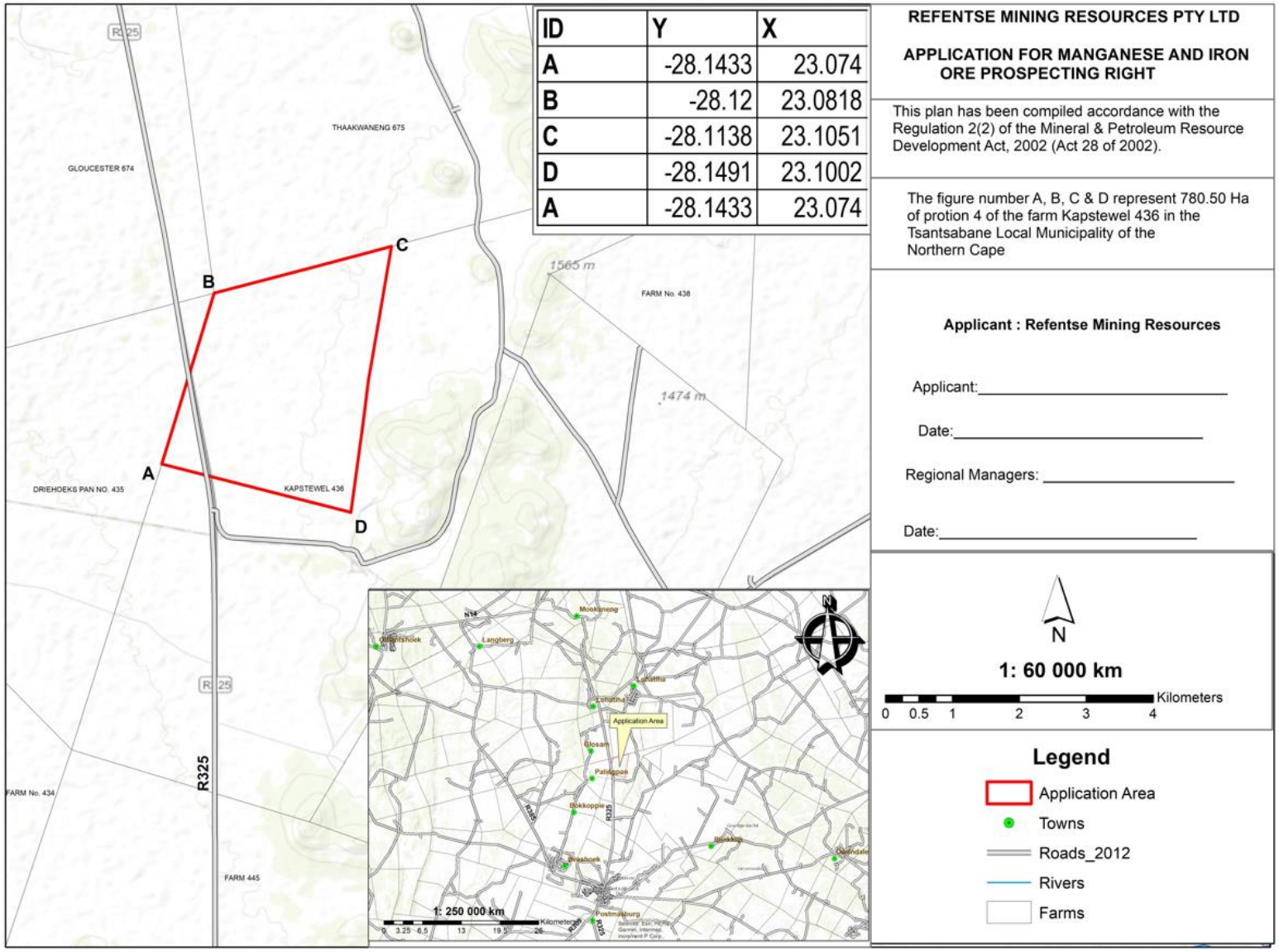

Figure 5-1: Prospecting Right Application Area

6 Policy and legislative context

Table 6-1 lists the applicable legislation, policies and guidelines identified as relevant to the proposed project. In addition, a description of how the proposed activity complies with and responds to the legislation and policy context, is provided. This list is not exhaustive but rather represents an indication of the most applicable pieces of legislation relevant to the project.

Table 6-1: Policy and Legislative Context of Proposed Project

Legislation	Description and Relevance	Authority
Constitution of the Republic of South Africa, (No. 108 of 1996)	Chapter 2 – bill of rights Section 24 – Environmental Rights The proposed activities shall be conducted in such a manner that significant environmental impacts are avoided, where significant impacts cannot all together be avoided, they will be minimised and mitigated in order to protect the environmental rights of South Africans	N/A
Promotion of Access to Information Act (Act No. 2 of 2000) (PAIA)	The Promotion of Access to Information Act (Act No. 2 of 2000) (PAIA) recognises that everyone has a right of access to any information held by the state and by another person when that information is required to exercise or protect any right. The purpose of the Act is to promote transparency and accountability in public and private bodies and to promote a society in which people have access to information that enables them to exercise and protect their right. The EIA/EMPr process to be undertaken in terms of the NEM: WA, NEMA and where required, the NWA, where the associated stakeholder consultation process will be aligned with the PAIA in the sense that all I&APs will be given an opportunity to register as an I&APs prior to the initiation of the project and all registered stakeholders will in turn be provided a fair opportunity to review and comment on any reports submitted to the competent authorities for decision making.	N/A
Protection of Private Information Act 2021 (POPIA)	The POPIA aims to promote protection of personal information. The EIA Regulations, 2014 require, inter alia, transparent disclosure of registered stakeholders and their comments. In terms of the EIA Regulations, 2014, stakeholders who submit comment, attend a meeting or request registration in writing are deemed registered stakeholders who must be added to the project stakeholder database. By registering, stakeholders are deemed to give their consent for relevant information (including contact details) to be processed and disclosed, in fulfilment of the requirements of the EIA Regulations, 2014 and the National Appeal Regulations, 2014. The stakeholder engagement process will comply with the requirements of the new Protection of Personal Information Act (POPIA) which came into effect on 1 July 2021.	N/A
Minerals and Petroleum Resources Development Act 28 of 2002 (MPRDA)	The Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) makes provision for equitable access to and sustainable development of South Africa's mineral resources. The MPRDA requires that the environmental management principles set out in NEMA shall apply to all	

Legislation	Description and Relevance	Authority
	prospecting operations and serves as a guideline for the interpretation, administration and implementation of the environmental requirements of NEMA. The MPRDA requires that a reconnaissance permission, prospecting right, mining right, mining permit, retention permit, technical corporation permit, reconnaissance permit, exploration right, production right, prospecting work programme; exploration work programme, production work programme, mining work programme, environmental management programme, or an environmental authorization issued in terms of the National Environmental Management Act, 1998, as the case may be, may not be amended or varied (including by extension of the area covered by it or by the addition of minerals or a share or shares or seams, mineralized bodies, or strata, which are not at the time the subject thereof) without the written consent of the Minister. Section 22 of the MPRDA as amended by Section 18 of Act 49 of 2008 The proposed project requires a Prospecting Right from the DMR.	Department of Mineral Resources, Northern Cape Province
National Environmental Management Act (NEMA) (No. 107 of 1998)	Section 24 – Environmental Authorisation (control of activities which may have a detrimental effect on the environment) Section 28 – Duty of care and remediation of environmental damage Environmental management principles will be incorporated into the EIA and EMPr, which the applicant will be required to comply with to ensure that negative impacts on the environment are avoided or kept to a minimum and that positive impacts are enhanced.	
National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) and the EIA Regulations 2014 (Government Notice (GN) 984), as amended	The EIA Regulations (GNR 982) were promulgated in terms of Sections 24 of the NEMA, to manage the process, methodologies and requirements for the undertaking of an EIA. The GNR 982 stipulates that the applicant for activities listed under GNR 983, 984 or 985 must appoint an independent EAP to manage the EIA process. Listed Activities are activities identified in terms of Section 24 of the NEMA which are likely to have a detrimental impact on the environment, and which may not commence without an EA from the Competent Authority (CA). EA required for Listed Activities is subject to the completion of either a Basic Assessment (BA) process or full Scoping and Environmental Impact Assessment (S&EIA) with applicable timeframes associated with each process. The EA must be obtained prior to the commencement of those listed activities. The project triggers activities listed in Listing Notices 1 and 2 and will require an EA from the DMR. According to GNR 326 of the NEMA, activities listed in Listing Notice 2 require that a full S&EIA be undertaken. The applicable listed activities that will be triggered by the project is provided in Table 5-2.	

Legislation	Description and Relevance	Authority
Department of Environmental Affairs (DEA) Integrated Environmental Management Guideline Series, Guideline 5: Assessment of the EIA Regulations, 2012 (Government Gazette 805)	Environmental impacts will be generated primarily in the construction phase of this project with associated operational phase impacts. These will be assessed as part of the EIA process.	
Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004	A full EIA (scoping and impact assessment) is required for the proposed project as activities are triggered under Listing Notice 2.	
Review in Environmental Impact Assessment, Integrated Environmental Management, Information Series 13, Department of Environmental Affairs and Tourism (DEAT), Pretoria.		
DEA Integrated Environmental Management Guideline Series, Guideline 7: Public Participation in the Environmental Impact Assessment Process, 2012 (Government Gazette 807)	Public participation is a requirement of the Scoping/EIA Process and will be conducted for the proposed project as stipulated in Chapter 6 of the NEMA.	
National Water Act, 1998 (Act 36 of 1998)	All activities taking place within 100 m of a watercourse will be licensed under Section 21 c and i	Department of Water and Sanitation (DWS), Northern Cape
National Environmental Management Waste Act (Act No. 36 of 1998)	It is expected that activities listed in GNR921 and GNR 633 will be triggered for the waste facilities and will require a waste management licence. Table 5-2 provides a list of GNR921 activities triggered by the project.	DMR and DWS, Northern Cape through the integrated application process

Legislation	Description and Relevance	Authority
National Environmental Management Air Quality Act (Act No. 39 of 2004)	Air quality management Section 32 – Dust control. Section 34 – Noise control. Section 35 – Control of offensive odours. The principles of the NEM: AQA, focusing on minimisation of pollutant emissions will also be taken cognisance of in the development of the EMPr.	Department of Environmental Affairs and Tsantsabane Local Municipality
The National Forestry Act, 1998 (Act No. 84 of 1998) (NFA)	The NFA protects against the cutting, disturbance, damage, destruction or removal of protected trees. A biodiversity specialist study will be undertaken for the application. The study will include an assessment of the significance of biodiversity impacts and mitigation measures will be included in the EMPr. Should there be any protected trees that are affected by the project, Refentse will apply for the required permits for the removal and/or relocation of the trees.	Department of Agriculture, Forestry and Fisheries (DAFF)
The National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEM:BA)	The National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEMBA) provides for the management and conservation of South Africa's biodiversity within the framework of NEMA, as well as the protection of species and ecosystems that warrant national protection and the sustainable use of indigenous biological resources. The Act provides for listing of threatened or protected ecosystems, in one of four categories: critically endangered, endangered, vulnerable or protected During the EIA process, biodiversity hotspots and bioregions will be investigated to determine the potential impacts that the project may have on the receiving environment. The management and control of alien invasive species on the impacted areas during all the phases of the project will be governed by the NEM: BA. The NEM: BA ensures that provision is made by the site developer to remove any alien species, which have been introduced to the site or are present on the site.	Department of Environmental Affairs
Northern Cape Nature Conversation Act No. 9 of 2009	This Act provides sustainable utilization of wild animals, aquatic biota and plants to provide for them implementation of the convention on international trade in endangered species of wild fauna and flora. The Act provides for offenses and penalties of contravention Act, further provide for the appointment nature conservator to implement the provision of the Act. It also provides the issuing of the permits and other authorisations and provides matters connected therewith. Should there be any protected trees that are affected by the project, Refentse will apply for the required permit for the removal and/or relocation of the trees. This will be determined during the biodiversity assessment.	Northern Cape Department of Nature Conservation (DENC)

Legislation	Description and Relevance	Authority
Mine Health Safety Act, 1996 (Act No. 29 of 1996) (MHSA)	The Mine Health and Safety Act (Act No. 29 of 1996) (MHSA) aims to provide for protection of the health and safety of all employees and other personnel at the mines of South Africa. Refentse will need to ensure that employees, contractors, sub-contractors and visiting personnel, adhere to this Act and subsequent amendment regulations on site.	Department of Mineral Resources (Northern Cape)
Conservation of Agricultural Resources Act (Act No. 43 of 1983)	Control measures for erosion Control measures for alien and invasive plant species The EMPr will include measures to control and manage alien invasive plant species.	Department of Agriculture Forestry and Fisheries
National Heritage Resources Act 25 of 1999	Heritage Permit for structures 60 years or older. A phase 1 heritage resources specialist study will be conducted for the project. The study will include an assessment of the significance of heritage impacts and mitigation measures will be included in the EMPr. Should there be any heritage and cultural resources that are affected by the project, Refentse will apply for the required permit for the destruction and/or relocation of the heritage or cultural resources.	Northern Cape Heritage Resource Authority
Restitution of Land Rights Act, 1994 (Act No. 22 of 1994), as amended in 2014.	Land Claims. There are no land claims associated with the affected properties.	Department of Rural Development and Land Reform

6.1 Municipal Plans and Policies: Tsantsabane Integrated Development Plan

According to the Integrated Development Plan (IDP) for the Tsantsabane Local Municipality (2021/22), there are opportunities in mining, which is currently the largest contributor to the municipality's Gross Domestic Product (GDP). There is therefore a need to put more efforts in the current performance plans that will develop the municipality in the areas of mining.

The prospecting project will have limited socio-economic impacts since the project will be of short duration. The extent to which the project will contribute to the economy will be assessed during the impact assessment phase of the process. It is expected that should the prospecting operation be successful, the resulting mining project will contribute significantly to the local, regional and national economy.

6.2 Other guidelines

Other guidelines that were consulted include:

- Northern Cape Provincial Biodiversity Conservation Plan;
- DWS, 2010. Operational Guideline: Integrated Water and Waste Management Plan. Resource Protection and Waste;
- Department: Water Affairs and Forestry, 2007. Best Practice Guideline A2: Water Management for Mine Residue Deposits;
- Department: Water Affairs and Forestry, 2007. Best Practice Guideline A4: Pollution control dams;
- Department of Water Affairs and Forestry, 2008. Best Practice Guideline A6: Water Management for Underground Mines.
- White paper on Integrated Pollution and Waste Management in South Africa, 2000;
- Department of Water Affairs and Forestry, 2006. Best Practice Guideline G1 Storm Water Management;
- Department of Water Affairs and Forestry, 2006. Best Practice Guideline G2: Water and Salt Balances;
- Department of Water Affairs and Forestry, 2006. Best Practice Guideline G3. Water Monitoring Systems;
- Department of Water Affairs and Forestry, 2008. Best Practice Guideline G4: Impact Prediction;
- Department of Water Affairs and Forestry, 2008. Best Practice Guideline H1: Integrated Mine Water Management;
- Department of Water Affairs and Forestry, 2006. Best Practice Guideline H3: Water Reuse and Reclamation;
- DEAT. 2002. Integrated Environmental Management, Information series 2: Scoping. Department of Environmental Affairs and Tourism (DEAT. 2002);
- DEAT. 2002. Integrated Environmental Management, Information series 3: Stakeholder Engagement. Department of Environmental Affairs and Tourism (DEAT. 2002);
- DEAT. 2002. Integrated Environmental Management, Information series 4: Specialist Studies. Department of Environmental Affairs and Tourism (DEAT. 2002);

- DEAT. 2002. Integrated Environmental Management, Information series 12: Environmental Management Programmes. Department of Environmental Affairs and Tourism (DEAT. 2002);
- DEA. 2012. Companion to the EIA Regulations 2010, Integrated Environmental Management Guideline Series 7, Department of Environmental Affairs; and
- DEA. 2017. Guideline on Need and Desirability, Department of Environmental Affairs (DEA), Pretoria, South Africa.

7 Motivation

7.1 Benefits of Prospecting

Iron ore is the most used metal followed by aluminium, copper and manganese. These metals are clearly in demand and mining of such minerals is essential in balancing the supply and demand. Demand for iron ore and manganese in South Africa is driven by the construction, steel production and electrical conductivity.

The mining industry is still one of the major contributors to the South African economy. More resources need to be identified to keep up with the demand for iron ore and manganese. For that reason, prospecting for these minerals is the first step to identifying these resources.

There would be no minerals without mining and manufacturing. This suggests the importance of all mining operations in fuelling the million-dollar industry.

The definition of prospecting in terms of the MPRDA states: “intentionally searching for any minerals by means of any method which disturbs the surface or sub-surface of the earth, including any portion of the earth that is under the sea or under other water…”. Prospecting is the physical search for minerals, fossils, precious metals or mineral specimens, which allows a company to survey or investigate an area of land for the purpose of identifying an actual or probable mineral deposit, before investments are made into the mining activities.

Assessment of the geological information available has determined that the area in question may have good quality manganese and iron deposits. In order to ascertain the above and determine the nature, location and extent of the deposits within the proposed prospecting area, it will be necessary that prospecting be undertaken. The prospecting will also determine if there are any features that may have an impact on the economic extraction of the manganese and iron ore.

The information that will be obtained from the prospecting to be undertaken will be necessary to determine, should manganese and iron ore be found, how and where the manganese and iron will be extracted and how much economically viable deposits are available within the proposed prospecting area.

Should good quality manganese and iron ore be found in the project area, Refentse will be able to mine the available reserves. This will result in job creation and boost to local businesses is continued. Refentse expects that substantial benefits from the project will accrue to the immediate project area, the sub-region and the province of the Northern Cape. This prospecting activity has a potential to decrease unemployment rates in proposed areas and surroundings. This prospecting activity will also bring revenue into the city and the province which will in turn boost the economy of the country and contribute to the supply of manganese and iron required in South Africa and globally. These benefits must be offset against the costs of the project, including the impacts to landowners.

Further to the above, it has been determined that the prospecting project activities will not have a conflict with the spatial development plans for the Tsantsabane LM and ZF Mgcawu DM, the Integrated Development Plans and the Environmental Management Framework (EMF) for the affected municipalities. A process that ensures consultation with Interested and Affected Parties (I&APs) for the project is being undertaken. The stakeholder engagement process is being conducted is a way to provide all interested and affected parties with an opportunity to comment on the project, with several platforms that allow public commenting opportunities to be offered to the I&APs. All issues raised by the interested and affected parties will be recorded and addressed throughout the EIA process.

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7.2 Environmental responsibility

It is expected that the prospecting project will have negative environmental impacts, including, but not limited to the impacts that have been included in Section 13 of this report.

The impacts will be investigated in detail during the impact assessment phase of the project. Where possible, measures to mitigate the impacts of the project will be identified and finalised during the impact assessment phase of the project. The mitigation measures will include designs and management practices that will be embarked on, to prevent and/or minimise the identified impacts on the social, cultural and environmental aspects. For each potential significant impact identified, mitigation measures will be specified. High level mitigation measures have been included in Section 13 of this report. These mitigation measures will be described in more detail in the EMPr that Refentse will be required to comply with throughout the prospecting period.

The EMPr will also include environmental monitoring programme that will allow Refentse to keep track of the impacts of the project on the environment and where required, to take remedial action.

7.3 Socio-economic benefits

The proposed project will result in job creation for local communities and a short-term boost for local businesses during the construction phase of the project. The prospecting itself will be undertaken by specialised sub-contractors and it is not anticipated that employment opportunities will be created in the operational phase of the project.

7.4 No-go option

The option of not approving the activities will result in a significant loss of valuable information regarding the mineral status (in terms of manganese and iron reserves), present on the identified properties. In addition, should economical reserves be present, and the applicant does not have the opportunity to prospect or utilize these reserves for future phases and the potential positive socio-economic impacts that would result from the resultant mining project will be lost.

8 Period for which the Environmental Authorisation is required

The EA/WML will be required for a period of 3 years.

9 Details of all Alternatives Considered

The identification and investigation of alternatives is a key aspect during the S&EIA process. All reasonable and feasible alternatives must be identified and assessed during the scoping phase to determine the most suitable alternatives to consider and assess during the impact assessment phase. There are however some significant constraints that have to be considered when identifying alternatives for a project of this scope. Such constraints include social, financial and environmental issues, which will be discussed in the evaluation of the alternatives. The preferred option is to be highlighted and presented to the authorities.

Alternatives can typically be identified according to:

- Location alternatives;
- Process alternatives;
- Technological alternatives; and
- Activity alternatives (including the No-go option).

For any alternative to be considered feasible, such an alternative must meet the need and purpose of the development proposal without presenting significantly high associated impacts. The alternatives are described, and the advantages and disadvantages are presented. It is further indicated which alternatives are considered feasible from a technical as well as environmental perspective.

Incremental alternatives typically arise during the impact assessment process and are usually included as a means of addressing identified impacts. These alternatives are closely linked to the identification of mitigation measures and are not specifically identified as distinct alternatives. This section provides information on the development footprint alternatives, the properties considered, as well as the type of activity, activity layout, technological and operational aspects of the activity.

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

The study area falls in the Postmasburg area which lies at the southern end of a domal structure termed the Maremane Anticline in which dolomites of the Campbell Rand Group are exposed. The Campbell Rand Group deposits in this area are overlain by the Kuruman Banded Iron Formation - the Kuruman Member of the Asbesheuwel Formation. The dolomite palaeosurface is karsted, leading to collapse structures where manganese and iron formation has fallen into karst cavities (Figure 9-1). The site is therefore regarded as the preferred site and alternatives are not considered.

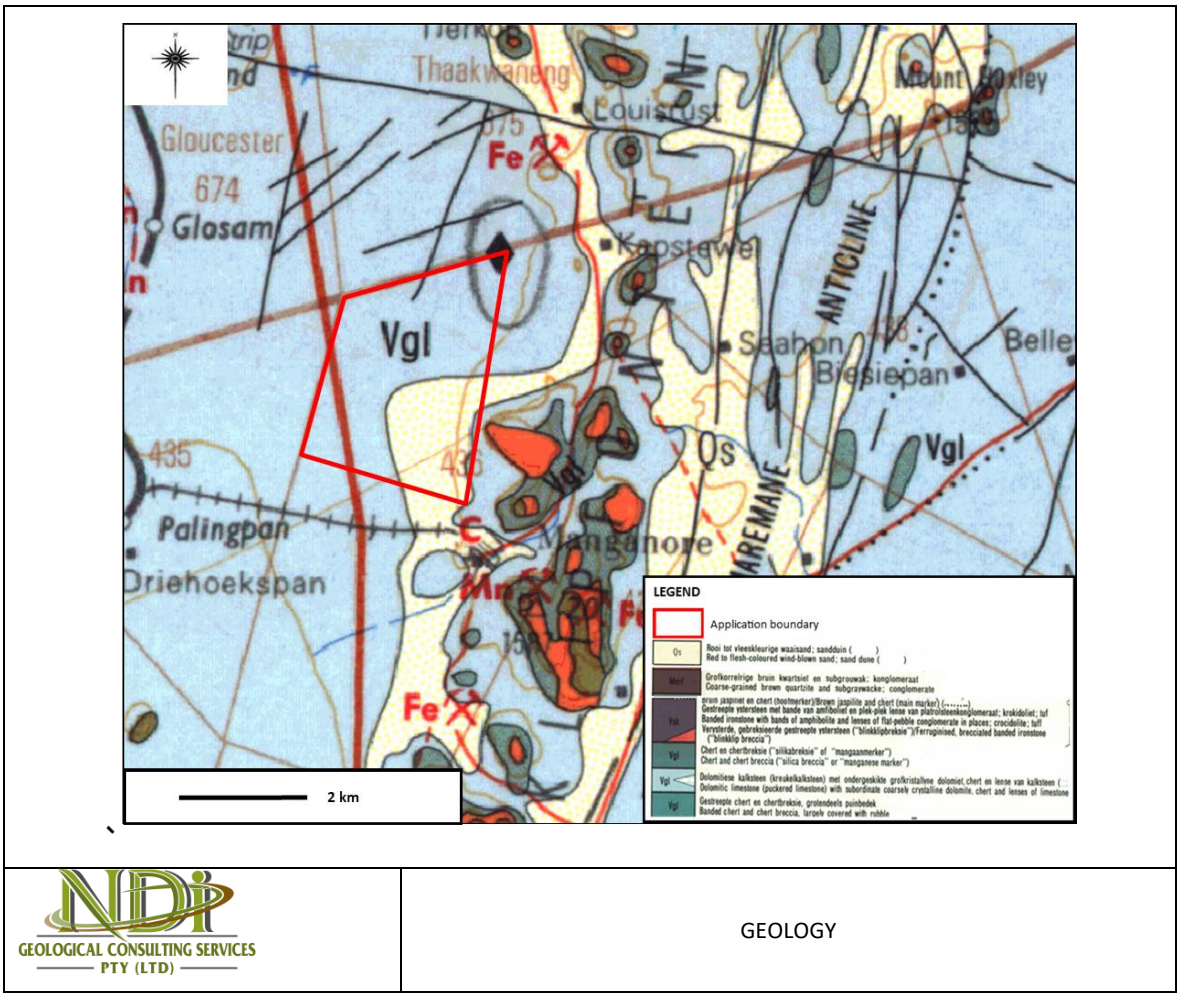


Figure 9-1: Geology of the prospecting area

9.2 Type of Activity

The application is for prospecting rights and no alternatives were considered. The activity will be conducted in phases as described in Section 5 of this report. The prospecting phase of the Prospecting Works Programme will be dependent on the findings of Phase 1 of the process.

9.3 Design or Layout of the Activity

The design and location of the infrastructure will be determined based on the location of the prospecting activities, which will only be determined during Phase 1 of the Prospecting Works Programme, as well as the presence of sensitive environmental attributes such as wetlands, watercourses, protected flora and graves. All infrastructure will be temporary and/or mobile (Refer to Section 5.6 of this report.

9.4 The Technology to be used in the Activity

The proposed technologies have been chosen based on long term proven success in prospecting.

9.5 The Operation Aspects of the Activity

No permanent services in terms of water supply, electricity, and or sewage facilities will be required. Temporary access roads will however be constructed in areas where there are no existing access routes. The activities will commence with Phase 1, during which desktop studies will be conducted. After the desktop studies, geological mapping will be undertaken. This phase will also include planning for the drilling survey. Phase 2 will entail the invasive prospecting drilling and trenching campaign

where the extent of mineralisation will be defined and the geological continuity of the geological continuity of the mineralised zone will be determined. Numerous samples will be collected and tested in a registered laboratory. Phase 3 of the process will entail feasibility studies involving interpretation and modelling of all data gathered. These studies will determine the way the work programme is to proceed in terms of activity, quantity, resources, expenditure and duration.

9.6 The Option of Not Implementing the activity

The option of not implementing the activity will result in a loss of valuable information regarding the mineral status of the manganese and iron ore present on the affected property. In addition to this, should economical reserves be present, and the applicant does not have the opportunity to prospect, the opportunity to utilise the reserves will be lost. The environmental, social and economic impacts will be assessed in detail during the impact assessment phase to identify and address all negative impacts, where possible

10 Public Participation Process

Stakeholder engagement is a key element of the environmental decision-making process, and stakeholder engagement forms part of the scoping phase as well as the impact assessment phase. The process is primarily aimed at affording I&APs the opportunity to gain an understanding of the proposed project. In addition, the purpose of consultation with the landowners, key stakeholders, and I&APs is to provide them with the necessary information about the proposed project so that they can make informed decisions as to whether the project will affect them and provide the EIA team with local knowledge of the area and raise concerns relating to the biophysical, socio-economic and cultural impacts that may arise.

The stakeholder engagement process will be conducted in terms of NEMA, which provides clear guidelines for stakeholder engagement during an EIA as summarised in Table 10-1.

Table 10-1: NEMA Stakeholder Guidelines

NEMA Section	Applicability to Stakeholder Engagement
Chapter 1	Outlines the principles of environmental management, several pertaining to public consultation (e.g., Chapter 1, subsections (2), (3), (4) (f), (g), (h), (k), (q) and (r).
Chapter 6,	Regulations 39 – 44 of the amended EIA Regulations GNR) 326, promulgated on 8 December 2014, specify the minimum requirements for stakeholder engagement in an EIA process conducted under the NEMA.
Section 24J of the NEMA	In 2017, the Minister of Environmental Affairs published, Section 24J of the NEMA in terms of**,** Public Participation Guidelines which guide the Public Participation Process in order to give effect to Section (2)(4)(f), (o) and 24 (1A) (C) of the NEMA.

In addition, the stakeholder engagement process will comply with the requirements of the new Protection of Personal Information Act (POPIA) which came into effect on 1 July 2021. The POPIA aims to promote protection of personal information. The EIA Regulations, 2014 require, *inter alia*, transparent disclosure of registered stakeholders and their comments. In terms of the EIA Regulations, 2014, stakeholders who submit comment, attend a meeting or request registration in writing are deemed registered stakeholders who must be added to the project stakeholder database. By registering, stakeholders are deemed to give their consent for relevant information (including contact details) to be processed and disclosed, in fulfilment of the requirements of the EIA Regulations, 2014 and the National Appeal Regulations, 2014.

The application process will commence with a scoping phase which will inform the impact assessment phase. This scoping phase will provide Interested and Affected Parties (I&APs) an opportunity to provide the EAP with issues and concerns with respect to the proposed project in order to inform the technical studies so that they can evaluate these concerns during the EIA phase of the project.

The draft Scoping and EIA Reports will be made available for public review prior to submission to the DMR for authorisation. All the comments received will be captured and addressed where feasible in the Scoping and EIA Reports.

Figure 10-1 provides a diagram of an Integrated Stakeholder Engagement Process for the proposed project.

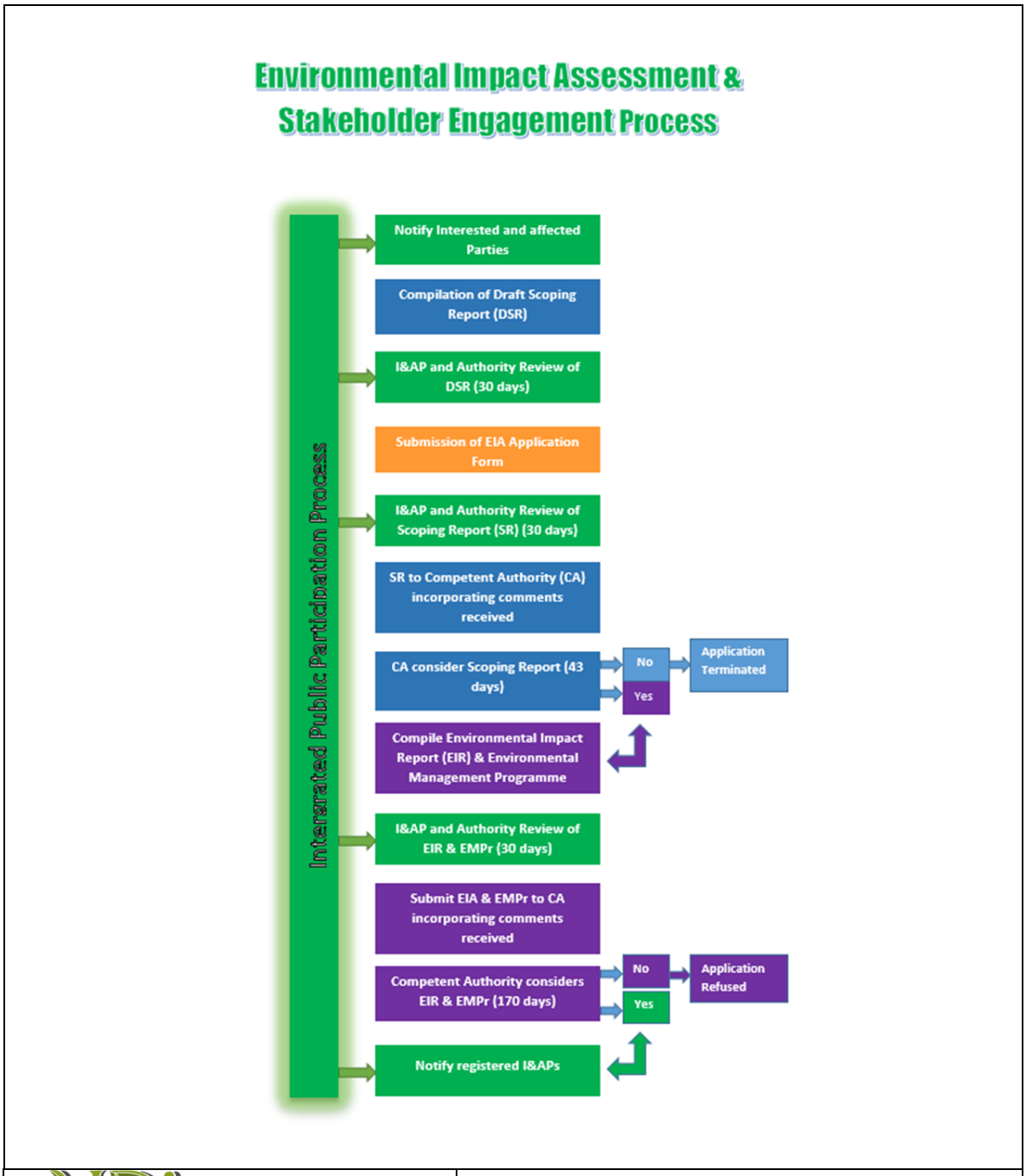


Figure 10-1: Integrated EIA and Stakeholder Engagement Process

All the above-mentioned guidelines have been incorporated into this stakeholder engagement process. The application will be submitted to the DMR for authorisation as the competent authority. Identified commenting authorities on this application include:

- DWS – Regional Office;
- SAHRA – Provincial;

- Tsantsabane Local Municipality;
- ZF Mgcawu District Municipality;
- Department of Agriculture; and
- Northern Cape Department of Nature Conservation (DENC).

10.1 Details of the Public Participation Process

10.1.1 Stakeholder Identification Interested and Affected Parties

Interested and Affected Parties (I&APs) were identified using GIS and cadastral information to identify affected and adjacent properties. The affected and adjacent property owners were identified using the surveyor general website, www.deedsweb.gov.za. In addition, registered I&APs were also sourced from responses to the advertisements, site notices and written notification to I&APs associated with the project.

The I&APs register will be maintained for the duration of the study where the details of stakeholders are captured and automatically updated upon communication to the EAP. The identification, registration, and comments from I&APs will be an on-going activity.

The affected properties are provided in Table 10-2.

Table 10-2: List of Affected Farm and Farm Portions

Farm	Portions	21 Digit Surveyor General Code
Kapstewel 436	Portion 4	C03100000000043600004

The adjacent properties are provided in Table 10-3 and Figure 10-2.

Table 10-3: List of Adjacent Farm and Farm Portions

Farm	Portions	21 Digit Surveyor General Code
Kapstewel 436	1/436	C03100000000043600001
Kapstewel 436	2/436	C03100000000043600002
Kapstewel 436	3/436	C03100000000043600003
Kapstewel 436	5/436	C03100000000043600005
Kapstewel 436	6/436	C03100000000043600006
Kapstewel 436	7/436	C03100000000043600007
Kapstewel 436	RE/436	C03100000000043600000
Driehoeks Pan 435	RE/435	C03100000000043500000
Gloucester 674	3/674	C04100000000067400003
Gloucester 674	8/674	C04100000000067400008
Thaakwaneng 675	1/675	C04100000000067500001
Thaakwaneng 675	2/675	C04100000000067500002

A map of the affected and adjacent farm portions of the site are illustrated in Figure 10-2

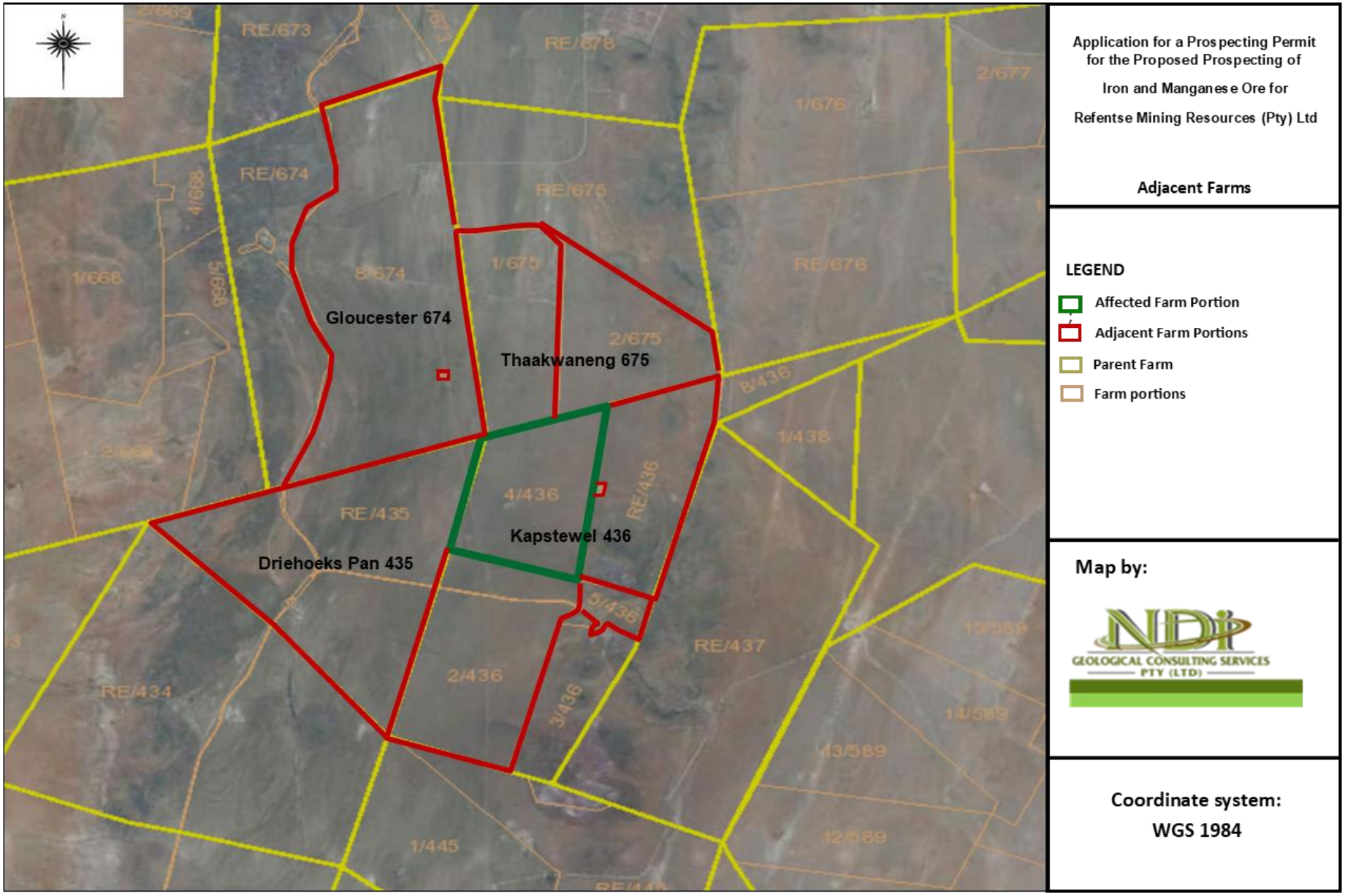


Figure 10-2: Affected and Adjacent Properties

10.1.2 Notification and Registration of the I&APs

Ndi Geological made use of various methods to inform stakeholder of Refentse's intention to undertake the required EA/WML process. Stakeholders were provided with the opportunity to participate and register as I&AP's during the announcement phase of the project.

Distribution of Notification Letters

Notification letters were sent to identified I&APs, informing them of the proposed project.

Site Notice Placements

Sites notice boards (Size A2: 600 mm X 420 mm) notifying stakeholders and I&APs of the proposed activity were placed at conspicuous places in the project area. These areas of placement were determined according to the quantity of potential I&APs that may pass by.

Newspaper Advertisements

Newspaper advertisements notifying stakeholders about the proposed project and the opportunity to participate in the EIA process were placed in the newspapers.

10.1.3 Notification of the Availability of the Draft Scoping Report

The availability of the DSR was announced by means of SMS, letters and emails to registered I&APs. The DSR, announcement letters and comment forms were made available for public viewing and comment in the same public places as for the project announcement phase.

10.1.4 Stakeholder commenting period

The Scoping Report will be made available for a 30-day commenting period from 8 July 2022 to 8 August 2022.

The Scoping Report will also be made available to the competent and commenting authorities during the 30-day stakeholder review and commenting period. Stakeholders are encouraged to submit their written comments to the EIA team through the contact details provided. Stakeholders could also fill in comment forms at one of the public places and/or contact the EAP via telephone, email or fax to submit comments and to discuss any issues of concern.

All comments received thus far have been incorporated into the Scoping Report. All comments raised by stakeholders will be recorded and will be included in the Final Scoping Report. The comments will also be collated into the Comments and Responses Register (CRR) which will form an Appendix to the final Scoping Report.

10.1.5 Public Meeting

Depending on the responses received during the registration period, and where requested by the stakeholders, a public meeting may be held during the Scoping Phase of the project, ensuring that the COVID-19 Regulation requirements are met. This would preferably be undertaken through, where possible, online meetings. In cases where stakeholders do not have internet access, the meetings will be held with no more than 50 stakeholders in attendance. Stakeholders will be informed of the COVID-19 Regulation requirements that will be enforced during the meeting.

The stakeholders will have the opportunity to comment on the report and plan of study and raise issues that may need to be included in the impact assessment phase. All comments received will be incorporated into the final Scoping Report.

10.1.6 Comment and Response Report

A summary of comments received will be included in the CRR, which will form an Appendix to the Final Scoping Report to be submitted to the DMR however comments received to date from pre-application consultations are included in Section 10.1.7.

10.1.7 Summary of Issues Raised by I&APs

No comments have been received from the stakeholders to date.

Table 10-4: Summary of the Issues Raised by the I&APs

Interested and Affected Parties **List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
AFFECTED PARTIES					
Landowner/s					
Municipal councillor					
Municipality					
No comments received to date.					
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWS					
Communities					
Dept. Land Affairs					
Traditional Leaders					
Dept. Environmental Affairs					
Other Competent Authorities affected					

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.	Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
OTHER AFFECTED PARTIES				

10.2 Public Participation process going forward

The Public Participation Process will be ongoing throughout all the project phases. The stakeholder engagement proposed for the Impact Assessment Phase is presented below.

10.2.1 Stakeholder engagement during impact Assessment phase

Stakeholders will be informed once the competent authority (DMR) has accepted the Scoping Report and Plan of Study (PoS) and granted permission for the commencement of the impact assessment phase of the process.

Stakeholder engagement during the Impact Assessment will focus on providing information and opportunity for public comment on the findings and recommendations of the impact assessment and management programme/plan. The draft findings will be presented in the Draft EIA / EMPr Report to be reviewed and commented on by the public.

The availability of the Draft EIA and EMPr Report for public comment will be announced in the same newspaper as for project announcement.

Registered I&APs will be informed through SMSes, and letters distributed by email in advance of the report being made available. Stakeholders will be invited to a public meeting where the contents of the Draft EIA/EMPr will be presented, and stakeholders will have the opportunity to comment. Stakeholders will be invited to comment on the Draft EMPr Report in any of the following ways:

- By raising comments during meetings where the content of the Draft EIA/EMPr Report will be presented;
- By completing comments forms available with the report at public places, and by submitting additional written comments, by email or fax, or by telephone, to EAP; and
- The draft EIA/EMPr Report will be available for comment for a period of 30 days at public places in the project area as per the announcement and scoping phase and placed on the Ndi Geological Consulting Services (Pty) Ltd website.

Depending on the responses received during the registration period, and where requested by the stakeholders, a public meeting may be held during the impact assessment phase of the project, ensuring that the COVID-19 Regulation requirements are met. Stakeholders will be informed of the COVID-19 Regulation requirements, if any, that will be enforced during the meeting.

Where necessary, comments and issues raised by I&APs during the commenting period will be consolidated into the Final EIAR and EMPr with the relevant response issued by the EAP. The Final EIAR and EMPr will then be submitted to the DMR for decision making. The comments will also be collated into the CRR that will form an Appendix to the Final EIAR.

10.2.2 Notification of authority decision

Registered stakeholders will be advised in writing (mail, email, fax and SMS) of the authority decision on the EIA / EMPr, and details on the procedure to appeal the decision. Notification to registered stakeholders will summarise the authorities' decision and provide information according to legal requirements on how to lodge an appeal should they so wish.

11 Baseline Characterisation

This section provides a general overview of the status quo of the environmental and social context within which the proposed project is located. All of the proposed activities will take place within the affected properties. While most of the descriptions below are focused on the site itself, where necessary the regional context of the environmental features is also explained. For each environmental aspect discussed below, proposed environmental issues/impacts have been highlighted qualitatively where applicable. The EIA will explore these issues on a quantitative level.

11.1 Geographical

The proposed project area is situated in the Tsantsabane Local Municipality's area of jurisdiction, within the ZF Mgcawu District Municipality, Northern Cape Province. The affected property is located approximately 15km north of the town of Postmasburg, approximately 40km southeast of the town of Olifantshoek, approximately 46km south of the town of Kathu.

11.2 Topography

The topography around Postmasburg contains small variations in elevation, with a maximum elevation change of 80 metres and an average elevation above sea level of 1 327 mamsl.

The topography map of the proposed prospecting area shows that the altitude of the site varies from approximately 1 453 mamsl to 1 440 mamsl (Figure 11-1).

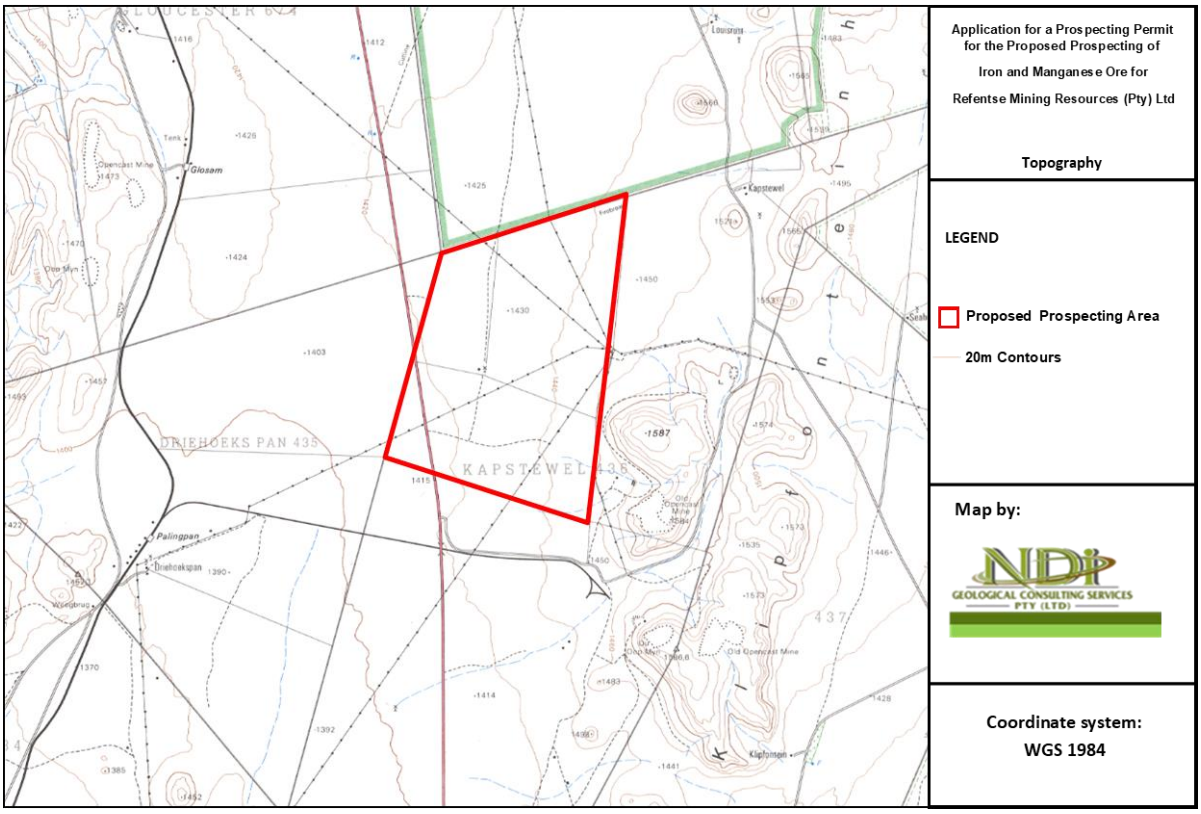


Figure 11-1: Topography

11.3 Climate

Postmasburg has a Subtropical desert climate (Classification: BWh). The summers are long and hot whereas the winters are short, cold, dry, and windy. It is mostly clear throughout the year and the temperature typically varies from 3°C to 32°C and is rarely below -1°C or above 36°C.

11.3.1 Average Monthly Temperatures

Figure 11-2 indicates the average monthly temperature for Postmasburg.

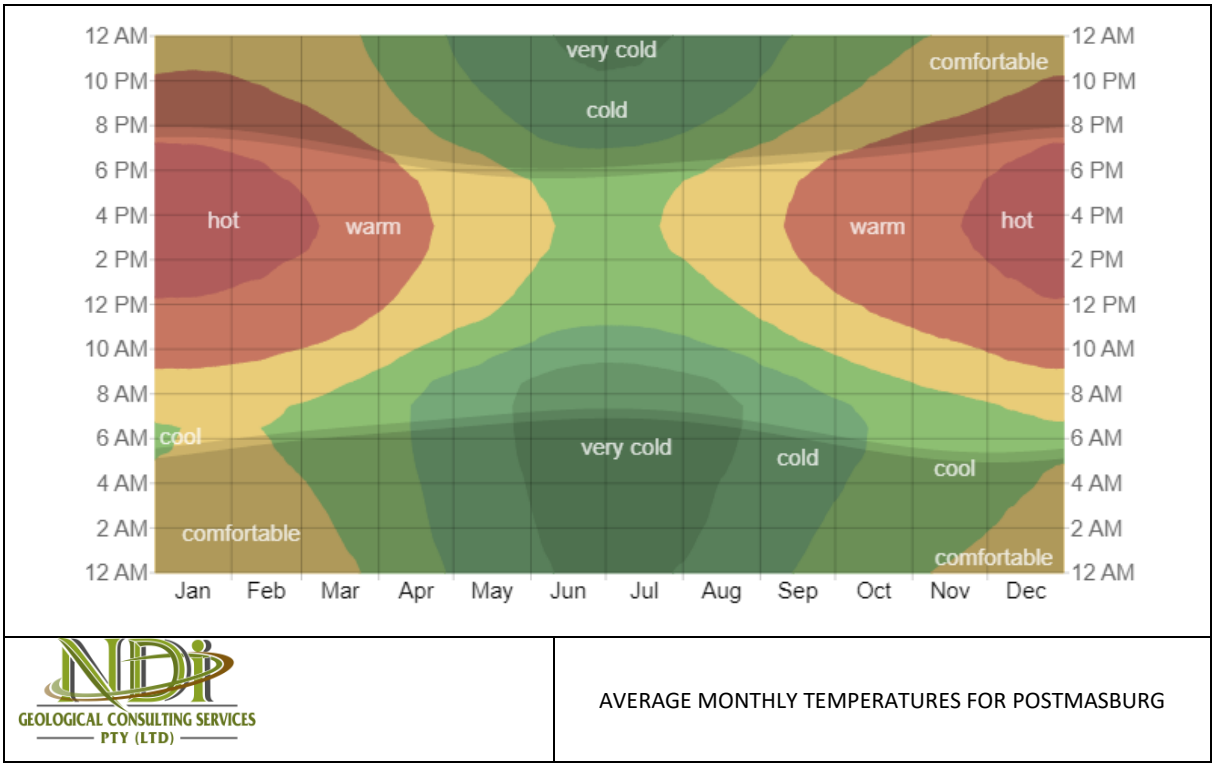


Figure 11-2: Average Monthly Temperatures for Postmasburg (Source: WeatherSpark .com)

11.3.2 Average Monthly Rainfall

The highest rainfall season lasts for 5.7 months, from October 24 to April 15, with a greater than 14% chance of a given day being a rainy day. February has the highest rainfall with an average of 7 days with at least 1 mm of precipitation and a peak probability of 27%.

The dry season lasts up to 6.3 months, from April 15 to October 24. July is the driest month with an average of 0.5 days with at least 1mm of precipitation (Figure 11-3).

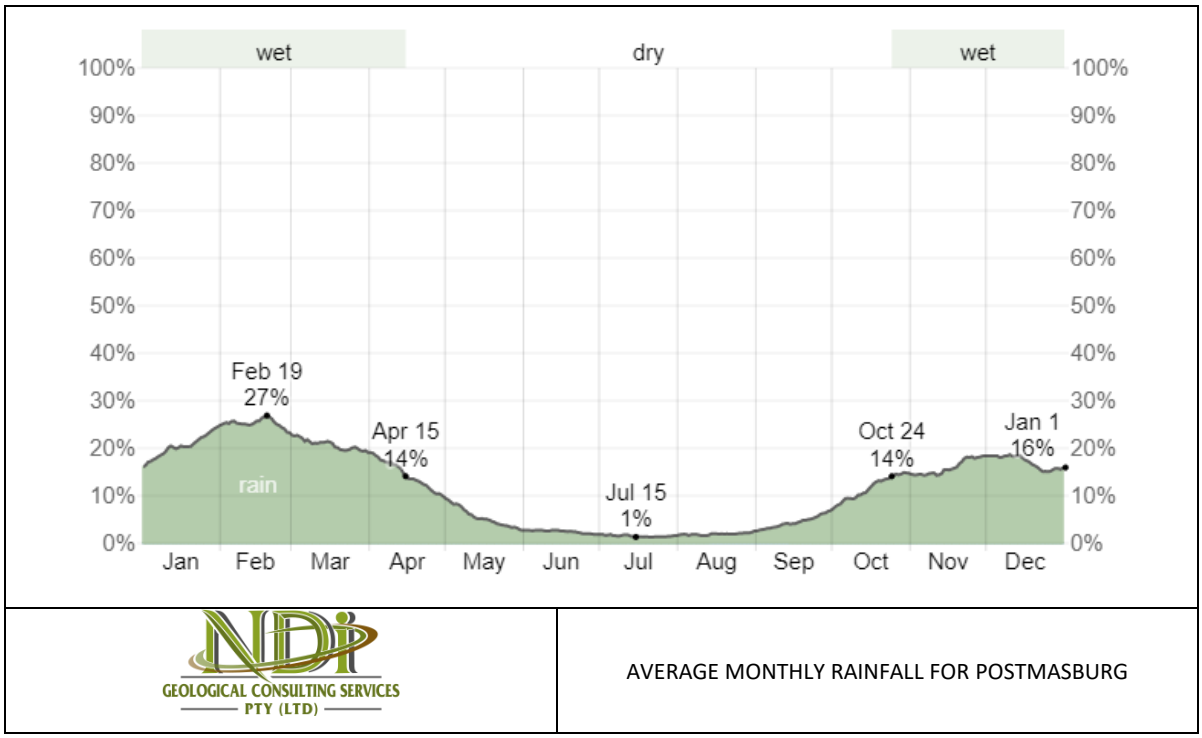
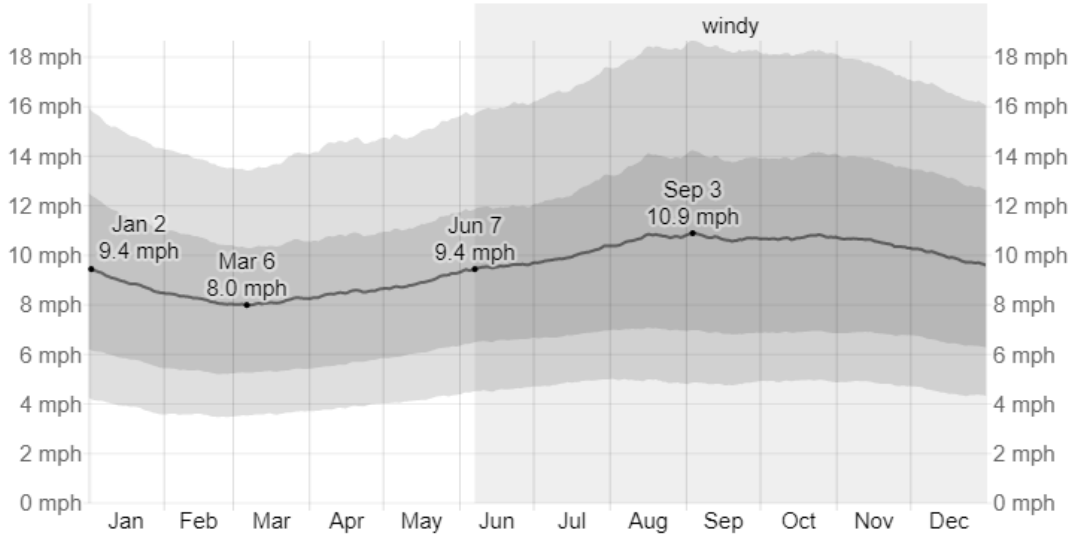


Figure 11-3: Average Monthly Rainfall for Postmasburg (Source: WeatherSpark .com)

11.3.3 Wind Direction

The average hourly wind speed in Postmasburg experiences mild seasonal variation over the course of the year from June 7 to January 2, with average wind speeds of more than 15 kilometres per hour. October is the windiest month of the year in Postmasburg rate of with an average hourly wind speed of 17.2 km/h.

The calmest time of the year lasts for 5.1 months, that is from January 2 to June 7. The calmest month of the year in Postmasburg is March, with an average hourly wind speed of 13 kilometres per hour. (Figure 11-4).



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WIND DIRECTION

Figure 11-4: Wind Direction for Postmasburg (Source: Weather SA)

11.4 Geology

The study area falls in the Postmasburg area which lies at the southern end of a domal structure termed the Maremane Anticline in which dolomites of the Campbell Rand Group are exposed. The Campbell Rand Group deposits in this area are overlain by the Kuruman Banded Iron Formation - the Kuruman Member of the Asbesheuwel Formation. The dolomite palaeosurface is karsted, leading to collapse structures where manganese and iron formation has fallen into karst cavities.

In this area iron ore can be subdivided into an eastern and western belt that extends from Postmasburg northwards for 65km to Sishen. The area lies near the eastern Klipheuwel belt. The targeted ore bodies of this belt are in situ banded ironstone with bands of amphibolite and lenses of flat pebble conglomerate, ferruginised brecciated banded ironstone (Blinkklip breccia) and detrital iron ore which have been derived from pre-existing iron ore (thick- or thinly laminated or breccia) by processes of weathering and/or erosion.

To the immediate west, eastwards directed thrusting along the margins of the north south striking Kheis Orogenic Belt, brings younger Palaeoproterozoic rocks of the Olifantshoek Supergroup over the Transvaal rocks. Restricted and now largely depleted bosies of high- grade manganese and iron ore are present along the Eastern belt of Postmastburg Manganese Field o the farms Kapstewel 436, Klipfontein 437 etc. (Anhaeusser and Wilson, 1989).

The geology of the property as shown in Figure 11-5, is dominated by dolomitic limestone (puckered limestone) with subordinate coarsely crystalline dolomite, chert ad lenses of limestone (Vgl). To the middle of the property, small portions of banded ironstone with bands of amphibolites are observed (Vak). Banded chert and chert breccia, largely covered by rubble (Vgl) is mostly observed around the banded ironstone. Red to flesh coloured windblow sand; sand dune (Qs) covers some parts of the property. A small portion of coarse-grained brown quartzite and subgraywacke; conglomerate (Mmf) of the Olifantshoek Group is also observed towards the centre of the property and adjacent to it.

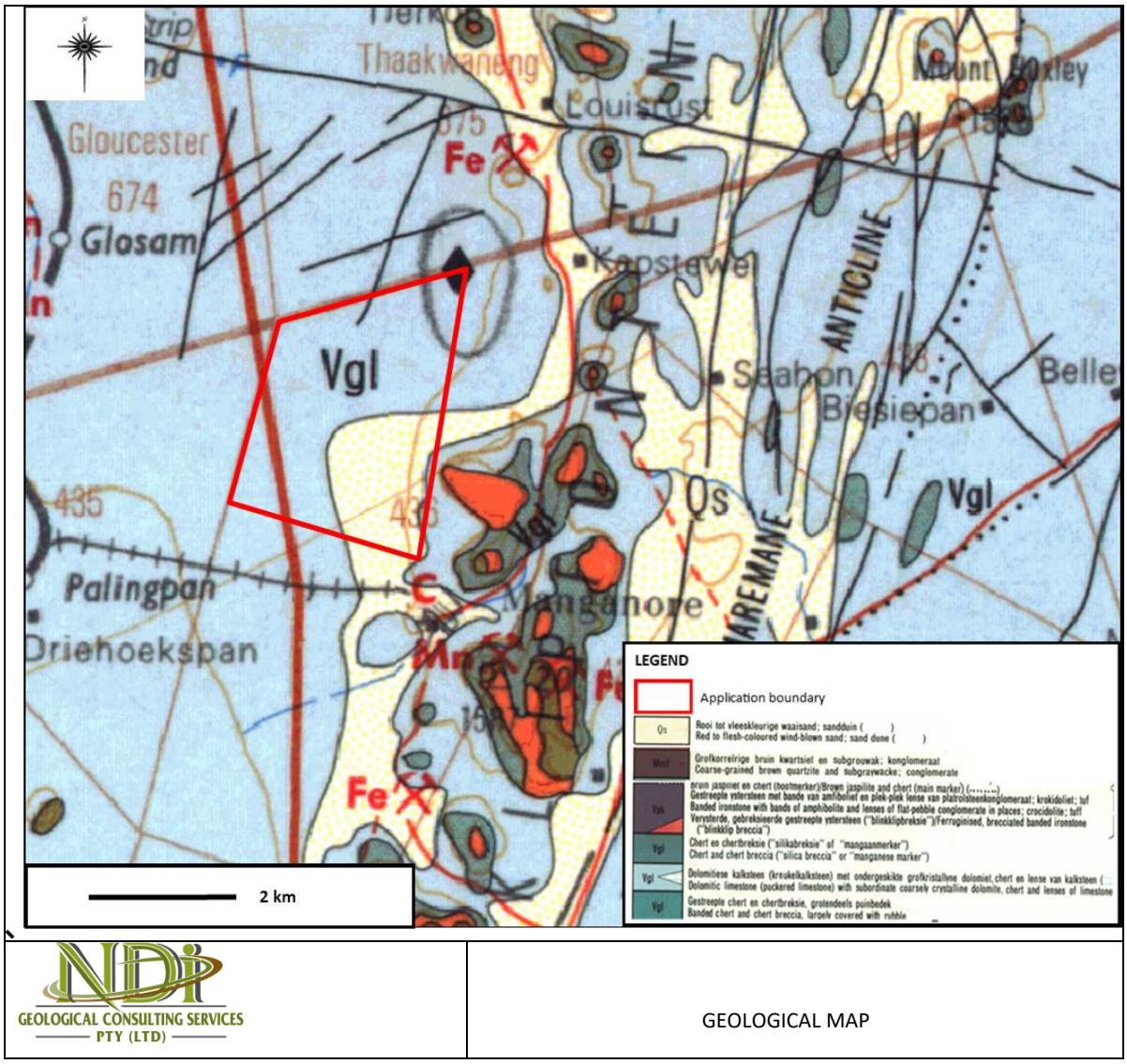


Figure 11-5: Geological Map

11.5 Water Resources

The project is located within quaternary catchment D73A which is located within the Lower Vaal Water Management Area (WMA) (Figure 11-6).

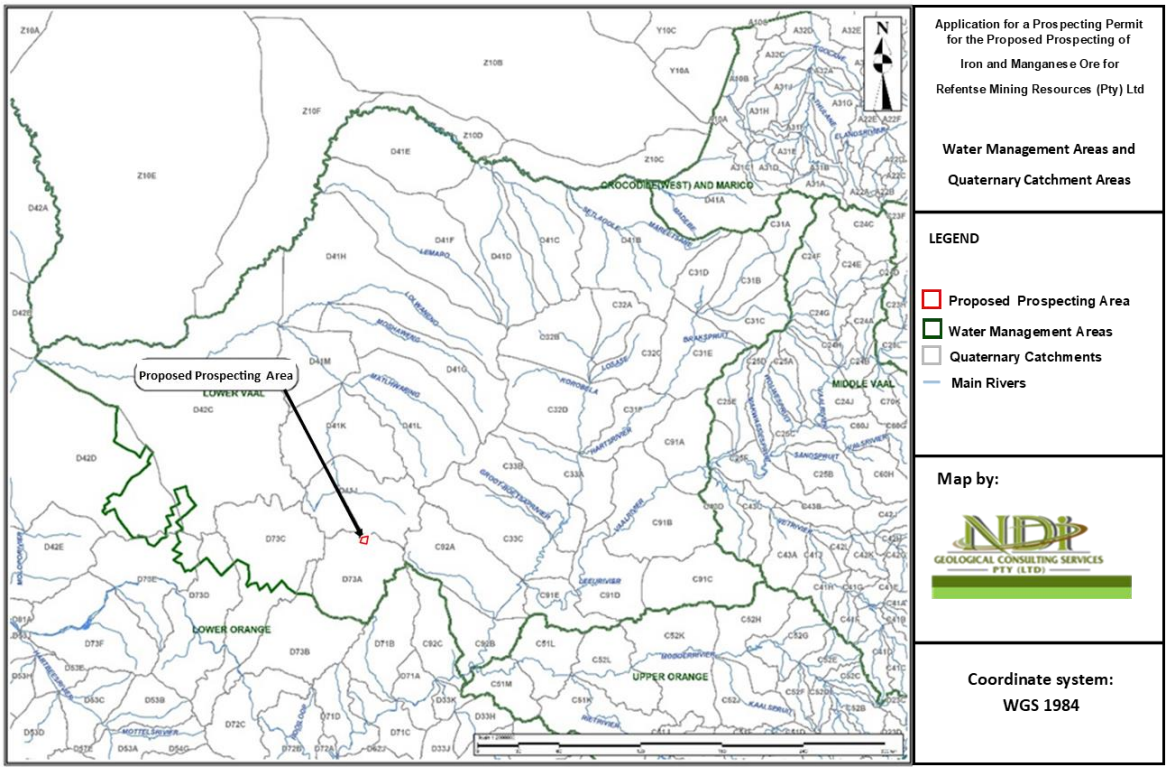


Figure 11-6: Water Management Areas and Quaternary Catchment Areas

There are some drainage lines that traverse the project area (Figure 11-7).

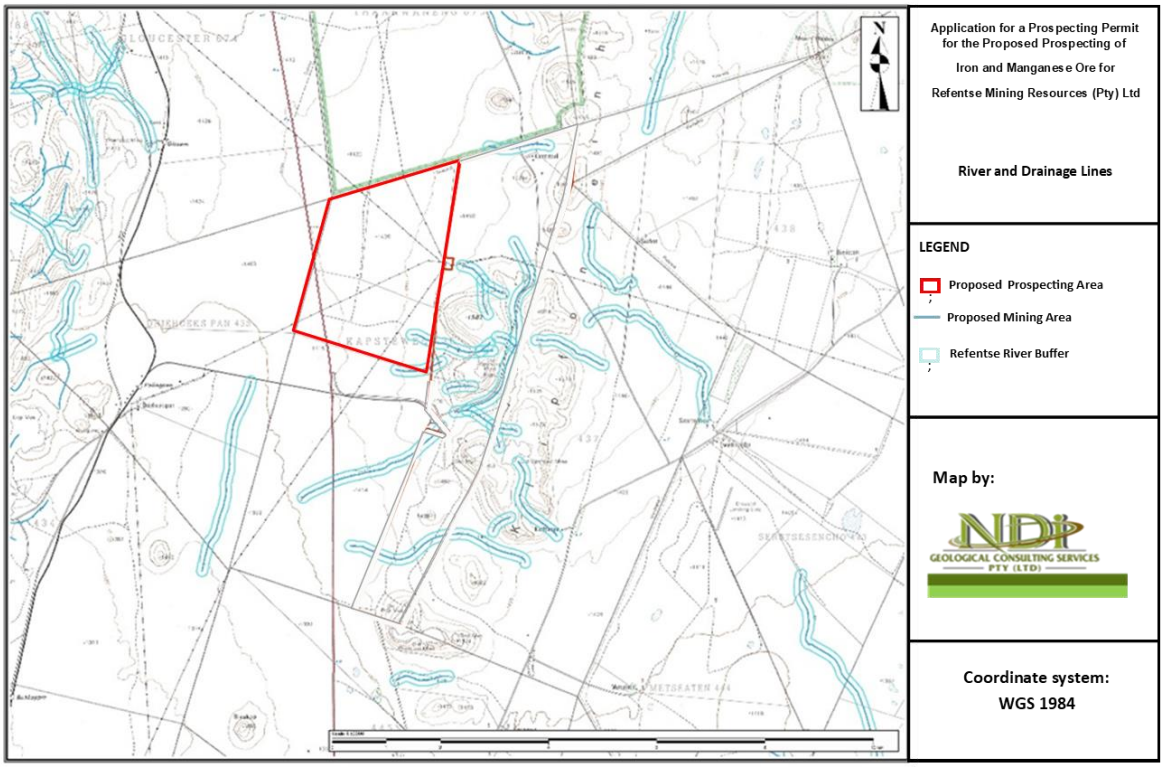


Figure 11-7: Rivers, Streams and Drainage Lines

According to the SANBI Wetland Inventory (2006) National Freshwater Ecosystem Priority Areas (NFEPA) (2011), the affected quaternary catchment area is not regarded as important in terms of fish sanctuaries, rehabilitation or corridors. In addition, the quaternary catchment area is not considered important in terms of translocation and relocation zones for fish.

11.6 Wetlands

The SANBI data shows that there are no wetlands occurring on the study area as shown in Figure 11-8.

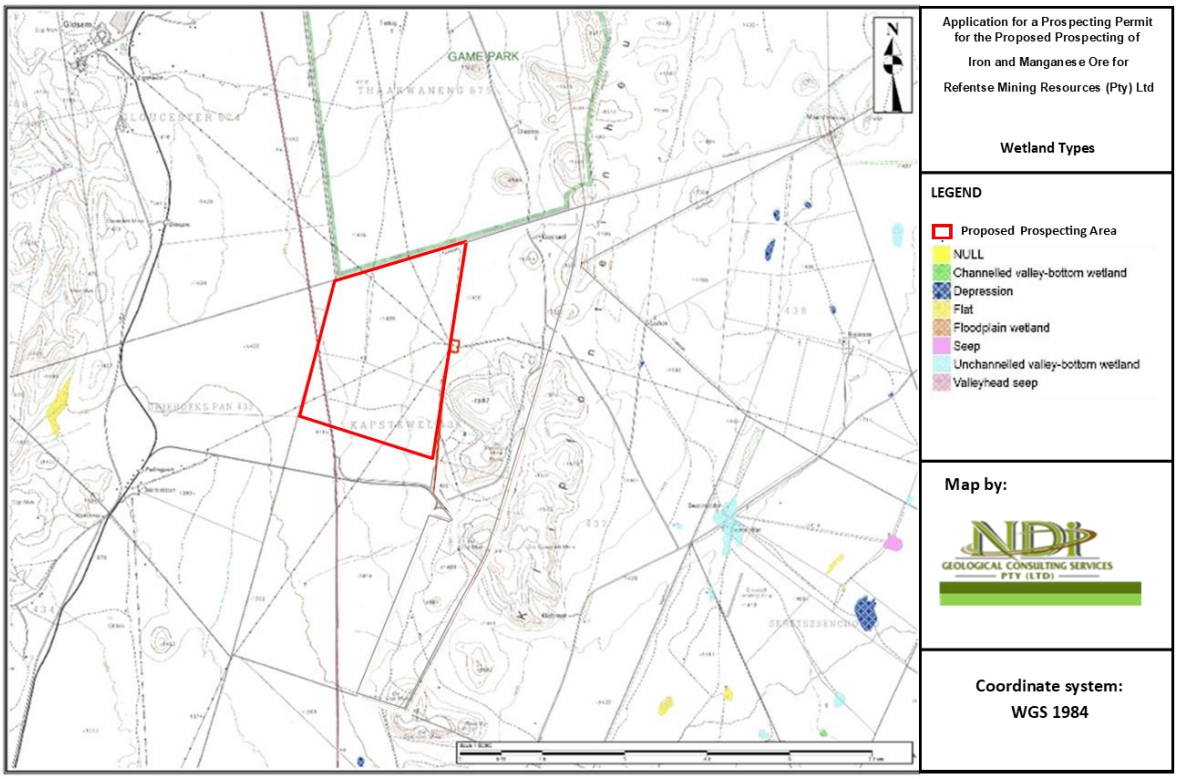


Figure 11-8: Wetland Types

11.7 Groundwater

11.7.1 Aquifer Characterisation

The DWS launched the Reconstruction and Development Programme (RDP) in South Africa, which highlighted the importance of groundwater resources in the country as well as the role they will play in satisfying the targets of the RDP. According to the DWS aquifer classification the following applies for the prospecting area:

- The aquifer is classified as a Minor aquifer;
- Aquifer Vulnerability is classified as Moderate; and
- Aquifer Susceptibility is classified as Medium 4.

11.7.2 Groundwater Yield

The DWS National Groundwater Archive (NGA) shows that the groundwater yield in the prospecting area is between 0.5 and 2.0l/s and that the aquifer is classified as karst (Figure 11-9).

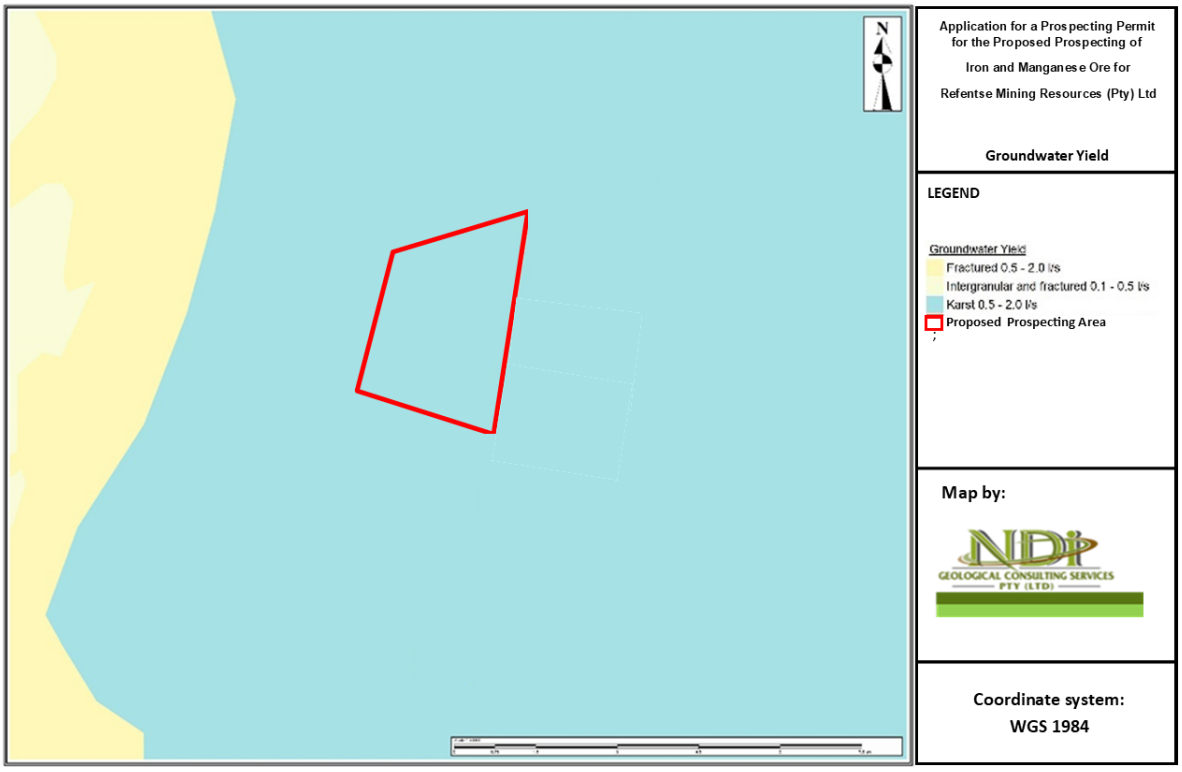


Figure 11-9: Groundwater Yield

11.7.3 Groundwater Recharge

According to the DWS groundwater data, the study area groundwater recharge is between 0 and 1 000 l/s (Figure 11-10).

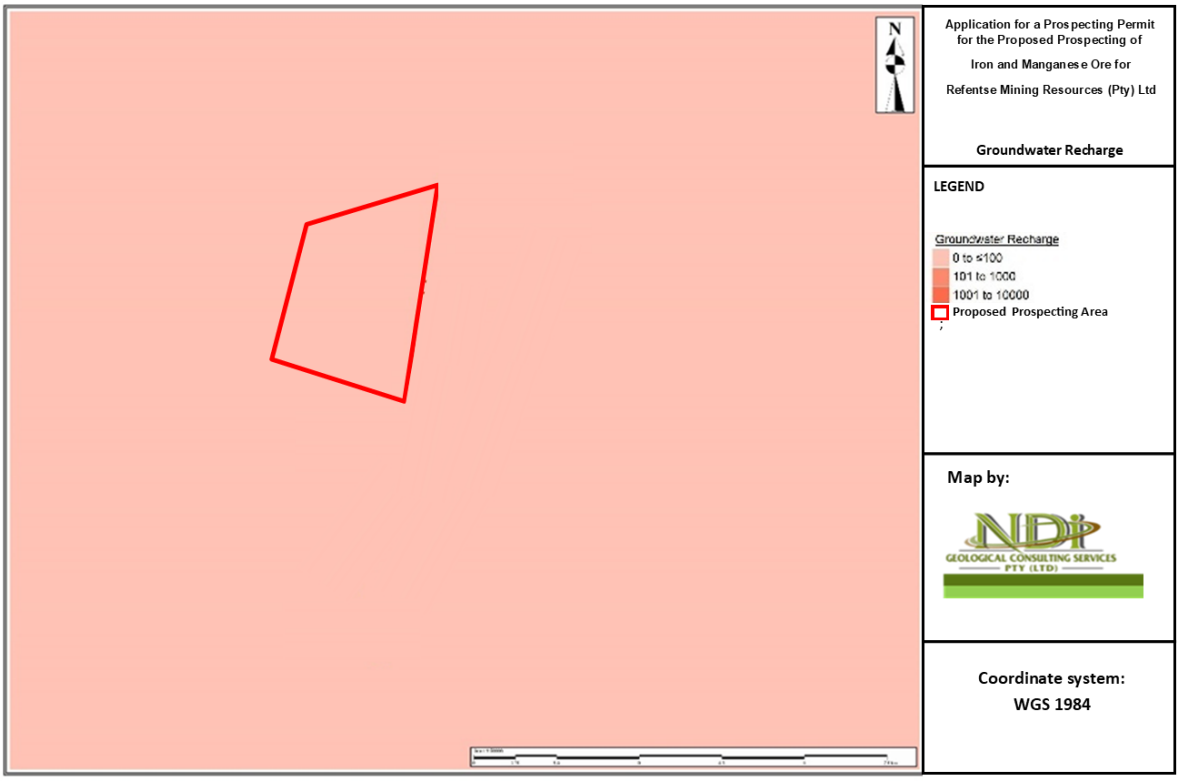


Figure 11-10: Groundwater Recharge

11.7.4 Groundwater Quality

The groundwater quality is generally of good quality, with Electrical Conductivity (EC) levels between 70-300mS/m as shown in Figure 11-11.

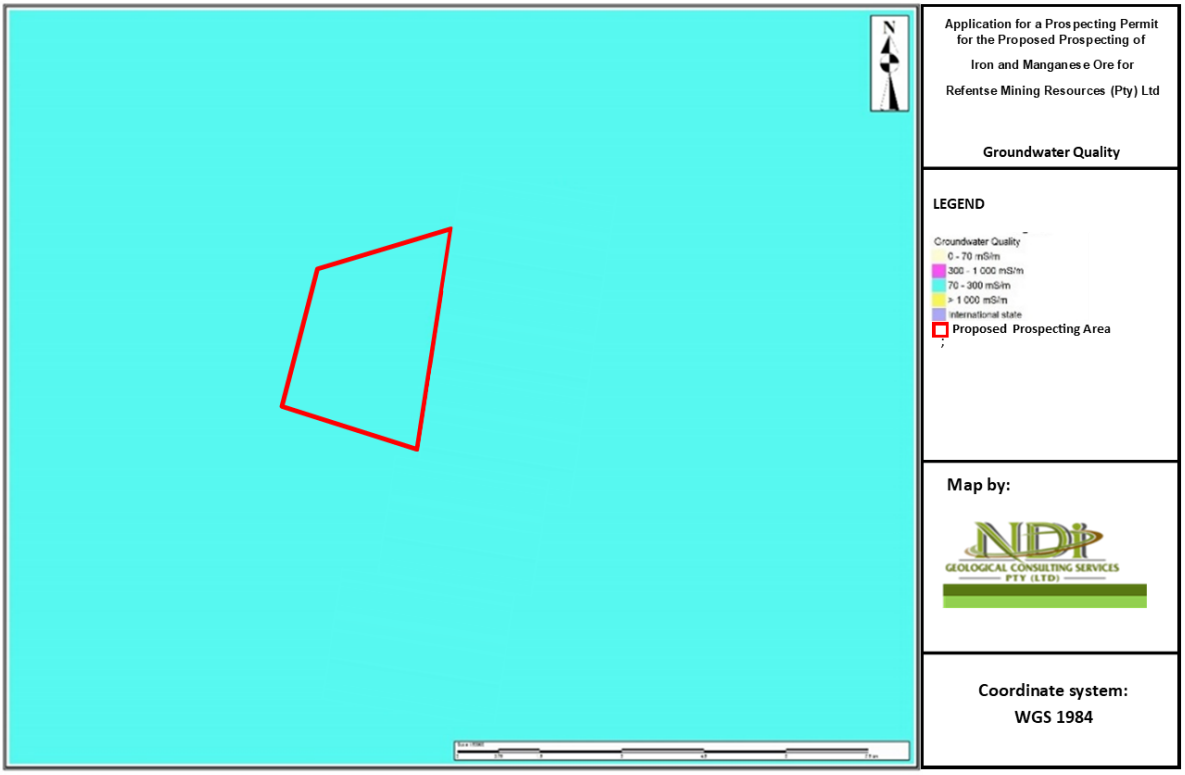


Figure 11-11: Groundwater Quality

11.8 Biodiversity

11.8.1 Biomes

The proposed prospecting area is located in the Savanna Biome (Figure 11-12). The Savanna Biome is the largest Biome in southern Africa, occupying 46% of its area, and over one-third the area of South Africa. It is well developed over the lowveld and Kalahari region of South Africa. It is characterized by a grassy ground layer and a distinct upper layer of woody plants. Where this upper layer is near the ground the vegetation may be referred to as Shrubveld, where it is dense as Woodland, and the intermediate stages are locally known as Bushveld.

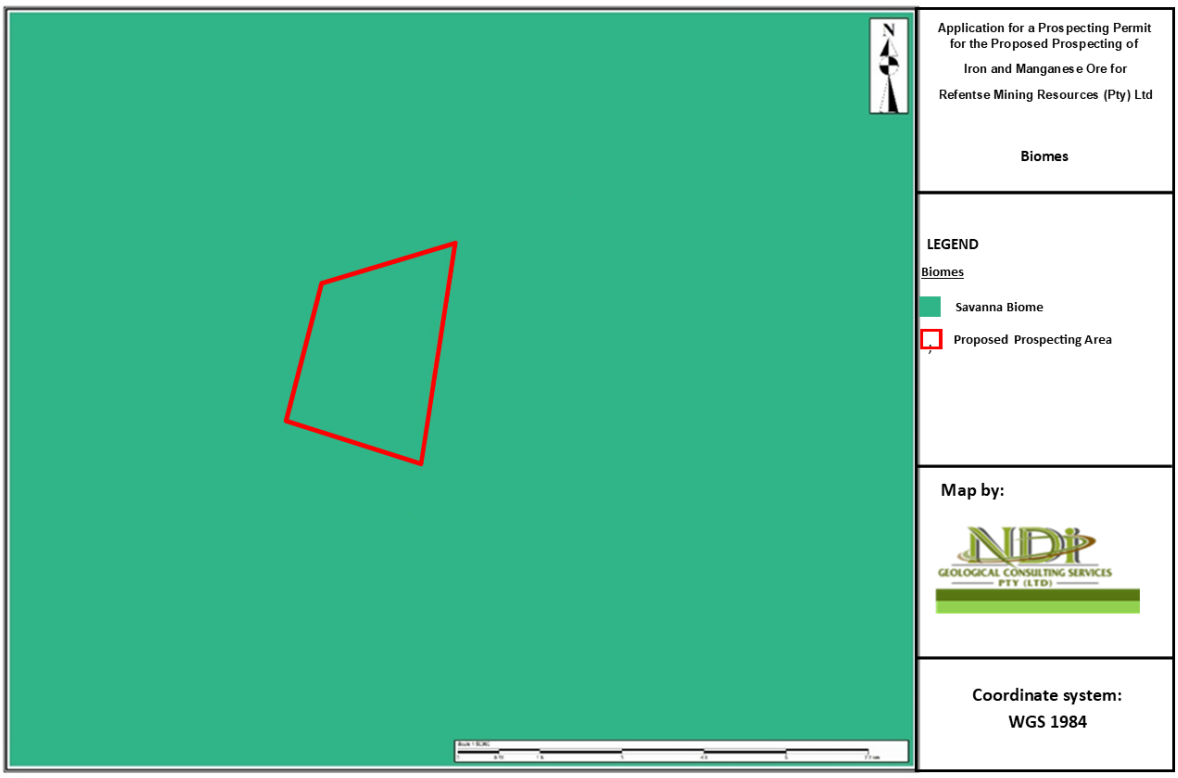


Figure 11-12: Biomes

Most of the savanna vegetation types are used for grazing, mainly by cattle or game. In the southernmost savanna types, goats are the major stock. In some types of crops and subtropical fruit are cultivated. These mainly include the Clay Thorn Bushveld, parts of Mixed Bushveld, and Sweet Lowveld Bushveld.

11.8.2 Bioregions

The proposed prospecting area is located in the Eastern Kalahari Bushveld Bioregion as shown in Figure 11-13. The Eastern Kalahari Bushveld Bioregion is the largest savanna bioregion and is on average at the highest altitude. It is roughly bounded by Mafikeng, Bloemhof, Kimberley, Groblershoop and Van Zylsrus.

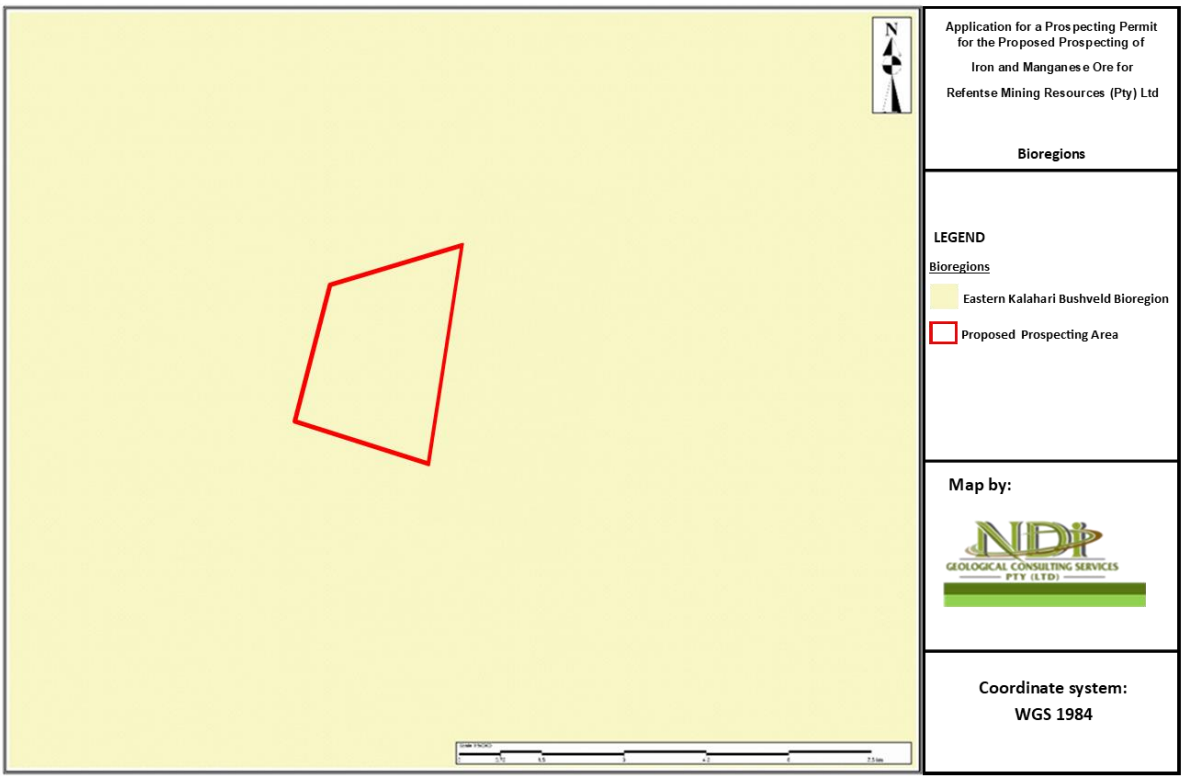


Figure 11-13: Bioregions

11.8.3 Vegetation Types

According to the SANBI remaining vegetation types database, there is no remaining natural vegetation on the affected area.

The proposed prospecting area is associated with ecosystems that are considered to be threatened (Figure 11-14). The threatened ecosystems associated with the site are the Kuruman Mountain Bushveld and the Kuruman Thornveld. According to SANBI, the ecosystem is classified at Least Threatened (Figure 11-15).

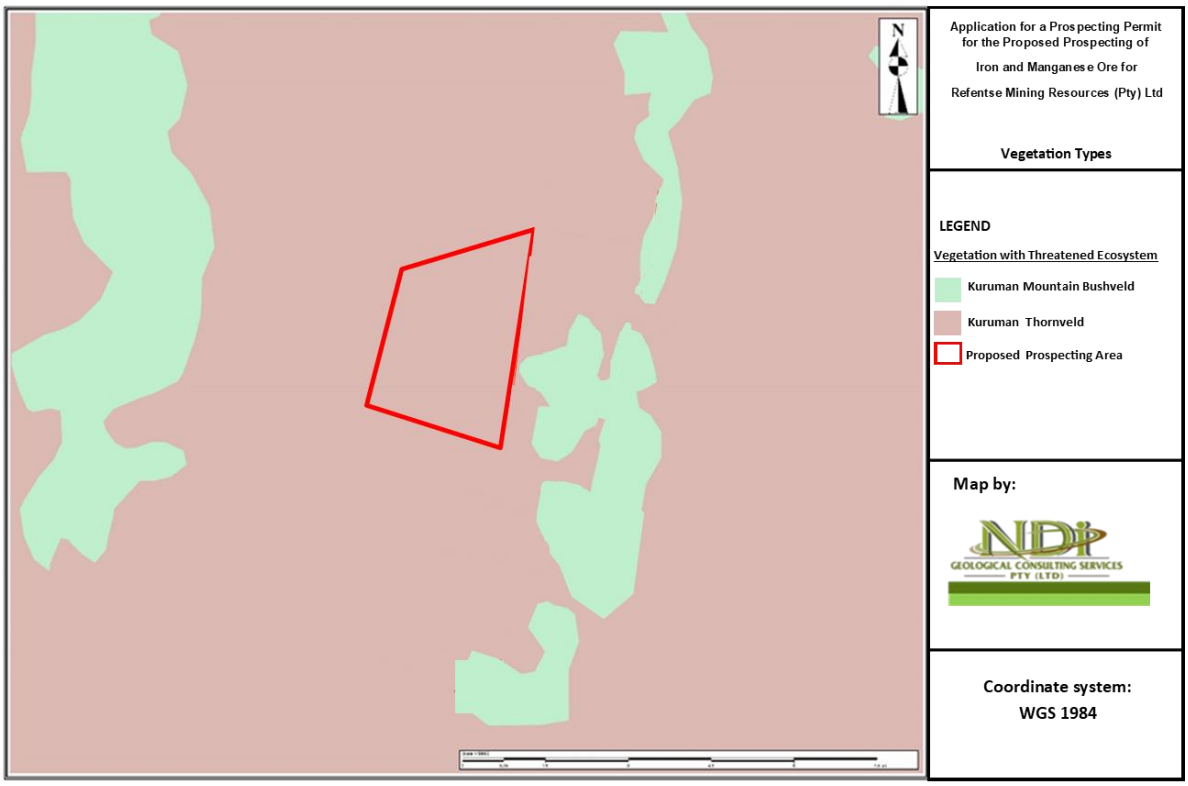


Figure 11-14: Vegetation with Threatened Ecosystems

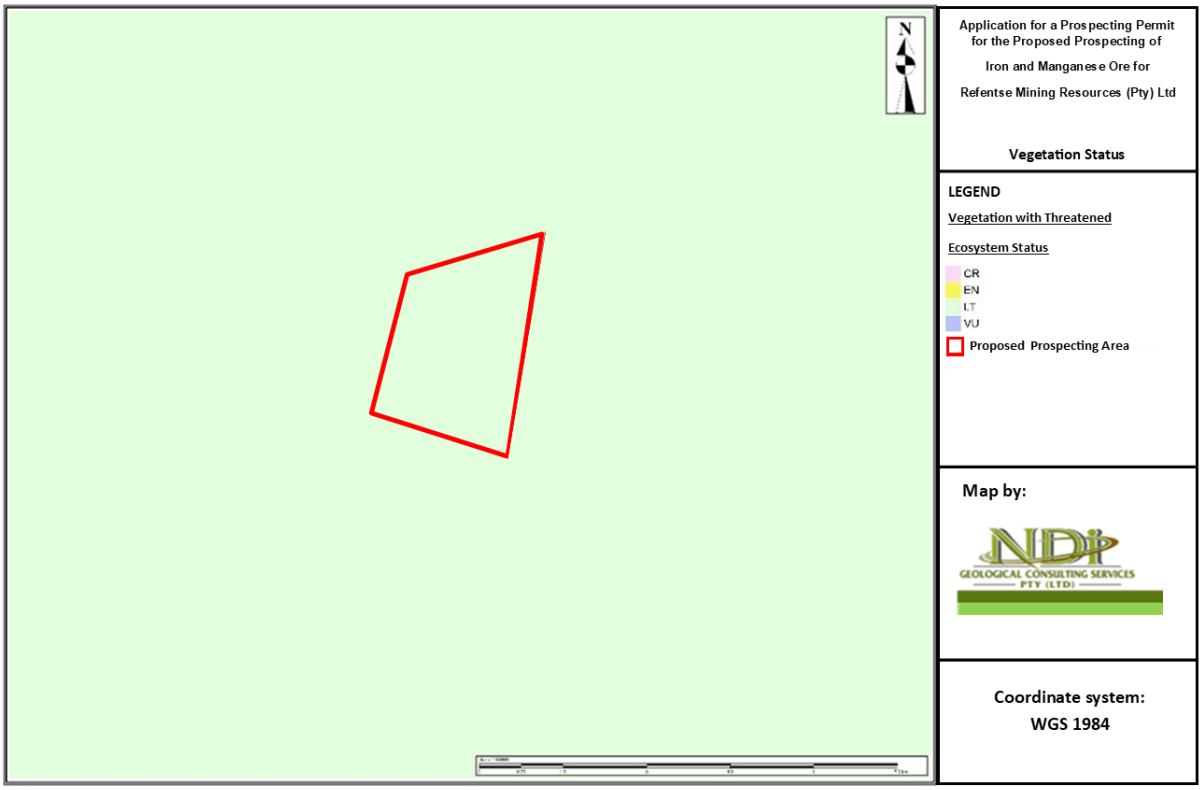


Figure 11-15: Status of Vegetation with Threatened Ecosystems

11.9 Conservation Plan

According to the Northern Cape Provincial Biodiversity Conservation Plan (C Plan), a negligible part of the affected property is classified as an Ecological Support Area (ESA). Ecological Support Areas

are not essential for meeting biodiversity targets but play an important role in supporting the ecological functioning of Critical Biodiversity Areas (CBAs) and/or in delivering ecosystem services.

Figure 11-16 provides a map showing areas of conservation importance that may be affected by the prospecting activities.

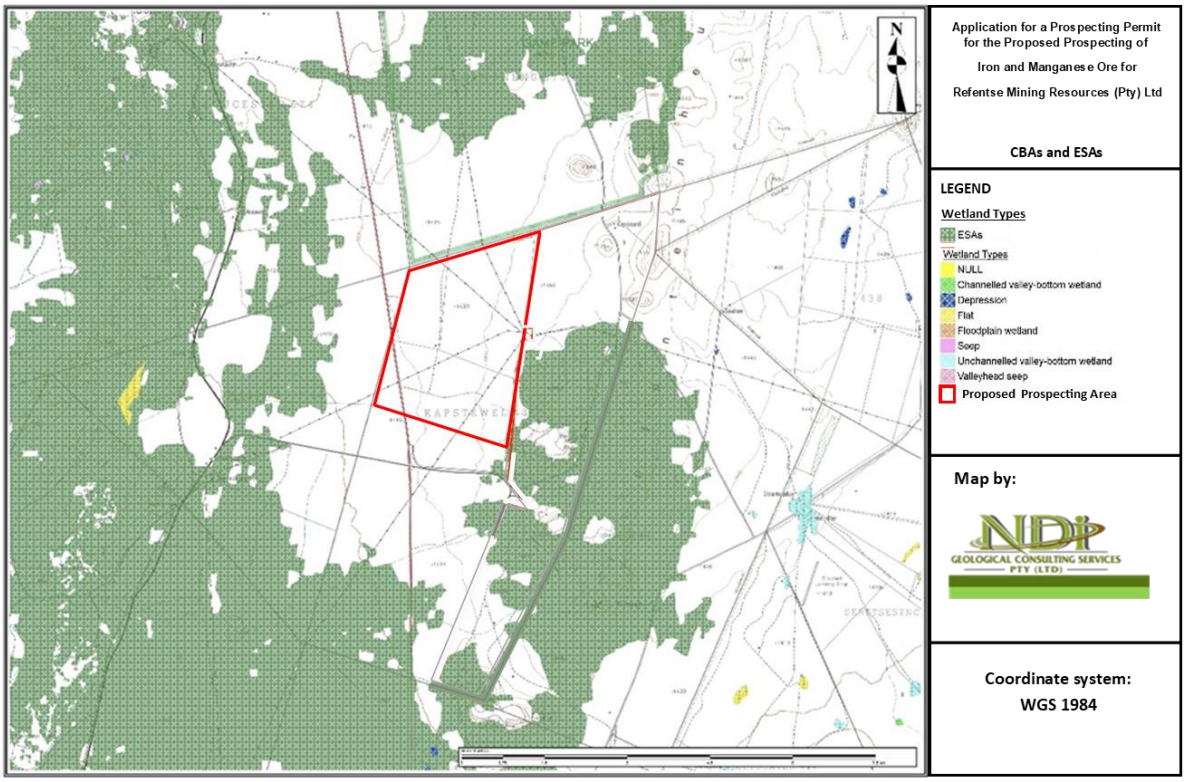


Figure 11-16: Areas of Conservation Importance

11.10 Protected Areas

The DFFE South African Conservation Areas Database (SACAD), South African Protected Areas Database (SAPAD) and the Important Biodiversity Area (IBA) database show that there are no protected areas or important bird areas affected by the proposed prospecting activities.

11.11 Heritage Resources

Heritage resources may be tangible, such as buildings and archaeological artefacts or intangible such as landscapes and living heritage. Their significance is based upon their aesthetic, architectural, historical scientific, social, spiritual, linguistic economic or technological values; their representation of a particular period; their rarity and their sphere of influence. There are a number of heritage and cultural resources in the Northern Cape Province.

A site-specific Phase 1 Heritage Impact Assessment (HIA) will be conducted where potential impacts on heritage resources will be assessed in the impact assessment phase of the project and mitigation measures to be implemented in the event that heritage and cultural resources are encountered will be included in the EMPr.

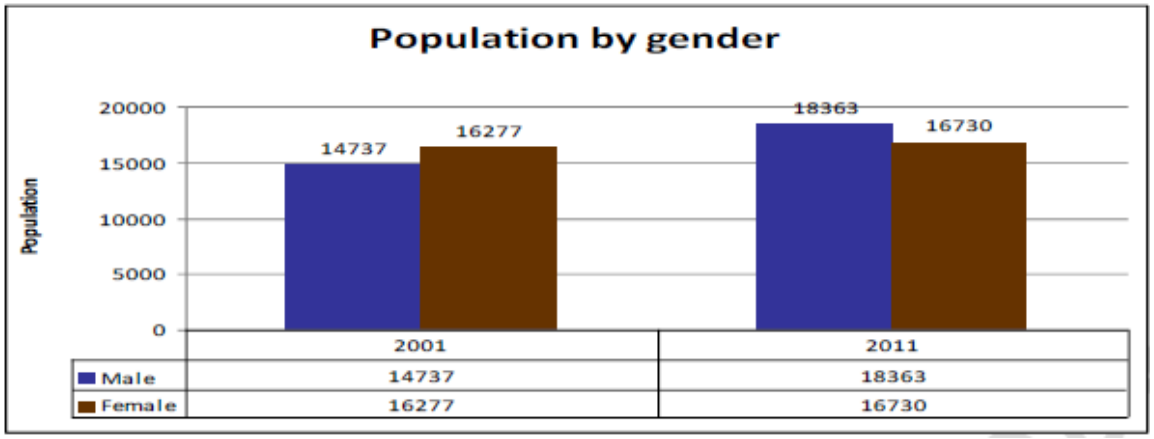
11.12 Socio-Economic

The proposed prospecting project will be located within the Tsantsabane Local Municipality which is situated in the ZF Mgcawu District Municipality of the Northern Cape Province.

11.12.1 Population

Census 2011 the population figures for Tsantsabane Local Municipality is 35 093, this indicates a population growth of 4 079, from population size of 31 014 (Census 2001). The municipality has a total of 9 839 households. According to the IDP, the population increase is due to immigration of people coming to the municipal area in search for better living conditions or jobs in the mining and solar industrial sectors.

The male population has increased by 24% while the female population has increased with only 2.7% since 2001. The municipality has more males than females and the reason could be derived from the male dominated employment industry as there are a lot of mines in the area. Out of the whole population 54% are black male followed by 36% coloured males then 8% white and lastly 1% Indians. For females there are 51% black Africans followed by 40% coloured females then lastly 9% of whites in the municipal area (Figure 11-17).



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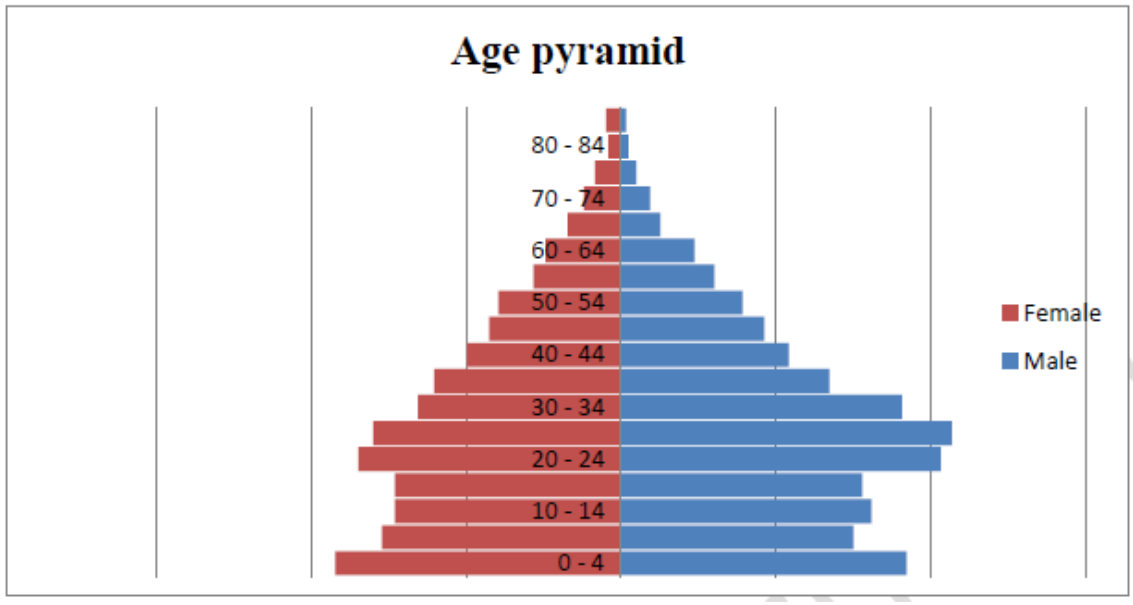
POPULATION BY GENDER

Figure 11-17: Population by Gender

The age pyramid indicates that the population of Tsantsabane is predominantly young people. There is a small percentage of people older than 60 years. The age pyramid further indicates that approximately 31% of the population is under 14 years and approximately 33% is between 15 and 34 years 9Figure 11-18).



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POPULATION PYRAMID

Figure 11-18: Population pyramid

11.12.2 Level of Education

From a statistical analysis it is clear that there has been an increase of people obtaining Matric since 2001. There has also been an increase in the number of people with higher education.

The statistics indicate that although a high number of students enrolling for primary school a very low number of students complete grade 12. This has resulted in a very low probability for employment. Only 5% of those who enrolled for grade 1 make it into tertiary. Less than 15% of the population has a tertiary qualification or have completed Grade 12. It must, however, be mentioned that the education level is affected negatively by the urbanization process, in the past since it mostly involves matriculates and those with a better qualification, due to the local lack of job opportunities. This can also be attributed to the fact that the nearest University of Technology (Central University of Technology, in Bloemfontein) is almost 400km away and the Sol Plaatjie University has recently started a limited offering of some courses.

Males seems to be doing much better when it comes to education levels, as more men have some secondary education, grade 12 and higher education than their female counterparts (Figure 11-19).

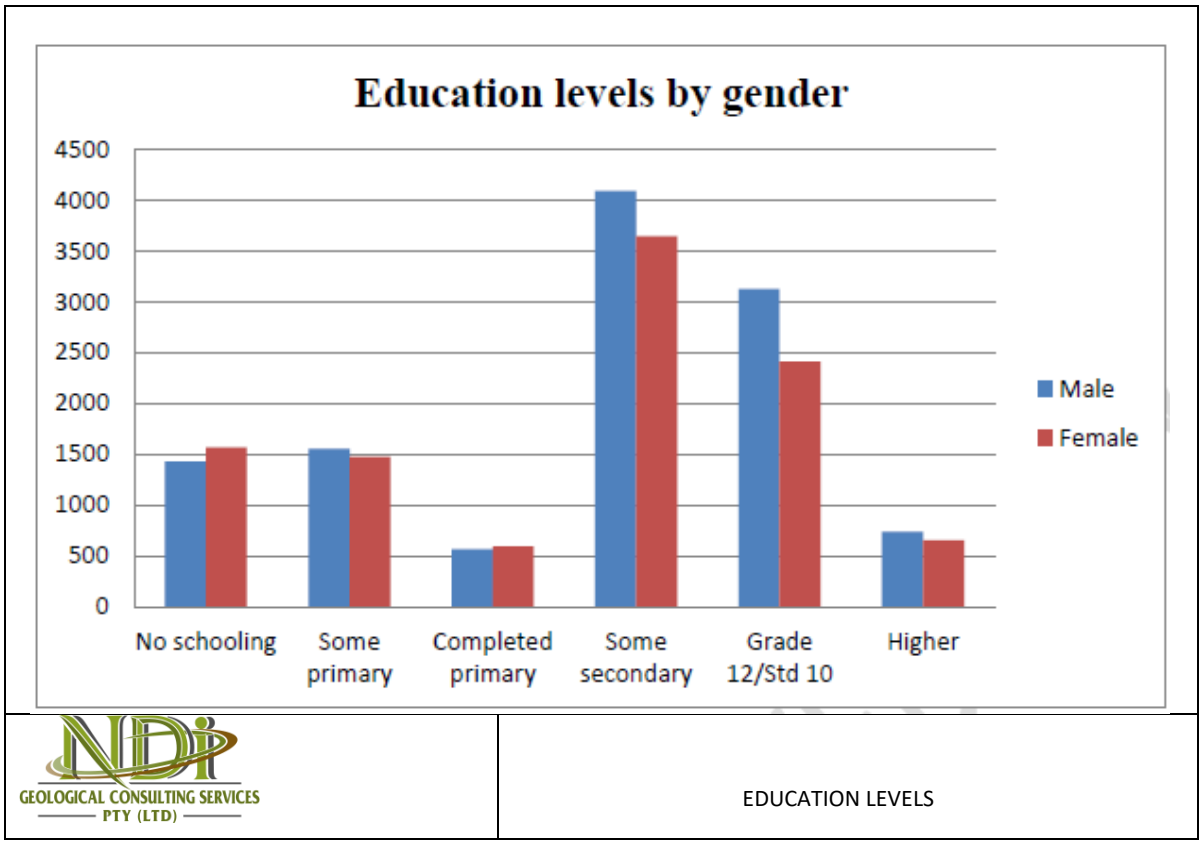


Figure 11-19: Education Levels by Gender

11.12.3 Employment Levels

According to the STATSA unemployment figure has drastically reduced from 4 466 in 2001 to 3 795 in 2011 this shows a decrease of 15%. Employment has increased by 69% in 2011, this clearly indicates that there are more people working in 2011 than in 2001 (Figure 11-20).

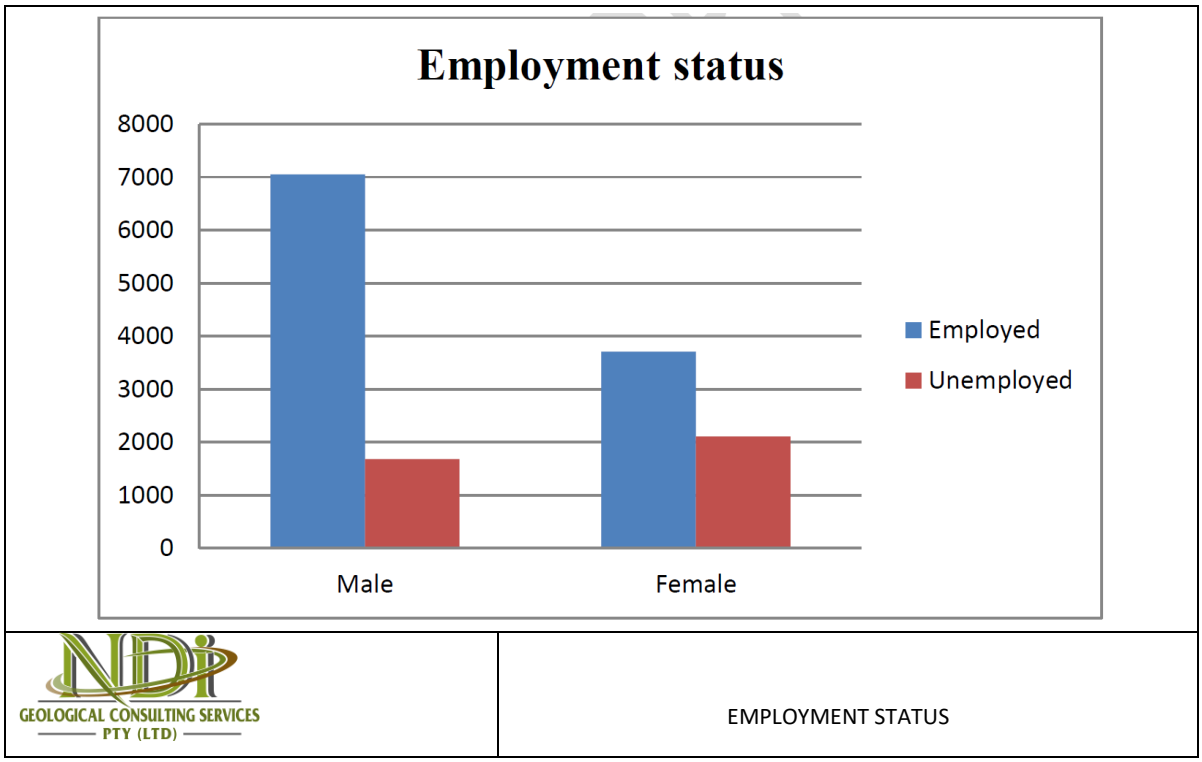
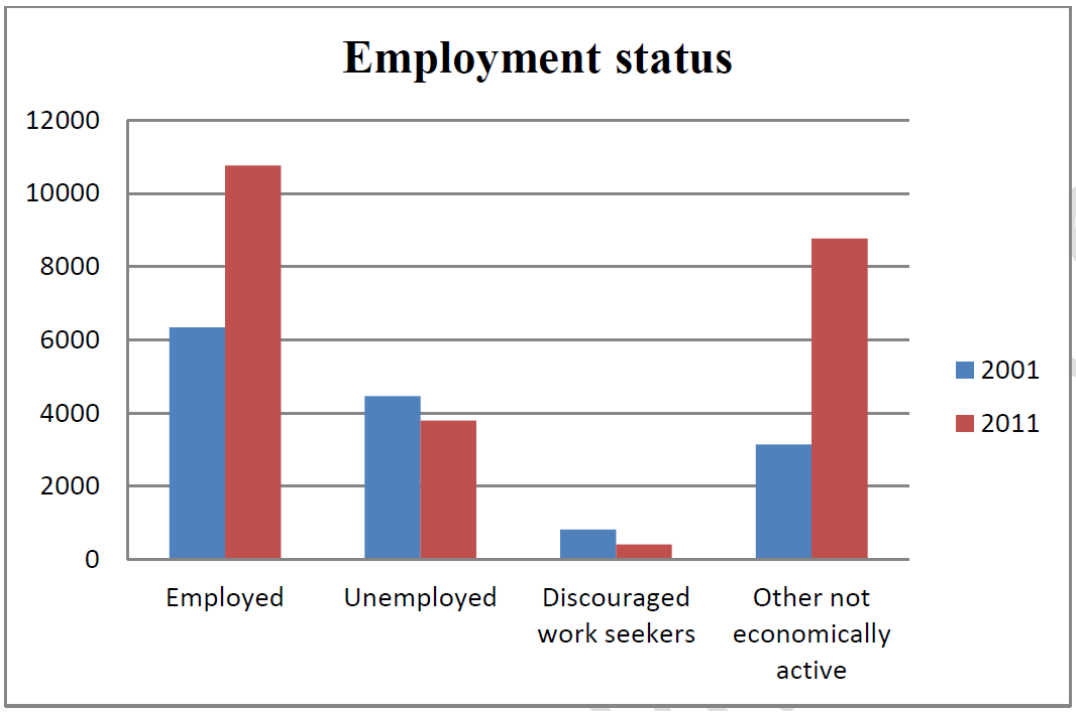


Figure 11-20: Employment Status

Although there were more employed people in 2011 than in 2001, there is a very high level of economically inactive members in 2011 than it was in 2001 (Figure 11-21). The high number of economically inactive could indicate a high level of dependency on those who are employed.



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EMPLOYMENT STATUS

Figure 11-21: Employment Status

11.12.4 Economic Statistics

The Draft Spatial Development Framework (SDF) indicates that "during 2012 the primary sector contributed 76% of all the sectors' contribution to the Gross Domestic Product (GDP) of Tsantsabane LM. Mining is the single biggest contributor of all industries to the GDP, contributing 74% (R 3.9 billion), and the secondary and tertiary sectors contributed 4% and 20% respectively".

11.13 Description of the current land uses.

The majority of the affected area and surroundings are currently being used for prospecting and mining.

12 Assumptions and limitations

In accordance with the purpose of scoping, this report does not include detailed investigations on the receiving environment, which will only form part of the impact assessment phase. The project area environment was assessed through site visits, desktop screening using existing environmental GIS databases, incorporating existing information from previous studies and input received from authorities and I&APs to date. A refinement of all maps will also be undertaken in the impact assessment phase, if necessary.

13 Anticipated Environmental, Social and Cultural Impacts

Table 13-1 provides a high-level assessment of the potential impacts and associated mitigation measures which could result from the proposed prospecting activities during construction, operation and decommissioning/closure. These impacts will be further refined and assessed according to the impact assessment methodology in Section 14.

Table 13-1: Summary of Potential Environmental Impacts Associated with the Proposed Project

Element of Environment	Potential Impact Descriptions
Socio-Economic	Possible job opportunities during the construction and operation
Geohydrology	Possible groundwater contamination
Surface water	Possible surface water contamination
Air Quality	Possible impact on Air Quality in the area
Climate Change	Possible contribution to climate change through emission of Green House Gases
Drilling and Blasting	Possible impacts on private property, infrastructure and fauna due to drilling and blasting activities
Noise	Possible generation of noise during construction and operation
Visual	Possible visual impacts during construction and operation
Biodiversity	Disturbance and loss of biodiversity, especially floral and faunal SCC
Aquatic ecology	Possible loss, sedimentation and contamination of aquatic resources
Heritage	Possible impact on heritage and cultural resources (including graves) in the area
Traffic	Potential safety issues due to the increased traffic
Cumulative Impacts	Cumulative Impacts

Table 13-2 provide a high-level assessment of the potential impacts and associated mitigation measures which could result from the proposed mine during construction (C), operation (O) and decommissioning/closure (D). These impacts will be further refined and assessed according to the impact assessment methodology in Section 14 during the impact assessment phase of the study.

Table 13-2: Anticipated impacts for the proposed Refentse Manganese and Iron Ore Prospecting Project

Aspect	Impact	Mitigation	Phase		
			C	O	D
Social	Influx of job seekers will have a negative social impact on the landowners and land occupiers.	Random and regular alcohol and drug testing shall be conducted on all personnel responsible for operating machinery and driving construction vehicles to ensure the safety of the public; Security and safety should be emphasised; Recruitment will not be undertaken on site; Recruitment practises will favour locals, but farm labourers will not be employed unless agreed to with the farm owners; Liaise with the SAPD and existing forums in order to implement effective crime prevention strategies; and No construction workers shall be allowed to access private properties without the owner's knowledge and consent.	X	X	X
	Unauthorised access to private property outside of the demarcated areas will result in conflict with landowners.		X	X	X
	Increased traffic in the area will increase the likelihood of accidents on the roads, posing a health and safety issue for the landowners and land occupiers.		X	X	X
	The influx of job seekers in the area may result in an increase in petty crimes.		X	X	X
	Ineffective communication channels leading to community unrest.		X	X	X
	Negative impact as a result of the dissection of land by clearing and excavations for construction of infrastructure, constraints to access to cultivated land to farmers, impacting on day-to-day farm activity.		X	X	X
	Negative impact as a result of localised loss of cultivated land, impacting on potential crop yield.		X	X	X
	Possible boost in short term local small business opportunities.	None	X	X	X
Groundwater	Localised spillages of oils from machinery leaching to groundwater contamination.	No washing of vehicles shall be allowed outside demarcated areas. The bays will be clearly demarcated and will not be allowed to contaminate any surface runoff; Sufficient areas shall be provided for the maintenance and washing of vehicles; Refuelling of vehicles will only be allowed in designated areas; All construction equipment shall be parked in a demarcated area Drip trays shall be used when equipment is not used for some time;	X	X	X
	Existing boreholes within the prospecting area may create conduits of flow to the groundwater unless sealed.		X	X	

Aspect	Impact	Mitigation	Phase		
			C	O	D
		On surface bulk storage of hydrocarbons must be situated in a dedicated area which will include a bund or a drain where necessary to contain any spillages during the use, loading and off-loading of the material; Bund areas shall contain 110% of the stored volume; Bund areas must be impermeable; Bund areas must have a facility such as a valve/sump to drain or remove clean stormwater; Contaminated water shall be pumped into a container for removal by an approved service provider; Regular inspections shall be carried out to ensure the integrity of the bundwalls; All preventative servicing of earth moving equipment and construction vehicles shall be undertaken off site; Runoff from this area shall be contained; Spill kits shall be made available, and all personnel shall be trained on how to use the kits and training records shall be made available on request.			
Surface Water	Increase in silt load in runoff due to site clearing, grubbing and the removal of topsoil from the footprint area associated with the drill sites and associated infrastructure.	Ensure that topsoil is properly stored, away from the streams and drainage areas; No construction activities will be undertaken within 100 metres of the nearby steams and 500 meters from riparian areas without consent from the DWS; Vehicle and personnel movement within watercourses and riparian areas shall be strictly prohibited; Adequate stormwater management must be incorporated into the design of the project in order to prevent contamination of water courses and riparian areas from dirty water.	X	X	X
	Potential deterioration in water quality due to the potential accidental spillages of hazardous substances.		X	X	X
	Debris from poor handling of materials and/or waste blocking watercourses, resulting in flow impediment and pollution.		X	X	X
	Contaminated dirty water runoff to surrounding areas resulting in the impact on local surface water quality.		X	X	X
	Increase of surface runoff and potentially contaminated water that needs to be maintained in the areas where site clearing occurred.		X	X	X

Aspect	Impact	Mitigation	Phase		
			C	O	D
Aquatic Ecosystems	Localised changes to the riparian areas as a result of vegetation clearing.	Adequate stormwater management must be incorporated into the design of the project in order to prevent erosion and the associated sedimentation of the aquatic system; No construction activities shall be allowed within 500 m of riparian zones without consent from the DWS; No vehicles may be allowed to indiscriminately drive through the riparian areas or within the active stream channels; All disturbed areas shall be re-vegetated with indigenous species; All construction materials shall be kept out of the riparian areas; and All vehicles shall be regularly inspected for leaks. Re-fuelling must take place outside the project area, on a sealed surface area to prevent ingress of hydrocarbons into topsoil and aquatic ecosystems	X	X	X
	Loss of habitat and riparian ecological structure as a result of site clearance activities and uncontrolled wetland degradation.		X	X	X
	Impact on the riparian systems as a result of changes to the sociocultural service provisions.		X	X	X
	Increased runoff due to topsoil removal and vegetation clearance leading to possible erosion and sedimentation of wetland and riparian resources.		X	X	X
	Soil compaction and levelling as a result of construction activities and vehicle movement leading to loss of riparian habitat.		X	X	X
	Impact on the hydrological functioning of the riparian systems.		X	X	X
Heritage Resources	The proposed project has the potential to impact on local graves within the area.	Prior to the site establishment, a heritage impact assessment must be undertaken and mitigation and /or management measure for the protection of such resources must be implemented; No construction activities may be undertaken within 50 m of the heritage and/or cultural sites; If archaeological sites or graves are exposed during construction work, it should immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.	X		
	The proposed project has the potential to impact on sites of archaeological importance.		X		
Palaeontological Resources	Drilling of exploratory boreholes has potential to impact on palaeontological resources	Should fossils be exposed during construction work, it should immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.	X	X	
Flora	Loss of localised biodiversity habitats within sensitive areas due to site clearance and establishment of drill sites.	The Contractor shall be on the lookout for SCC and any floral SCC encountered within the development footprint are to be relocated to areas with suitable habitat, outside the disturbance footprint;	X	X	X

Aspect	Impact	Mitigation	Phase		
			C	O	D
	Loss of localised floral species diversity including RDL and medicinal protected species due to site clearance and establishment of drill sites.	Floral species of conservation concern, if encountered within the development footprint, are to be handled with care and the relocation of sensitive plant species to suitable similar habitat is to be overseen by a botanist; The proposed development footprint shall be kept to the minimum; All disturbed areas must be concurrently rehabilitated during construction; Prohibit the collection of any plant material for firewood or medicinal purposes; The existing integrity of flora surrounding the study area shall be upheld and no activities shall be carried out outside the footprint of the construction areas; Edge effect control shall be implemented to avoid further habitat degradation outside of the proposed footprint area; All sensitive open space areas will be demarcated and access into these areas shall be prohibited; Protected floral species occurring within the vicinity of the study area, but outside the disturbance footprint shall be fenced for the duration of the construction activities; Monitoring of relocation success will be conducted during the operational phase; Construction related activities shall be kept strictly within the development footprint; Construction vehicles shall only be allowed on designated roadways to limit the ecological footprint of the project. Alien Invasive Plant Species Management plan to be implemented; Edge effects of activities including erosion and alien/ weed control will be strictly managed in the riparian area; All sites disturbed by construction activities shall be monitored for colonisation by exotic or invasive plants; Exotic or invasive plants shall be controlled as they emerge; An alien vegetation control program must be developed and implemented within all disturbed areas. After removal of alien vegetation, the affected areas must be re-assessed to determine the success of the program and any follow up measures that may be required;	X	X	X
	Potential spreading of alien invasive species as indigenous vegetation is removed, and pioneer alien species are provided with a chance to flourish.		X	X	X

Aspect	Impact	Mitigation	Phase		
			C	O	D
		The eradicated plant material must be disposed of at an approved solid waste disposal site; During post-construction, an alien vegetation removal and monitoring plan must be compiled for those areas which were not effectively rehabilitated; The extent of invasion must be established through investigation to identify priority areas; Priority species shall be identified to control and develop protocols for the removal of all alien species e.g., mechanical removal, herbicidal treatment etc. Mechanical, methods must be favoured for the removal of alien invasive species. Chemical removal shall only be undertaken by a suitably qualified and approved person; and As much vegetation growth as possible must be promoted in order to protect soils. In this regard, special mention is made of the need to use indigenous vegetation species where hydro seeding, rehabilitation planting (where applicable) is to be implemented.			
Fauna	Vegetation clearance may result in loss of faunal habitat ecological structure, species diversity and loss of species of conservation concern.	The proposed development footprint areas shall remain as small as possible and where possible be confined to already disturbed areas; No trapping or hunting of fauna shall be permitted; Edge effects of all construction and operational activities, such as erosion and alien plant species proliferation, which may affect faunal habitat, need to be strictly managed; Should any SCC be encountered within the study area, these species will be relocated to similar habitat within or in the vicinity of the study area with the assistance of a suitably qualified specialist; No informal fires in the vicinity of construction areas shall be permitted; An alien vegetation control plan must be developed and implemented in order to manage alien plant species occurring within the study area, and to prevent further faunal habitat loss.	X	X	
	Habitat fragmentation as a result of construction activities of the access roads leading to loss of floral diversity.		X		
	Loss of faunal diversity and ecological integrity as a result of construction activities, erosion, poaching and faunal specie trapping.		X	X	X
	Movement of vehicles and machinery may result in collision with fauna, resulting in loss of fauna.		X	X	X
Air Quality	Possible increase in dust generation, PM_{10} and $PM_{2.5}$ as a result of bulk earthworks, operation of heavy machinery, and material movement.	Dust suppression measures shall be implemented on dry weather days and periods of high wind velocities;	X	X	X

Aspect	Impact	Mitigation	Phase		
			C	O	D
	Increase in carbon emissions and ambient air pollutants (NO_2 and SO_2) as a result of movement of vehicles and operation of machinery/equipment.	Appropriate dust suppression measures may include spraying with water; Where practical rehabilitation should be undertaken in tandem with the construction activities; A speed limit of 40 km/hr shall apply to limit vehicle entrained dust from the unpaved road; All construction equipment must be scheduled for preventative maintenance to ensure the functioning of the exhaust systems to reduce excessive emissions and limit air pollution; Dust control suppression shall be implemented on dry weather days and periods of high wind velocities; Appropriate dust suppression measures may include limiting the extent of open areas, reducing the frequency of disturbance and spraying with water; Where practical rehabilitation should be undertaken progressively; Materials transported on public roads must be covered; Odours: Putrescible waste must be handled, stored and disposed of before the probability of it generating odours; and Chemical toilets must be emptied / serviced on a regular basis. Proof of this must be provided to the Engineer.	X	X	X
Visual	Scarring of the landscape as a result of the clearance of vegetation.	The number of construction vehicles and machinery to be used shall be kept to a minimum; Movement of vehicles shall be kept to outside busy hours to minimise the visual impacts on the residents; Materials transported on public roads must be covered; and Where possible, rehabilitation of the work areas shall be undertaken in tandem with construction to ensure that areas stripped of vegetation are kept to a minimum.	X	X	
	Visual intrusion as a result of the movement of machinery and the establishment of the required infrastructure.		X	X	X
	Indirect visual impact due to dust generation as a result of the movement of vehicles and materials, to and from the site area.		X	X	X
Noise	The use of vehicles and machinery may generate noise in the immediate vicinity.	Adjacent landowners must be advised of any work that will take place outside of normal working hours, that may be disruptive (e.gw. noise) in advance; Surrounding communities must be notified in advance of noisy construction activities; All equipment should be provided with standard mufflers;	X	X	X

Aspect	Impact	Mitigation	Phase		
			C	O	D
		Muffling units on vehicles and equipment must be kept in good working order. Construction staff working in areas where the 8-hour ambient noise levels exceed 85 Dba should wear ear protection equipment; Where possible, operation of several equipment and machinery simultaneously must be avoided; All equipment must be kept in good working order, with immediate attention being paid to defective silencers, slipping fanbelts, worn bearings and other sources of noise; Equipment must be operated within specifications and capacity (e.g., no overloading of machines); Regular maintenance of equipment must be undertaken, particularly with regard to lubrication; Equipment shall be switched off when not in operation; Appropriate directional and intensity settings must be maintained on all hooters and sirens; The Contractor must ensure that the employees conduct themselves in an appropriate manner while on site; and Noise/vibration producing activities shall be limited to daylight hours (Monday to Friday 07H00 to 17H30 and Saturday 07H00 -14H00). No noise/vibration producing activities shall be undertaken on Saturdays on farms unless this has been agreed to by the farmer.			
Soil, Land use and Land Capability	Localised chemical pollution of soils as a result of vehicle hydrocarbon spillages and compaction.	Contaminated soil shall be removed and disposed of to an appropriate licensed landfill site in terms of NEMWA, or can be removed by a service provider that is qualified to clean the soil; The time in which soils are exposed during construction activities should remain as short as possible; Erosion control measures shall be implemented where deemed necessary; In general, all steep slopes steeper than 1:3 or where the soils are more prone to erosion must be stabilised; If stockpiles are not going to be used immediately the stockpiles shall be rehabilitated to prevent erosion;	X	X	X
	Localised clearing of vegetation and compaction of the construction footprint will result in the soils being particularly more vulnerable to soil erosion.		X		

Aspect	Impact	Mitigation	Phase		
			C	O	D
	Localised loss of resource and its utilisation potential due to compaction over unprotected ground/soil.	Runoff from stockpiles shall be detained in order to support growth of vegetation; Runoff from the stockpiles shall be suitably managed to ensure that the runoff volumes and velocities are similar to pre disturbed levels; Vegetation shall be used to promote infiltration of water into the stockpile instead of increasing runoff; A monitoring programme will be implemented if the stockpiles are not used within the first year whereby the vegetation of the stockpiles is monitored in terms of basal cover and species diversity; If it is noticed that the vegetation on the stockpiles is not sustainable, appropriate corrective actions shall be taken to rectify the situation; Stockpiles shall be maintained until the topsoil is required for rehabilitation purposes; Topsoil stockpiles shall be monitored regularly to identify alien vegetation, which shall be removed as soon as possible to prevent further distribution of any alien vegetation.	X	X	X
	Localised loss of soil and land capability due to reduction in nutrient status - de-nitrification and leaching due to stripping and stockpiling footprint areas.		X	X	
Traffic	Increase in traffic volumes as a result of pre-construction activities which may lead to an increase in traffic congestion along the public roads as well as the farm roads around the prospecting area.	Local speed limits and traffic laws shall apply at all times to minimise the occurrences of accidents on public roads; The number of construction vehicles and trips shall be kept to a minimum; and Where possible the transportation of construction materials and rubbish shall be undertaken outside traffic peak hours to minimise inconveniencing residents.	X	X	X
Climate	Emissions of Green House Gases as a result of the use of plant, heavy moving machinery, generators etc.	All the construction vehicles shall undergo maintenance on a regular basis to improve on the combustion engine vehicle efficiency.	X	X	X
Waste Management	Potential water and soil pollution as a result of inappropriate waste management practices.	*Separation of waste:* All waste shall be separated into general waste and hazardous waste; Hazardous waste shall not be mixed with general waste and in doing so increase the quantities of hazardous waste to be managed; General waste can further be separated into waste that can be recycled and or reused; No littering shall be allowed in and around the site, a sufficient number of bins shall be provided for the disposal of waste;	X	X	X

Aspect	Impact	Mitigation	Phase		
			C	O	D
		Where necessary dedicate a storage area on site for collection of construction waste. *Storage of waste:* No stockpiling of debris shall be permitted within 100 m of any water courses and drainage lines, or within 500 m of wetland and riparian areas; General waste will be collected in an adequate number of litter bins located throughout the construction site; Bins must have lids in order to keep rainwater out; Bins shall be emptied regularly to prevent them from overflowing; All work areas shall be kept clean and tidy at all times; All waste management facilities will be maintained in good working order; Waste shall be stored in demarcated areas according to type of waste; Runoff from any area demarcated for waste will be contained, treated and reused; Flammable substances must be kept away from sources of ignition and from oxidizing agents; No construction rubble shall be disposed of to the riparian area; If construction rubble is not removed immediately, it shall be stockpiled outside the 1:100-year flood line and outside the sensitive wetland and riparian areas; Demolition waste and surplus concrete shall be disposed of responsibly; Waste shall not be buried or burned on site; and The maximum retention time for temporary storage of waste generated shall not exceed 30 days, provided the waste does not present a health hazard or risk of odour. *Disposal of hazardous waste:* No dumping shall be allowed in or near the construction site; Hazardous containers shall be disposed of at an appropriate licensed site; Hazardous waste will be removed and managed by an approved service provider; A safe disposal certificate will be provided by the approved service provider as proof of responsible disposal of hazardous waste; and The safe disposal certificate shall be stored and provided on request.			

Aspect	Impact	Mitigation	Phase		
			C	O	D
		Disposal of general waste: No dumping shall take place in or near the construction site; All general waste shall be disposed of to the nearest licensed landfill site; Demolition waste and builders' rubble shall be disposed of to an appropriate licensed landfill site; and The necessary permissions must be obtained to dispose of builders' rubble to the landfill site.			
Drilling and Vibrations	Impact of drilling ground vibration on houses, boreholes and roads, resulting in possible damage to infrastructure	Drill sites shall be located as far from private property as is possible. Affected property owners shall be notified of any drilling activities before commencement of the activities. Should there be damage to private property as a result of drilling activities, property owners shall be appropriately compensated.		X	
	Fly rock impact on houses, boreholes and roads, resulting in possible damage to infrastructure;			X	

14 Methodology to be used in determining the significance of environmental impacts

The following methodology for determining the significance of environmental impacts will be utilised for the EIA/EMPr phase.

The impact assessment methodology has been formalised to comply with Regulation 31(2) (i) of NEMA, which states the following:

> *(2) An environmental impact assessment report must contain all information that is necessary for the competent authority to consider the application and to reach a decision …, and must include –*
> *(l) an assessment of each identified potentially significant impact, including –*
> *(i)* ***cumulative impacts****;*
> *(ii) the* ***nature*** *of the impact;*
> *(iii) the* ***extent*** *and* ***duration*** *of the impact;*
> *(iv) the* ***probability*** *of the impact occurring;*
> *(v) the* ***degree*** *to which the impact can be* ***reversed****;*
> *(vi) the* ***degree*** *to which the impact may* ***cause irreplaceable loss of resources****; and*
> *(vii) the* ***degree*** *to which the impact can be* ***mitigated****.*

All the identified potential impact will be assessed according to the following Impact Assessment Methodology as described below. This methodology has been utilised for the assessment of environmental impacts where the consequence (severity of impact, spatial scope of impact and duration of impact) and likelihood (frequency of activity and frequency of impact) have been considered in parallel to provide an impact rating and hence an interpretation in terms of the level of environmental management required for each impact.

The first stage of any impact assessment is the identification of potential environmental activities[1], aspects[2] and impacts which may occur during the commencement and implementation of a project. This is supported by the identification of receptors[3] and resources[4], which allows for an understanding of the impact pathway and an assessment of the sensitivity to change. Environmental impacts[5] (social and biophysical) are then identified based on the potential interaction between the aspects and the receptors/resources.

The significance of the impact is then assessed by rating each variable numerically according to defined criteria as outlined in Table 14-2. The purpose of the rating is to develop a clear understanding of influences and processes associated with each impact. The severity[6], spatial scope[7] and duration[8]

[1]An ***activity*** is a distinct process or task undertaken by an organisation for which a responsibility can be assigned. Activities also include facilities or pieces of infrastructure that are possessed by an organisation.

[2]An ***environmental aspect*** is an 'element of an organisations activities, products and services which can interact with the environment'. The interaction of an aspect with the environment may result in an impact.

[3]***Receptors*** comprise but are not limited to people or man-made structures.

[4]***Resources*** include components of the biophysical environment.

[5]***Environmental impacts*** are the consequences of these aspects on environmental resources or receptors of value or sensitivity, for example, disturbance due to noise and health effects due to poorer air quality. Receptors can comprise, but are not limited to, people or human-made systems, such as residents, communities and social infrastructure, as well as components of the biophysical environment such as aquifers, flora and palaeontology. In the case where the impact is on human health or well-being, this should be stated. Similarly, where the receptor is not anthropogenic, then it should, where possible, be stipulated what the receptor is.

[6]***Severity*** refers to the degree of change to the receptor status in terms of the reversibility of the impact; sensitivity of receptor to stressor; duration of impact (increasing or decreasing with time); controversy potential and precedent setting; threat to environmental and health standards.

[7]***Spatial scope*** refers to the geographical scale of the impact.

[8]***Duration*** refers to the length of time over which the stressor will cause a change in the resource or receptor.

of the impact together comprise the consequence of the impact and when summed can obtain a maximum value of 15. The frequency of the activity9 and the frequency of the impact10 together comprise the likelihood of the impact occurring and can obtain a maximum value of 10. The values for likelihood and consequence of the impact are then read off a significance rating matrix table as shown in Table 14-1. This matrix thus provides a rating on a scale of 1 to 150 (low, medium low, medium high or high) based on the consequence and likelihood of an environmental impact occurring.

Natural and existing mitigation measures, including built-in engineering designs, are included in the pre-mitigation assessment of significance. Measures such as demolishing of infrastructure, and reinstatement and rehabilitation of land, are considered post-mitigation.

Table 14-1: Criteria for Assessing Significance of Impacts

SEVERITY OF IMPACT	**RATING**
Insignificant / non-harmful	1
Small / potentially harmful	2
Significant / slightly harmful	3
Great / harmful	4
Disastrous / extremely harmful	5

SPATIAL SCOPE OF IMPACT	**RATING**
Activity specific	1
PRA specific (within the PRA boundary)	2
Local area (within 5 km of the PRA boundary)	3
Regional	4
National	5

DURATION OF IMPACT	**RATING**
One day to one month	1
One month to one year	2
One year to ten years	3
Life of operation	4
Post closure / permanent	5

CONSEQUENCE

FREQUENCY OF ACTIVITY / DURATION OF ASPECT	**RATING**
Annually or less / low	1
6 monthly / temporary	2
Monthly / infrequent	3
Weekly / life of operation / regularly / likely	4
Daily / permanent / high	5

FREQUENCY OF IMPACT	**RATING**
Almost never / almost impossible	1
Very seldom / highly unlikely	2
Infrequent / unlikely / seldom	3
Often / regularly / likely / possible	4
Daily / highly likely / definitely	5

LIKELIHOOD

[9] ***Frequency of activity*** refers to how often the proposed activity will take place.

[10] ***Frequency of impact*** refers to the frequency with which a stressor (aspect) will impact on the receptor.

Table 14-2: Impact Significance Rating

Consequence

Likelihood															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45
4	8	12	16	20	24	28	32	36	40	44	48	52	56	60
5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
6	12	18	24	30	36	42	48	54	60	66	72	78	84	90
7	14	21	28	35	42	49	56	63	70	77	84	91	98	105
8	16	24	32	40	48	56	64	72	80	88	96	104	112	120
9	18	27	36	45	54	63	72	81	90	99	108	117	126	135
10	20	30	40	50	60	70	80	90	100	110	120	1	140	150

	High	76 to 150	Improve current management
	Medium High	40 to 75	Maintain current management
	Medium Low	26 to 39	
	Low	1 to 25	No management required

SIGNIFICANCE = CONSEQUENCE x LIKELIHOOD

15 The positive and negative impacts that the proposed activity and alternatives

Refer to Section 13 for the positive and negative impacts identified for the proposed project. A detailed assessment of the positive and negative impacts associated with the project will be developed and included in the specialist studies reports and incorporated into the EIA/ EMPr Report.

16 Possible mitigation measures that could be applied and the level of risk

Refer to Section 13 for the positive and negative impacts identified for the proposed prospecting project. It is anticipated that the management measures associated with the activities will be adequate to manage the impacts associated with the project. This will be further assessed during the EIA/EMPr phase. Detailed mitigation and management measures of the positive and negative impacts associated with the project will be developed and included in the EIA/ EMPr Report.

17 The outcome of the site selection matrix

The location of the proposed project is constrained to the location of the manganese and iron ore deposit. Literature survey has suggested that the prospecting right area has potential for manganese and iron mineralisation. The geology of the area supports mineralisation of the targeted deposit. The site is therefore regarded as the preferred site and as such, no property alternatives were viable to be considered for this project.

The scoping assessment that has been conducted for the project shows that there are no fatal flaws associated with the project location. However, should sensitive environments such as heritage resources, SCC etc be affected by the project layout, the site layout plan will be revised.

18 Motivation where no alternatives were considered

The location of the proposed project is constrained to the location of the manganese and iron ore deposit. Literature survey has suggested that the prospecting right has potential for manganese and iron mineralisation. The geology of the area supports mineralisation of the targeted deposit. The site is therefore regarded as the preferred site and as such, no property alternatives were viable to be considered for this project.

The scoping assessment that has been conducted for the project shows that there are no fatal flaws associated with the project location. However, should sensitive environments such as heritage resources, SCC etc be affected by the project layout, the site layout plan will be revised.

19 Statement motivation the preferred site

The location of the proposed project is constrained to the location of the manganese and iron ore deposit. Literature survey has suggested that the prospecting right has potential for manganese and iron mineralisation. The geology of the area supports mineralisation of the targeted deposit. The site is therefore regarded as the preferred site and as such, no property alternatives were viable to be considered for this project.

The scoping assessment that has been conducted for the project shows that there are no fatal flaws associated with the project location. However, should sensitive environments such as heritage resources, SCC etc be affected by the project layout, the site layout plan will be revised

20 Plan of study for the environmental impact assessment process

20.1 Description of alternatives to be considered including the option of not going ahead with the activity

According to the MPRDA and NEMA regulations, feasible alternatives need to be considered and assessed during the Scoping and Impact Assessment Phase of the project. The alternatives identified must serve to achieve the triple bottom-line of sustainability i.e., they must meet the social, economic and ecological needs of the public. The alternatives must also aim to address the key significant impacts of the proposed project by maximizing benefits and avoiding or minimizing the negative impacts. The primary objective must be to avoid all negative impacts, rather than to minimise them.

The “feasibility” and “reasonability” of and the need for alternatives must be determined by considering, inter alia:

- The general purpose and requirements of the activity;
- Need and desirability;
- Opportunity costs;
- The need to avoid negative impact altogether;
- The need to minimise unavoidable negative impacts;
- The need to maximise benefits, and
- The need for equitable distributional consequence.

Refer to Section 9 for consideration of alternatives.

20.2 Description of aspects to be assessed as part of the environmental impact assessment process

The proposed infrastructure and activities will be located within the property boundaries shown in Section 4.1. The key infrastructure provided in Section 5 will form part of the proposed project as the infrastructure footprints (and associated infrastructure footprints) and surrounding areas will need to be assessed by specialists during the impact assessment phases of the project. The specialist studies and impact assessment process will also include an assessment of the project alternatives described in Section 9 of this report.

20.3 Description of aspects to be assessed by specialists

The following specialist studies based on mentioned aspects and the findings from the DFFE screening tool will be assessed further during the EIA phase investigation to be undertaken:

- Surface Water and Floodline determination;
- Geohydrology;
- Wetland Study;
- Soil and Land Capability;
- Heritage and Palaeontology Study;
- Visual Impact Assessment;
- Biodiversity;

In addition, the following will continue during the EIA phase:

- Public participation and consultation;
- Environmental Management Programme;
- Comparative alternatives assessment;
- Amend site layout designs and Mining Works Programme, if required.

Certain impacts that are anticipated to be of limited or lower significance, either by virtue of the scale of the impacts, their short duration (e.g., construction phase only), disturbed nature of the receiving environment and/or distance to communities, will be assessed by EAP Team and have been reported directly into the EIA Report.

The EAP will make use of the impact assessment methodology described in Section 14 and will ensure that the specialist studies reports comply with the requirements of Appendix 6 of the NEMA.

20.4 Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives

Refer to Section 14 which provides a description of the methodology to be used in the assessment of environmental impacts.

20.5 The proposed method of assessing duration significance

Refer to Section 14 which provides a description of the methodology to be used in the assessment duration of significance.

20.6 The stages at which the Competent Authority will be consulted

The consultation process to be followed with the DMR as part of the review and decision-making stages include:

- Scoping review and decision-making stage (Draft and Final);
- Environmental impact assessment review and decision-making stage (draft and final); and
- The environmental authorisation decision making and appeal process stage.

20.7 Particulars of the public participation process with regard to the impact assessment process that will be conducted

The Public Participation Process will be ongoing throughout the project phases. The stakeholder engagement proposed for the Impact Assessment Phase is presented below.

20.7.1 Stakeholder engagement during impact Assessment phase

Stakeholders will be informed once the competent authority (DMR) has accepted the Scoping Report and given permission for the commencement of the impact assessment phase of the process.

Stakeholder engagement during the impact assessment phase will focus on providing information and opportunity for public comment on the findings of the specialist studies and the findings and recommendations, impact assessment and management programme. The draft findings will be presented in the Draft EIA / EMPr Report to be commented on by the public.

The availability of the Draft EIA/ EMPr Report for public comment will be announced in the same newspaper as for project announcement.

Registered I&APs will be informed through notification letters distributed by email in advance of the report being made available. Should it be required, stakeholders will be invited to a public meeting where the contents of the Draft EIA/EMPr will be presented and discussed. Stakeholders will have an opportunity to review and comment on the Draft EIA/EMPr Report in any of the following ways:

- By completing comments forms available with the report at public places, and by submitting additional written comments, by email or fax, or by telephone, to the EAP; and
- The draft EIA/EMPr Report will be available for comment for a period of 30 days at public places in the project area as per the announcement and scoping phase and placed on the Ndi Geological Consulting Services (Pty) Ltd website.

Depending on the responses received during the registration period, and where requested by the stakeholders, a public meeting may be held during the impact assessment phase of the project, ensuring that the COVID-19 Regulation requirements are met. Stakeholders will be informed of the COVID-19 Regulation requirements, if any, that will be enforced during the meeting.

Where necessary, comments and issues raised by I&APs during the commenting period will be consolidated into the Final EIAR and EMPr with the relevant response issued by the EAP. The Final EIAR and EMPr will then be submitted to the DMR for decision making. The comments will also be collated into the comments and responses table that will be included in the Final EIAR.

20.7.2 Notification of authority decision

Registered stakeholders will be advised in writing (mail, email, fax and SMS) of the authority decision on the EIA / EMPr. The notification will include details on the procedure to appeal the decision relating to each authorisation.

Notification to registered stakeholders will summarise the authorities' decision and provide information according to legal requirements on how to lodge an appeal should they so wish.

20.8 Description of the tasks that will be undertaken during the environmental impact assessment process

The following activities will take place as part of the planned environmental authorisation process going forward:

- Develop the Final Scoping Report once comments and feedback have been received from stakeholders and authorities;
- Conduct the Specialist Studies and Impact Assessment according to the impact assessment methodology as provided in Section 14;
- Develop specialist recommendations: Findings from the specialist studies will be summarised in the EIA/EMPr Report;
- Develop an EMPr: The EMPr will be compiled to mitigate the impacts identified in the impact assessment;
- Provide stakeholder feedback on the assessment phase in accordance with the approach that is proposed in Section 10 of this report;
- Submit the draft EIA/EMPr for stakeholder and authority review: The Final EIA/EMPr will be submitted to the relevant authorities following the incorporation of stakeholder comments; and
- Communicate the decision on the application for the PRA and EA/WML to registered stakeholders.

20.9 Measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored

Detailed mitigation and management measures of the positive and negative impacts associated with the project will be developed and included in the EIA/ EMPr Report. Section 13 provides a preliminary assessment of potential impacts and mitigation measures that may be implemented to minimise, reverse or manage the identified impacts.

20.10 Other information required by the Competent Authority

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

No specific report was generated for the purposes of the socio-economic conditions. Current land uses inside the prospecting area, agriculture, may be temporarily impacted through the presence of the fenced areas that drill rigs will operate within. These will, however, be small areas that will be rehabilitated post drilling activities and the areas will once again become available for agriculture. Other potential socio-economic impacts will include:

- Nuisance noise due to onsite activities and drilling;
- Poor access control resulting in impacts on farming activities;
- Influx of jobseekers to site, which may result in an increase in opportunistic crime;
- Uncontrolled access to private property outside of the demarcated boundaries; and
- Visual impact as a result of the vegetation clearance.

Prospecting will be undertaken by specialist sub-contractors, and it is not anticipated that employment opportunities for local and/or regional communities will result from the prospecting activities during the drilling phases.

Management and mitigation measures must be implemented to prevent environmental pollution which may impact on environmental resources utilised by communities, landowners and other stakeholders. Measures to manage the potential impacts on communities, individuals or competing land uses in close proximity include;

<u>Noise due to construction activities and drilling:</u>

- Directly affected and adjacent landowners and land occupiers must be informed of the planned dates of the drilling activities and a grievance lodging mechanism must be made available to the stakeholders.
- Site activities shall be concluded during daytime hours (0700 to 1730), to avoid night-time noise disturbances and night-time collisions with fauna.

<u>Poor access control resulting in impacts on farming activities:</u>

- Access control procedures must be agreed on with the farm owners and all on site personnel shall be trained on these procedures.

<u>Influx of job seekers to the site which may result in increased opportunistic crime:</u>

- Casual labour shall not be recruited at the site. This will eliminate the incentive for people to travel to site seeking employment. Where necessary, a recruitment centre may be established in the major town areas;

- The landowners shall be notified on unauthorised persons encountered on site; and
- Where necessary, the South African Police Service (SAPS) will be notified of unauthorised persons encountered on site.

Visual Impact:

- Dust suppression will be undertaken to manage nuisance dust from construction vehicle movements and other construction activities as and when necessary;
- The portable ablution facilities and any other infrastructure will be acquired with a consideration for colour. Natural earth, green and mat black options which blend with the surrounding must be favoured;
- A waste management system will be implemented, and sufficient waste bins will be provided for onsite. A fine system must be implements to further prohibit littering and poor housekeeping practices; and
- Vegetation cover shall be used where drill rigs will be located to minimise visual impacts.

These issues will be assessed and discussed in detail during the EIA phase.

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

The Northern Cape is rich in archaeological sites and landscapes that reflect the complex South African heritage from the Stone Age to Colonial history. Within the region, Stone Age sites and complexes have been, and are still being investigated in some detail.

A site specific HIA will be conducted by a specialist as part of the impact assessment phase.

20.10.3 Other matters required in terms of Sections 24(4)(a) and (b) of the Act

Section 24(4)(b)(i) of the NEMA (as amended), provides that an investigation must be undertaken of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity. Alternatives have been discussed in Section 9 of this draft Scoping Report and will be addressed in detail during the impact assessment phase once the specialist assessments and comments from I&APs, stakeholders and the competent authorities have been received.

21 Undertaking regarding correctness of information

I Ndivhudzannyi Mofokeng herewith undertake that the information provided in the foregoing report is correct, and that the comments and inputs from stakeholders and Interested and Affected parties has been correctly recorded in the report.

Signature of the EAP

DATE: 2022/07/07

22 Undertaking regarding level of agreement

I, Ndivhudzannyi Mofokeng herewith undertake that the level of agreement with interested and Affected Parties and stakeholders has been correctly recorded and reported herein.

Signature of the EAP

DATE: 2022/07/07

23 Statement of Ndi Geological Consulting Independence

Neither Ndi Geological Consulting Services (Pty) Ltd nor any of the authors of this report have any material present or contingent interest in the outcome of this report, nor do they have any pecuniary or other interest that could be reasonably regarded as being capable of affecting their independence or that of Ndi Geological Consulting Services (Pty) Ltd.

Ndi Geological Consulting Services (Pty) Ltd has no prior association with Refentse regarding the proposed prospecting activities that are the subject of this report. Ndi Geological Consulting Services (Pty) Ltd has no beneficial interest in the outcome of the technical assessment being capable of affecting its independence.

Ndi Geological Consulting Services (Pty) Ltd.'s fee for completing this report is based on its normal professional daily rates plus reimbursement of incidental expenses. The payment of that professional fee is not contingent upon the outcome of the report.

24 Conclusion

The aim of this Scoping Report is to provide an indication of the identified, positive and negative environmental and socio-economic impacts associated with the proposed project activities. The stakeholder engagement in the Scoping Phase will play an important role in determining possible impacts and allowing the concerns by the public to be adequately addressed in the Impact Assessment Phase of the EIA process. The Draft Scoping Report has presented:

- The environmental assessment process undertaken so far;
- A brief description of the proposed project;
- A baseline description of the current environment;
- The potential environmental and social impacts identified to date; and
- The recommended environmental process to be followed to develop the EIA/EMPr Report (Plan of Study).

A comprehensive public involvement process will be implemented during scoping. The EIA process is; however, iterative and therefore additional potential issues/impacts and alternatives may be identified during the impact assessment phase that may require further investigation/consideration. Once the Scoping Report comment period is concluded, the report will be updated with the additional issues, and submitted to DMR. An EIA/ EMPr Report will be compiled and subjected to a round of public comment. The EIA will then be presented to the authorities for decision-making. On submission of the EIA/ EMPr Report to the DMR, notification will be sent to registered I&APs to inform them of the submission of the documents; and the opportunity to request copies of the Final reports.

Extensive consideration has been given to the proposed design of the project. No fatal flaws have been identified during the scoping phase of this project. A comprehensive impact assessment will be undertaken and incorporated into the EIA/EMPr Report during the impact assessment phase. The proposed comprehensive stakeholder engagement process in the PoS will ensure that the stakeholders are involved in the process, from the conception of the EA/WML application process to the end. It is anticipated that implementation of the PoS presented in this report will result in an adequate EIA process which will result in the formulation of a sound EMPr to be implemented at the proposed mine.

It is anticipated that implementation of the PoS presented in this report will result in an adequate EIA process which will result in the formulation of a sound EMPr to be implemented throughout the prospecting activities by Refentse.

The process followed during the detailed impact assessment phase will meet the requirements of the legislation to ensure that the DMR receives enough information to enable informed decision-making.

All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

Appendices

Appendix 1: EAP Qualifications

Appendix 2: EAP CV

Appendix 3: Locality Map

Appendix 4: Listed Activity Map

Appendix 5: Stakeholder Engagement Documentation