



REPORT

NATIONAL TREASURE MINERALS (PTY) LTD

BASIC ASSESSMENT REPORT PROSPECTING RIGHT
APPLICATION – GP 30/5/1/1/2/10691 PR

DRAFT REPORT FOR REVIEW

REPORT REF: 21-1384-AUTH (RHENOSTERFONTEIN 10691 PR)

PROSPECTING RIGHT APPLICATION FOR IRON ORE IN RESPECT OF PORTIONS 1,4,6,7,8,10 AND THE REMAINING PORTION OF THE FARM RHENOSTERFONTEIN 210 JR, PORTION 3 AND THE REMAINING EXTENT OF THE FARM NAAUWPOORT 208 JR.

VERSION BB

2021/07/26



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DISCLAIMER:

This is a legally binding document and many of the actions and recommendations remain the responsibility of the client (as the owner/lessee of the property).

EAP - was independent and performed the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the application; have expertise in conducting environmental impact assessments or undertaking specialist work as required, including knowledge of the Act, these Regulations and any guidelines that have relevance to the proposed activity; ensure compliance with these Regulations.

Take into account, to the extent possible, the matters referred to in regulation 18 when preparing the application and any report, plan or document relating to the application; disclose to the proponent or applicant, registered interested and affected parties and the competent authority all material information in the possession of the EAP and, where applicable, the specialist, that reasonably has or may have the potential of influencing.

The findings, results, observations, conclusions and recommendations provided in this report are based solely on the information provided to Eco Elementum (Pty) Ltd by the Client and other external sources (including previous site investigation data and external scientific studies). The opinions expressed herein apply to the site conditions and features which existed at the time of commencement of the investigations and production of this report.

The author has utilised his/her best scientific and professional knowledge in preparing this report and the content herein contained is and remains confidential in nature, save where otherwise ordered by a Court of law.

Whilst Eco Elementum (Pty) Ltd exercises due care and diligence in rendering the services and preparing this report, the accuracy of the content herein contained is reliant on the accuracy, correctness and completeness of information and/or data supplied to it by the Client. In this regard, Eco Elementum (Pty) Ltd accepts no liability for any loss and/or damages arising out of the inaccuracy of this report in instances where the information and/or data provided to it by the Client is found to be inaccurate, incorrect and/or incomplete.



EXECUTIVE SUMMARY

National Treasure Minerals (Pty) Ltd (the applicant) applied for a prospecting right for Iron Ore to the Regional Department of Mineral Resources and Energy (“DMRE” Gauteng) in respect of Portions 1,4,6,7,8,10 and the Remaining Portion of the farm Rhenosterfontein 210 JR, portion 3 and the remaining extent of the farm Naauwpoort 208 JR situated in the City of Tshwane Municipality Gauteng Province. of South Africa. The application originally included an additional farm, which the department has come back and requested the farm to be excluded as it is part of an existing application, the original extent of prospecting application area was 10 000ha (Refer to Prospecting Works Programme) and has not been reduced to 7 350ha. (Figure 3-1, Figure 3-2, Figure 3-3). The full extent of the drill site will also be demarcated, and no drilling will be done outside of the boundary. The study area is located roughly 22 km south of Rust de Winter in Region 5 of the City of Tshwane Municipality (CoT).

The proposed project aims at determining if economically viable mineral deposits exist within the application area. In order to undertake prospecting activities National Treasure Minerals (Pty) Ltd requires a Prospecting Right in terms of the Mineral and Petroleum Resources Development Act (MPRDA, Act No.28 of 2002). The Applicant is also required to obtain an Environmental Authorisation (EA) in terms of the National Environmental Management Act (NEMA, Act No. 107 of 1998) which involves the submission of a Basic Assessment Report (BAR).

Eco Elementum (Pty) Ltd (Eco Elementum) has been appointed by National Treasure Minerals (Pty) Ltd to compile the Basic Assessment Report (BAR) (this report) in support of the Prospecting Right application.

Table 1-1: Basic Assessment Timeline followed

Date	Basic Assessment timeline
N/A	Prospecting Right Application on SAMRAD.
25/03/2021	Acceptance received from DMR.
27/07/2021 – 26/08/2021	30-day Public Participation started for the Basic Assessment Process.
30/08/2021	Submission of the Final Basic Assessment Report to the DMRE.

The obtaining of a prospecting right from the Department of Mineral Resources and Energy is governed by the Mineral and Petroleum Resources Development Act (MPRDA, no 28 of 2002). The MPRDA requires compliance with related legislation, specifically the National Environmental Management Act of 1998. This Basic Assessment Report includes, amongst others, the following information as required in terms of the MPRDA:

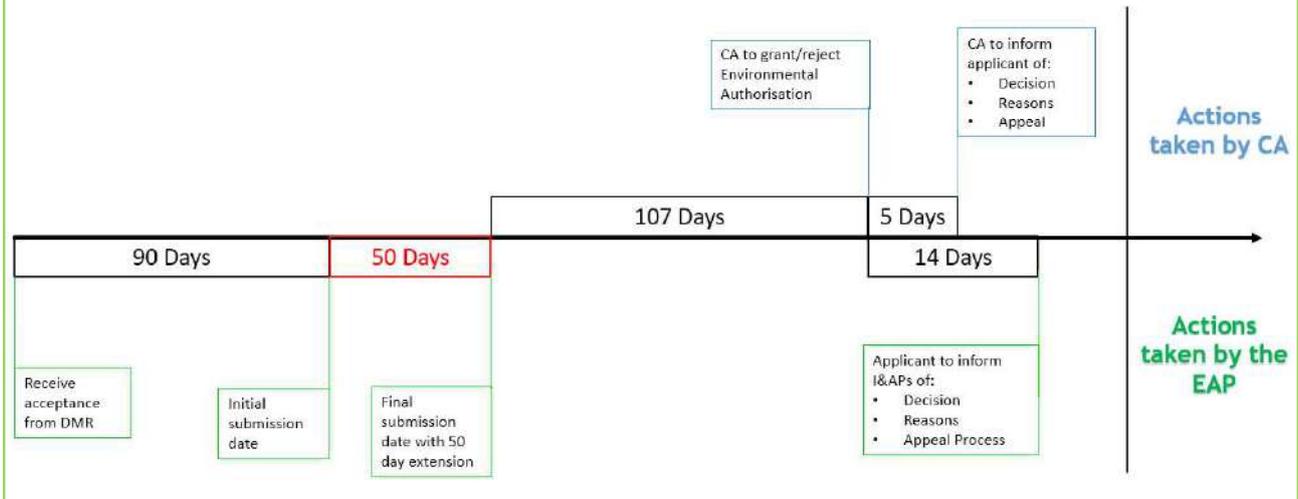
- A description of the environment likely to be affected by the proposed prospecting activities;
- An assessment of potential impacts on the environment, socio-economic conditions, and cultural and heritage aspects;
- A summary of the potential significance of identified impacts;
- Proposed mitigation and management measures to minimise adverse impacts and to optimise benefits; and
- Planned monitoring and performance assessment of the EMP and Rehabilitation measures of areas disturbed during prospecting.

PROJECT SCHEDULE

A BA process should be undertaken for project activities that are included under Listing Notices 1 and 3. Impacts of these activities are more generally known and can often be mitigated or easily managed. The BA process is generally shorter and less onerous than the S&EIR process. The BA process must follow the procedure as prescribed in Regulations 19 to 20. The following diagram outlines the steps that should be followed in undertaking a BA process. Once approved as based on the basic assessment process timeline, the prospecting can take one to five years. Then, after prospecting the mining right application process is another 300 days before the mining right application is approved or not approved.



Basic Assessment Process



The following specialist studies were undertaken, and recommendations included:

List of Studies Undertaken	Recommendations of Specialist Reports
Archaeological Desktop study	<ul style="list-style-type: none"> - Although the 15 demolished sites dating to 1961 appear not to be associated with surface remains, subsurface culturally significant material might be present. Therefore, it is recommended that these sites be avoided by the proposed prospecting activities. Should this not be possible, a qualified archaeologist should be present on-site during prospecting in order to limit potential impact on heritage resources. - The one intact site dating to 1961 might be of cultural significance as the possibility exists that the associated buildings and structures exceed 60 years of age. It is therefore recommended that this area be avoided by the proposed prospecting activities. Should this not be possible, a qualified archaeologist should be present on-site during prospecting in order to limit potential impact on heritage resources. - The 10 sites dating to 1984 are of contemporary origin and are unlikely to be significant from a heritage perspective. - The 500 m buffer zone surrounding perennial/non-perennial rivers is potentially sensitive from a heritage perspective. Care should be exercised when prospecting in this vicinity. - The gradient buffer zone that is associated with steep contours is potentially sensitive from a heritage perspective. Care should be exercised when prospecting in this vicinity. - It is advised that a qualified archaeologist be contacted whenever uncertainty regarding potential heritage remains exists. - Prospecting should not take place in the vicinity of stone cairns, potential burial sites, stone-walling, building ruins or any other heritage material or structures. - Should the prospecting outcome result in further development or construction, a full Phase 1 Archaeological Impact Assessment must be conducted on the affected area if triggered. Also, a full Phase 1 AIA must be done should the cumulative impact of the proposed prospecting exceed 0.5 ha.
Ecological Desktop Study	<ul style="list-style-type: none"> - It is expected that primary vegetation will be present in the study area, with habitat assumed suitable for several red-data species. - Further, the ecological state of areas to the west of the site and a portion to the east are currently delineated as Irreplicable areas by the Gauteng C Plan V33, some areas in the center of the site are delineated as Ecological Support Area. Primary vegetation, will need to be verified. Even modified areas, currently seen as ESAs, may be very important as habitat itself or to maintain Irreplicable areas habitat and species therein.

REGISTERED LANDOWNER

The registered owners of the farms were listed as follows:



Table 1-2: Directly affected landowners

	Landowner	Farm Portion
1.	BRUTON PLACE PTY LTD	in respect of portion 1 of the farm Rhenosterfontein, 210JR.
2.	MARJOLENE EIENDOMME TRUST	in respect of portion 4 the farm Rhenosterfontein, 210JR.
3.	MAIN STREET 1058 PTY LTD	in respect of portion 6 of the farm Rhenosterfontein, 210JR.
4.	BRUTON PLACE PTY LTD	in respect of portion 7 of the farm Rhenosterfontein, 210JR.
5.	SPRINGBOK PROJEKBESTUUR & KONSTRUKSIE PTY LTD	in respect of portion 8 of the farm Rhenosterfontein, 210JR.
	SPRINGBOK PROJEKBESTUUR & KONSTRUKSIE PTY LTD	in respect of portion 10 of the farm Rhenosterfontein, 210JR.
	MOUNTAIN VIEW 464 PTY LTD	in respect of the remaining extent of the farm Rhenosterfontein, 210JR.
	NOKENG FLUORSPAR MINE (RF) PTY LTD	respect of portion 3 of the farm Naauwpoort , 208 JR
	ERICHSEN WILDSPLAAS PTY LTD	respect of the remaining extent of the farm Naauwpoort, 208 JR



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Definition of Terms

Audit	a systematic, independent and documented review of operations and practises to ensure that relevant requirements are met. Qualified professionals with relevant auditing experience should conduct audits and, where possible, independent external auditors should also be used.
Borehole	is a narrow <u>shaft bored</u> in the ground, either vertically or horizontally. A borehole may be constructed for many different purposes, including the extraction of water or other liquid (such as <u>petroleum</u>) or gases (such as <u>natural gas</u>), as part of a <u>geotechnical investigation</u> , <u>environmental site assessment</u> , <u>mineral exploration</u> , temperature measurement, as a pilot hole for installing piers or underground utilities, for geothermal installations, or for underground storage of unwanted substances, e.g. in <u>Carbon capture and storage</u> .
Clean Water	clean water is any water that has maintained the chemical, physical, and biological integrity of the waters by preventing point and nonpoint pollution sources.
Compliant Conservation	a full achievement of the performance requirement of a particular condition of the license or programme in relation to a water resource means the efficient use and saving of water, achieved through measures such as water saving devices, water-efficient processes, water demand management and water rationing;
Construction	the time period that corresponds to any event, process, or activity that occurs during the Construction phase (e.g., building of site, buildings, and processing units) of the proposed project. This phase terminates when the project goes into full operation or use.
Corrective Action Plan	an action plan developed by the proponent, contractor, or facility owner and approved by the external auditor that describes how the contractor or facility owner intends to resolve the non-conforming item. The Corrective Action Plan should be specific, measurable, achievable, realistic, and timely.
Director-General Effluent	means the Director-General of the Department; is defined by the <u>United States Environmental Protection Agency</u> as "wastewater - treated or untreated - that flows out of a treatment plant, sewer, or industrial outfall. Generally refers to wastes discharged into surface waters". The Compact Oxford English Dictionary defines effluent as "liquid waste or sewage discharged into a river or the sea". Effluent in the artificial sense is in general considered to be <u>water pollution</u> .
Environmental Audit Report	a summary report prepared after an environmental audit that describes the attributes of the audit and the audit findings and conclusions.
Environmental Authorisation Environmental Component	is an environmental authorisation issued by a state department. an attribute or constituent of the environment (i.e., air quality; marine water; waste management; geology, seismicity, soil, and groundwater; marine ecology; terrestrial ecology, noise, traffic, socio-economic) that may be impacted by the proposed project.
Environmental Impact	a positive or negative condition that occurs to an environmental component as a result of the activity of a project or facility. This impact can be directly or indirectly caused by the project's different phases (i.e., Construction, Operation, and Decommissioning).
Groundwater	is the <u>water</u> located beneath the earth's surface in <u>soil pore</u> spaces and in the <u>fractures</u> of <u>rock formations</u> . A unit of rock or an unconsolidated deposit is called an <u>aquifer</u> when it can yield a usable quantity of water. The depth at which soil pore spaces or fractures and voids in rock become completely saturated with water is called the <u>water table</u> . <u>Groundwater is recharged</u> from, and eventually flows to, the surface naturally; natural discharge often occurs at <u>springs</u> and <u>seeps</u> , and can form <u>oases</u> or <u>wetlands</u>
Non-conformance	constitutes a non-compliance, or an action plan or initial actions taken without tangible deliverables. Non-conformance may also be associated with activities breaching legislation. Non-Conformance findings therefore have a high priority and mitigation measures are mandatory.
Operation	the time period that corresponds to any event, process, or activity that occurs during the operation (i.e., fully functioning) phase of the proposed project or development. (The operation phase follows the Construction phase, and then terminates when the project or development goes into the Decommissioning phase.)
Partially Compliant	achievement with shortcomings (such as documented proof and or work in progress) and achievement where there is an obvious shortcoming in the delivery of the performance requirement.
Pollution	is the introduction of <u>contaminants</u> into the natural environment that cause adverse change. Pollution can take the form of <u>chemical substances</u> or <u>energy</u> , such as noise, heat or light. <u>Pollutants</u> , the components of pollution, can be either foreign substances/energies or naturally occurring contaminants. Pollution is often classed as <u>point source</u> or <u>nonpoint source pollution</u> .
Protection	in relation to a water resource, means - (a) Maintenance of the quality of the water resource to the extent that the water resource may be used in an ecologically sustainable way; (b) Prevention of the degradation of the water resource; and (c) the rehabilitation of the water resource;
Proponent	the person, company, or agency that is the primary responsible party for a development project and that is the permit applicant/holder for the project.
Rehabilitation Responsible Authority	is the act of restoring something to its original state; in relation to a specific power or duty in respect of water uses, means - (a) if that power or duty has been assigned by the Minister to a catchment management agency, that catchment management agency; or (b) if that power or duty has not been so assigned, the Minister;
Water Resource Wetland	includes a watercourse, surface water, estuary, or aquifer; means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.



Abbreviations

CARA:	Conservation of Agricultural Resources Act, 43 of 1983
DEA:	Department of Environmental Affairs (The former Department of Environmental Affairs and Tourism)
DMR:	The Department of Mineral Resources (The former Department of Minerals and Energy)
DWA:	Department of Water Affairs (Is now referred to the Department of Water and Sanitation – DWS)
EA:	Environmental Authorisation
ECO:	Environmental Control Officer
EIA:	Environmental Impact Assessment
ELCA:	Environmental Legal Compliance Assessment
EMP:	Environmental Management Plan
EMPPA:	Environmental Management Programme Performance Assessment
EMPR:	Environmental Management Programme
EMS:	Environmental Management System
GM:	General Manager
GN:	Government Notice
I&AP:	Interested & Affected Parties
IEM:	Integrated Environmental Management Series
ISO:	International Standards Organisation
IWULA:	Integrated Water Use Licence Application
IWUL:	Integrated Water Use License
IWWMP:	Integrated Water and Waste Management Plan
KG:	Knowledge Gap
MOC:	Management of Change
MPRDA:	Mineral and Petroleum Resources Development Act, 28 of 2002
MR:	Mining Right
N/R:	Applicable, but not required at the time of the audit
NEMA:	National Environmental Management Act, 107 of 1998
NEMAQA:	National Environmental Management: Air Quality Act, 39 of 2004
NEMBA:	National Environmental Management: Biodiversity Act, 10 of 2004
NEMWA:	National Environmental Management: Waste Act, 59 of 2008
NC:	Non-conformance
NHRA:	National Heritage Resources Act, 25 of 1999
NWA:	National Water Act, 36 of 1998
RWD:	Return Water Dam
ROM:	Run of Mine
SAHRA:	South African Heritage Resources Authority
SHEQ:	Safety, Health, Environment and Quality
SLP:	Social and Labour Plan
SOP:	Standard Operating Procedure
SWMP:	Strategic Water Management Plan
WSA:	Water Services Act, 108 of 1997
WUL:	Water Use Licence





mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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: National Treasure Minerals (Pty) Ltd

PHYSICAL ADDRESS: 213 Waterkloof , Pretoria, 0181

FILE REFERENCE NUMBER SAMRAD: **GP 30/5/1/1/2/10691 PR**



1. IMPORTANT NOTICE

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

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

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

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

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



2. OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

- a. determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;
- b. identify the alternatives considered, including the activity, location, and technology alternatives;
- c. describe the need and desirability of the proposed alternatives,
- d. through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine:
 - i. the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
 - ii. the degree to which these impacts—
 - aa. can be reversed;
 - bb. may cause irreplaceable loss of resources; and
 - cc. can be managed, avoided or mitigated;
- e. through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—
 - i. identify and motivate a preferred site, activity and technology alternative;
 - ii. identify suitable measures to manage, avoid or mitigate identified impacts; and
 - iii. identify residual risks that need to be managed and monitored.



PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT



3. CONTACT PERSON AND CORRESPONDENCE ADDRESS

3.a DETAILS OF

3.a.i Details of the EAP

Name of The Practitioner: Ms. Jane Mahaba
 Tel No.: 012 807 0383
 Fax No. : 086 714 5397
 e-mail address: jane@ecoe.co.za

3.a.ii Expertise of the EAP.

3.a.ii.1 The qualifications of the EAP

Name	Vernon
Surname	Siemelink
Company	Eco Elementum (Pty) Ltd
Position	Director – Senior Environmental Consultant
Location	361 Oberon Ave, Glenfield Office Park, Nikka Building, 1st Floor, Faerie Glen, Pretoria, 0081.
Email	vernon@ecoe.co.za
Telephone Number	072 196 9928/ 012 348 5214
Education	<p>M (EnvMan) - Masters in Environmental Management Master's Degree at University of Pretoria in Pretoria, South Africa (Gauteng)</p> <p>BSSc. GeoScience - Honours in Geographical Science Honours Degree at University of Pretoria in Pretoria, South Africa (Gauteng)</p>
Professional skills	<ul style="list-style-type: none"> - Vernon Siemelink is a Director at Eco Elementum (Pty) Ltd Environmental and Project Management Professionals and has been involved in the field of environmental science and environmental management for the past 9 years. - Vernon is a SGS IRCA Certified EMS Lead Auditor and a SETA accredited assessor. He has also completed the CEM auditor conversion training for ISO 9001, ISO 14001 and OHSAS 18001 Integrated Management Systems. - Vernon Siemelink has been an environmental consultant and professional since 2008, specialising in the fields of: <ul style="list-style-type: none"> • Environmental Impact Assessments and Authorisations. • Water use license application. • Waste use license application. • Environmental Monitoring and Control. • Mine Closure and Rehabilitation. • Environmental Compliance and Audits. • Environmental Management Systems; and Specialist Impact Studies. - During this time, he has provided quality, environmental, and health and safety consulting and auditing services in nearly every industry sector. - Furthermore, Vernon holds a Master's Degree in Environmental Management and an Honours Degree in Geosciences from the University of Pretoria.



Please refer to the CV attached in Appendix 1.

Name	Jane
Surname	Mahaba
Company	Eco Elementum (Pty) Ltd
Position	Senior Environmental Assessment Practitioner (EAP)
Location	361 Oberon Ave, Glenfield Office Park, Nikka Building, 1st Floor, Faerie Glen, Pretoria, 0081.
Email	jane@ecoe.co.za
Telephone Number	012 348 5214
Education	BSc Animal Plant and Environmental Sciences University of Witwatersrand, South Africa (Gauteng)
Professional skills	<ul style="list-style-type: none"> - Jane Mahaba is an EAP at Eco Elementum (Pty) Ltd and has been involved in the field of environmental science and environmental management for 13 years. With a focus in the fields of: <ul style="list-style-type: none"> • Environmental Impact Assessments and Authorisations. • Water use license application. • Waste license application. • Environmental Monitoring and Control. • Environmental Compliance and Audits. • Environmental Planning - During this time, she has provided quality, environmental, and auditing services in nearly every industry sector.

3.a.ii.2 Summary of the EAP's past experience.

Skills	<ul style="list-style-type: none"> - Environmental Impact Assessments. - Basic assessments, WULA reports. - Water use license application. - Prospecting and Mining Right Authorisations. - Environmental Management Plans. - Public Participation. - Environmental Authorisations. - Environmental Development Planning Advisory. - Environmental Screening and Due Diligence.
Experience	<p>Jane has more than 13 years' experience in the field of Environmental Management. Her experience includes various aspects of environmental management including permitting, stakeholder engagement (including authority consultation), compliance monitoring and auditing. She worked on projects in the Built environment, mining, industrial and government sectors and these projects required various permits and licenses in terms of the different environmental and associated legislation. In recent years she worked on expanding her knowledge in the sustainability space and continued to develop herself. Jane is extremely passionate about the environment and communities.</p>



3.b LOCATION OF THE OVERALL ACTIVITY.

Table 3-1: Location of the activity

Farm Name:	Portions 1,4,6,7,8,10 and the Remaining extent of the farm Rhenosterfontein 210 JR, portion 3 and the Remaining extent of the farm Naauwpoort 208 JR
Application area (Ha)	Approximately 7 350 Hectares (ha).
Magisterial district:	City of Tshwane Metropolitan Municipality.
Distance and direction from nearest town	22 km South of Rust de Winter.
21 digit Surveyor General Code for each farm portion	T0JR00000000021000001 T0JR00000000021000004 T0JR00000000021000006 T0JR00000000021000007 T0JR00000000021000008 T0JR00000000021000010 T0JR00000000021000000 T0JR00000000020800003 T0JR00000000020800000

3.c LOCALITY MAP

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



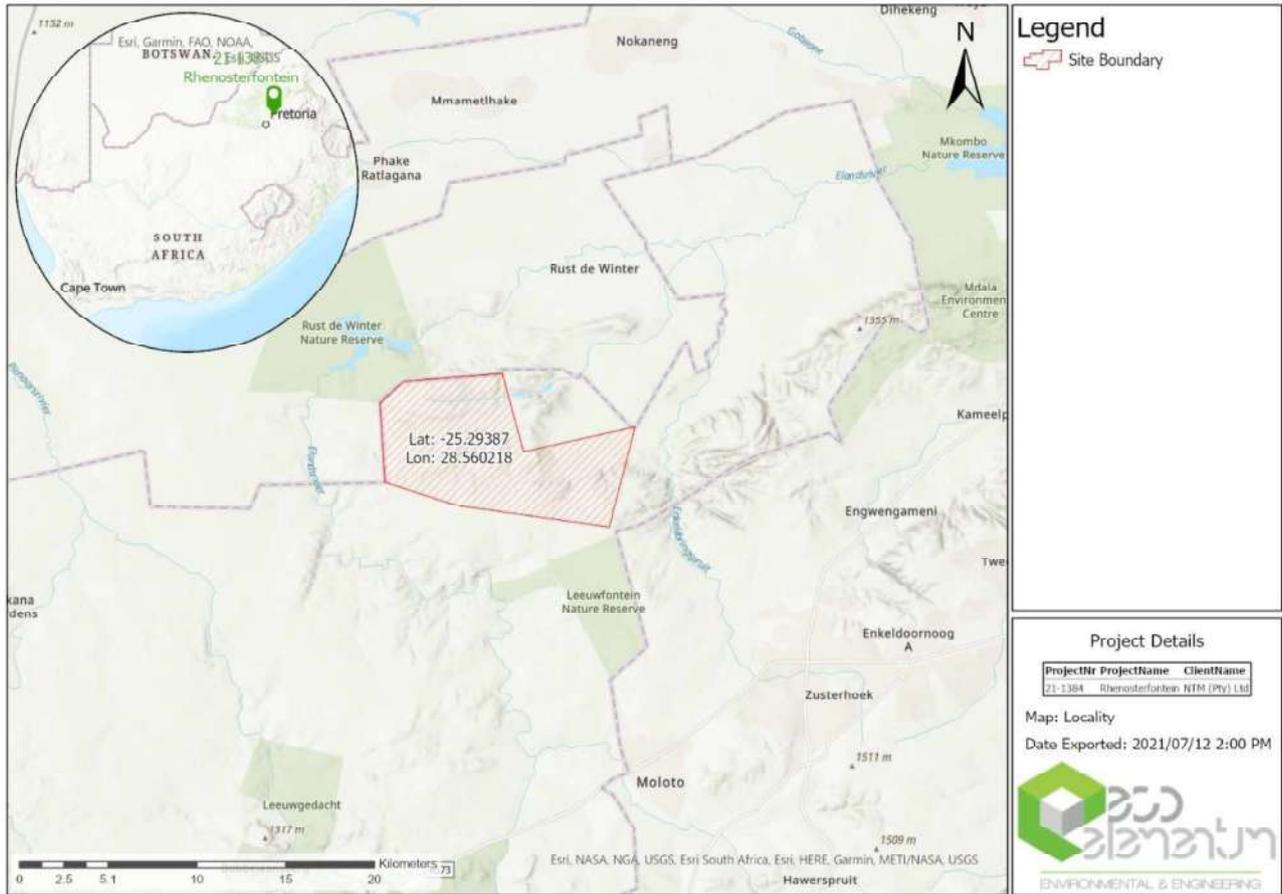


Figure 3-1: Locality Map



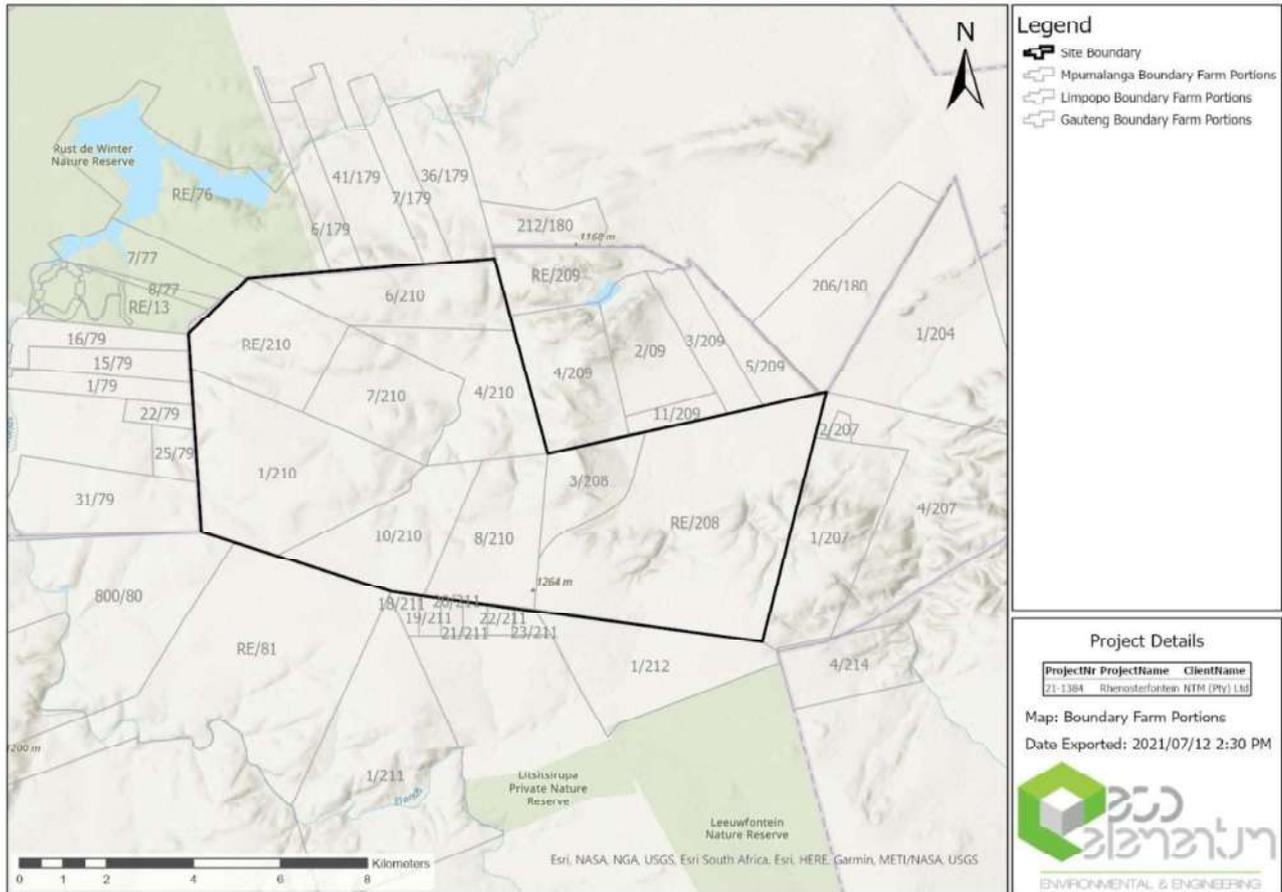


Figure 3-2: Farm boundaries for the study area



3.d DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY.

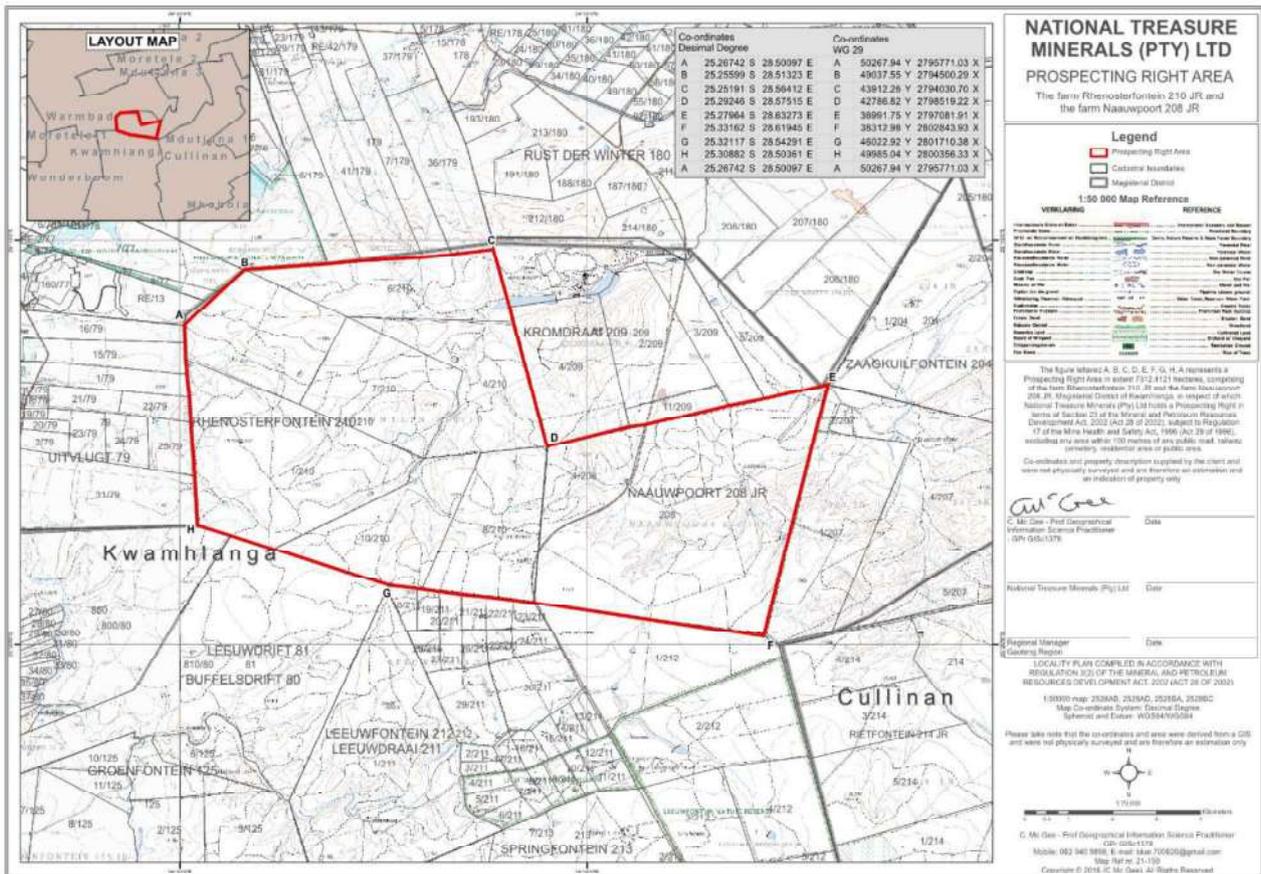


Figure 3-3: Regulation 2 (2) showing the proposed area for prospecting

3.d.i Listed and specified activities

Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) requires, upon request by the Minister that an Environmental Management Plan be submitted, and that the applicant must notify and consult with Interested and Affected Parties (I&APs). Section 24 of the NEMA requires that activities, which may impact on the environment must obtain an environmental authorisation from a relevant authority before commencing with the activities. Such activities are listed under Regulations Listing Notice 10 the proposed prospecting activity triggers:

Please refer to the following table for the details in terms of the listed activities.



Table 3-2: Listed and specific 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 m ²	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)
Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource, including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) 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 Listing Notice 2 applies.	640 m ²	X	GNR 983 – Listing 1, Activity 20	n/a
Drill site clearing and establishment, mobile chemical ablution facility, drill rig equipment, return water lined sump, and sample storage trays.	640 m ²	X	GNR 983 – Listing 1, Activity 20 GNR 985 – Listing 3, Activity 12	n/a
Soil Sampling Activities (A typical sampling site will be approximately 25 m ²). It is unlikely that more than 10 samples will be taken, however, this will be confirmed on site as part of the prospecting activities.	25 m ² per prospecting drill site	-	-	-
Roads (roads will be temporary gravel roads, not exceeding 3,5 m in width).	Approx. 20 000 m ²	-	-	-
Temporary Camp Site.	Approx. 100 m ²	-	-	-
Site Clearance.	Less than 20 ha – 640 m ²	X	GNR 983 – Listing 1, Activity 27. GNR 985 – Listing 3, Activity 12.	n/a
Hydrocarbon Storage.	Less than 30 m ³	-	-	-

3.d.ii Description of Activities to be Undertaken

Both non-invasive and invasive prospecting activities will be undertaken as part of the proposed Prospecting Work Programme (PWP). The application will follow a phased approach, where the prospecting work program is divided into several sequential phases.

Figure 3-4 depicts the current land cover and farm portions of the proposed prospecting area, the proposed areas of interest within the application area will be defined within the course of prospecting activities. It is anticipated that the invasive program will consist of 122 boreholes refer to Figure 3-5 for the conceptual drilling site layout.

Regarding the length of the boreholes an average of 50 m was used for budget purposes although the lengths will differ depending on where you are drilling in the project area.



Vegetation will be cleared at the borehole locations within the application area. Minor access tracks will be created to access the proposed borehole sites where there are no existing roads. The total length of the access routes is anticipated to be 5 000 m and the approximate width is 3 m.

At the end of each phase there will be a brief period of compiling and evaluating results. The results will not only determine whether prospecting proceeds, but also the manner in which it will go forward. The applicant will only action the next phase of prospecting, once satisfied with the results obtained in the previous phases, refer to Table 3-3 an addition, smaller, non-core parts of the prospecting work program will be undertaken, if warranted. A description of the planned invasive and non-invasive activities is detailed below.

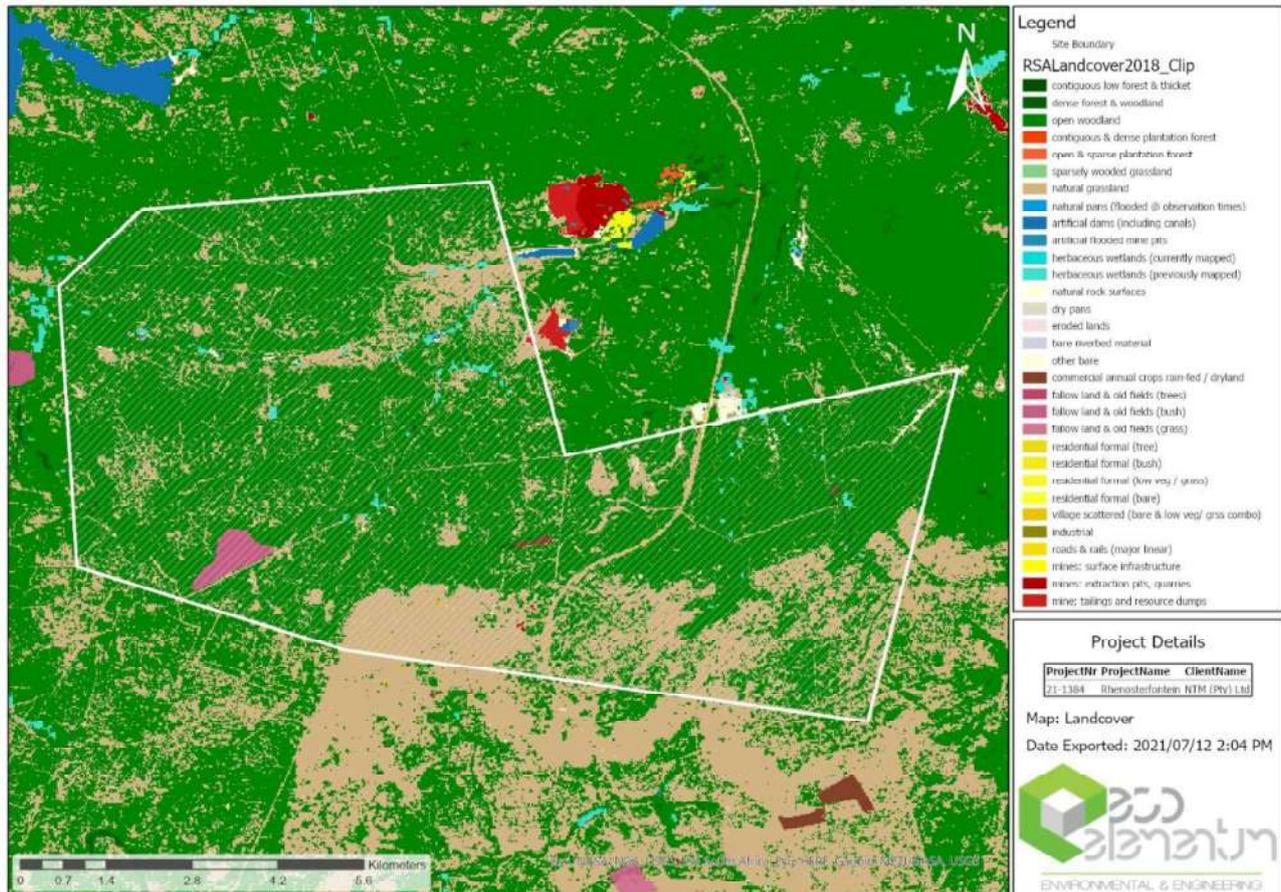


Figure 3-4: Current land cover Map

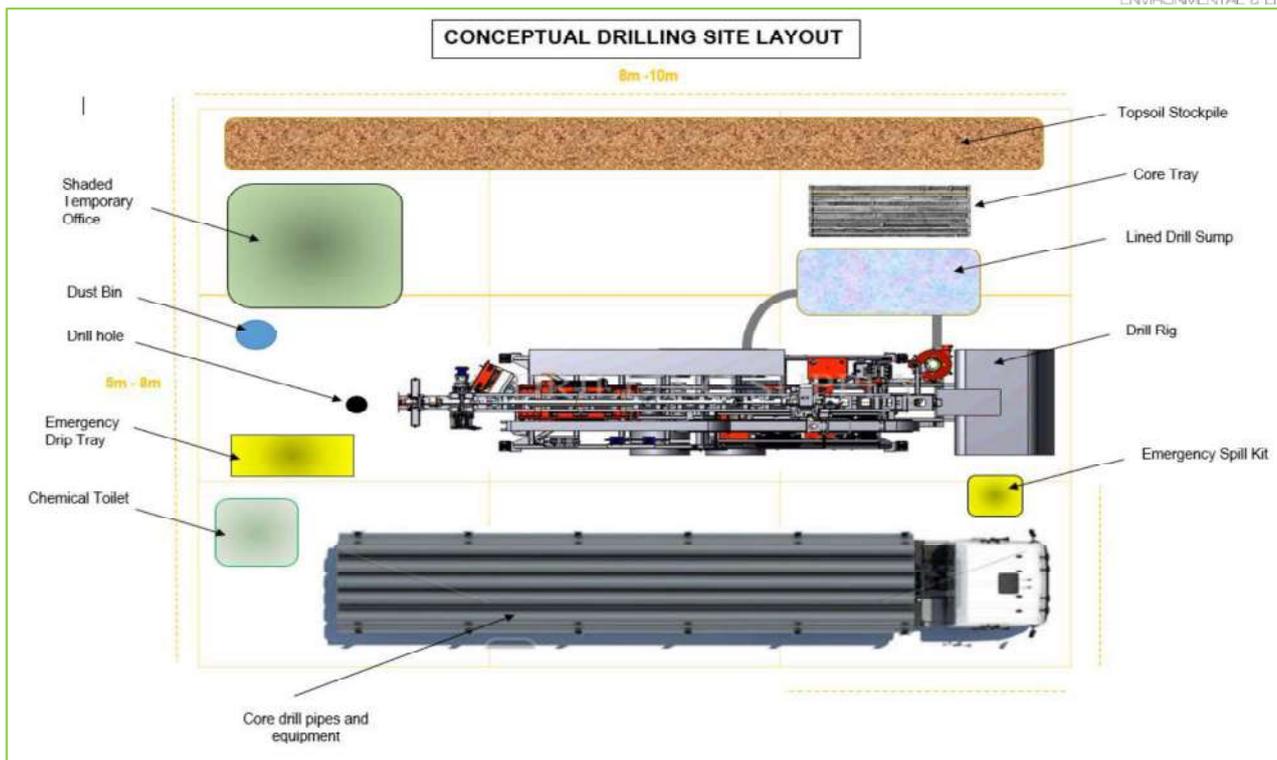


Figure 3-5: Conceptual drilling site layout

Description of planned non-invasive activities:

(These activities do not disturb the land where prospecting will take place e.g. aerial photography, desktop studies, aeromagnetic surveys, etc.)

The Non-Invasive methods which will be used during the exploration program span all the four phases in different time frames. They are outlined in the following text.

Literature Study – During this stage information pertaining to the geological, geographical, environmental and geomorphological including the topographical and infrastructural systems of the area will be studied with the aim of designing the prospecting program and also the impact that the programs will have in the environmental and the ecosystem of the area. Information will be gathered from relevant areas including the Council of the Geoscience and other commercial areas where it may be available. Sources of information will include geological reports, general geological text books and geological maps, topographical maps, agricultural and land use maps. Visits to the area will also be conducted to acquire information that might not be available in literature. Detailed geological information will then be gathered which will be used in planning further prospecting and exploration strategy.

Geological Mapping – This stage will include the field traverse in the farm collecting geological information. Lithological contacts, outcrops, faults, dykes, folds will be mapped including their attitude and characteristics like dip and strikes, thickness etc. This information will be correlated with the literature study information in order to correlate with the correct stratigraphy and lithological units.

Geophysical Survey – a decision will be taken to conduct geophysical observation or procure geophysical data from commercial sources and organizations that collect them. The information that will be acquired will be chiefly magnetic which will be aimed at delineating structures of higher or lower magnetic susceptibility than the surrounding country rocks. If the company conducts the observations, it will be airborne surveys conducted with the use of a contractor.

Interpretation of Information and decision making – This item appears in all the phases towards the end of the data gathering sub-programs. In Phase 1, this will mean that maps will be drawn depicting the data which is of the geological nature of the area. Using all other information, a decision will then be taken as to whether it is feasible to carry on or if the project should be abandoned.

Sampling and resource modelling - This stage entails sampling the core from drilling as well as data manipulation to produce drilling results information. Resource modelling is conducted which will result in tonnages and grade distribution. However, this is still in low geological confidence. From the results, a decision will be taken if prospecting will be continued. During the non-invasive methods,



additional information is gathered in the form of prefeasibility studies. This includes the determination of the suitable mining method and its costs. Other information that is gathered includes the macro and the micro economics that will determine the feasibility of the project.

Description of planned invasive activities:

(These activities result in land disturbances e.g. sampling, drilling, bulk sampling, etc.)

Planned invasive prospecting methods entail conducting drilling to ascertain the existence of the expected minerals, its thickness and distribution. Samples will be taken and analysed. The number of boreholes planned is 42:

- Reconnaissance drilling: 10.
- Resource drilling: 12.
- Feasibility drilling: 20.

The depths will vary from very shallow (approx. 30m) to nearly 150m. The exact depths of the boreholes will be determined while the drilling program is underway as influenced by the depths and dips measured in the previous boreholes.. Trenching will not be conducted. No other excavations, bulk sampling or pitting is planned.

Table 3-3: Prospecting Phases

Phase	Activity	Skill(s) Required	Timeframe	Outcome	Timeframe for Outcome	Sign off by
	What are the activities that are planned to achieve optimal prospecting	Refers to the competent personnel that will be employed to achieve the required results	in months for the activity	(What is the expected deliverable, e.g. Geological report, analytical results, feasibility study, etc.)	Deadline for the expected outcome to be delivered)	(e.g. geologist, mining engineer, surveyor, economist, etc.)
Phase 1	Geological Desktop Study and Geophysical survey.	Geologist, Mineral economist	Month 1 to 4	Detailed geological, Geophysical map delineating structures (faults, dykes).	4th Month	Project geologist
Phase 2	Reconnaissance Drilling and interpretation of results and decision making.	Geologist	Month 5 to 12	Detailed Borehole logs and sampling information, Reconnaissance resource model and decision to proceed with project.	12th Month	Project Geologist
Phase 3	Resource drilling and interpretation of results and decision making.	Geologist	Month 13 to 18	Detailed Borehole logs and sampling information, Ore body resource model.	18th Month	Chief Geologist
Phase 4	Prefeasibility Studies and feasibility drilling.	Geologist, Mining Engineer, Metallurgist	Month 19 to 24	Resource Model, Feasibility Study report.	24th Month	Chief Geologist



3.e POLICY AND LEGISLATIVE CONTEXT

Table 3-4: Policy and legislative table

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILER THE REPORT (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)	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT. (E.g. In terms of the National Water Act a Water Use License has/ has not been applied for)
Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)	The project requires a prospecting right authorisation from the Department of Mineral Resources.	A prospecting right was lodged with the DMRE The application was accepted by DMR on 25th of March 2021.
NEMA Environmental Impact Assessment (EIA) Regulations, as Amended 2017	This Basic Assessment and Environmental Management Plan to be conducted. Baseline environmental information of the project area will be assessed. Mitigation measures and recommendations were provided according to best practice standards.	An Application for Environmental Authorisation was submitted to the Gauteng DMRE with the prospecting right application lodgement on SAMRAD.
The South African Constitution The South African Constitution (Act 108 of 1996) constitutes the supreme law of the country and guarantee the rights of all people in South Africa.	Applied at potential impacts identification as well as mitigation measures and public participation.	A public participation process will be followed, and consultations will be done regarding the proposed project. An EMPr and awareness plan will be designed according to the issues raised during this process.
National Environmental Management: Biodiversity Act , 2004	Presence of critically endangered species, if permit is required. To be determined by ecologist prior to prospecting activities.	The EMP will regulate the applicant to apply for Tree Removal Permit from the Relevant authority prior to the potential removal of any sensitive and/or protected species.
National Environmental Management: Waste Act	Provisions of the waste act were consulted to determine whether a waste license was required for any aspect of the proposed development.	The project activities do not trigger a waste management license, but proper waste management measures will be addressed in the EMPr.
Section 38 of the National Heritage Resources Act (Act No. 25 of 1999)	Legislation consulted during the impact assessment process, to determine what legal requirements with regards to the management of national heritage resources were relevant to this application.	An upload of the BAR will be done on the SAHRIS online system for comment.



REPORT REF: 21-1384-AUTH (Rhenosterfontein 10691 PR) Basic Assessment Report

<p>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILER THE REPORT (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)</p>	<p>REFERENCE WHERE APPLIED</p>	<p>HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT. (E.g. In terms of the National Water Act a Water Use License has/ has not been applied for)</p>
<p>National Water Act The NWA (Act No. 36 of 1998)</p>	<p>Triggered activities will be identified according to the Section 21 of the NWA.</p>	<p>The department has been notified of the proposed project and comments will be addressed.</p>
<p>National Environmental Management: Air Quality Act, 2004 (Act no.39 of 2004);</p>	<p>Dust monitoring on site during the operation.</p>	<p>As part of the EMPr dust suppression methods will be used.</p>
<p>Mine Health and Safety Act, 1996 (Act No. 29 of 1996);</p>	<p>Health and Safety Policy.</p>	<p>Risk Impact Assessment to be conducted.</p>
<p>The Gauteng Conservation Plan CBAs are terrestrial (land) and aquatic (water) features (e.g. vleis, rivers and estuaries) in the landscape that are critical for conserving biodiversity and maintaining ecosystem functioning in the long term (which is particularly important in the face of climate change). The desired management objective for CBAs is for them to remain in a natural or near- natural, i.e. to prevent further loss or degradation of natural habitat in these areas. Therefore, CBAs are biodiversity request priority that must be afforded special attention in assessing and evaluating impacts of prospecting or mining.</p>	<p>Used to differentiate between Critical Biodiversity Areas (CBA) and Ecosystem Support Areas (ESA). Used to identify possible mitigation measures.</p>	<p>Specialists have been appointed to undertake studies to determine if the application are falls within any CBAs and recommend mitigation measures where applicable. Specialists have been appointed to undertake studies to determine if the application are falls within any CBAs and recommend mitigation measures where applicable.</p>



3.f NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES.

(Motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of the preferred location).

The primary motivation for this Prospecting Right Application relates to the fulfilment of the objectives of the MPRDA. The area has been extensively prospected in the past. Due to various circumstances no previous applicant or holder of rights on the subject property has been able to economically continue with development of a mine. The Applicant requires the prospecting rights to afford them security of tenure over the iron ore reserves on the property, in order to study the existing geological data pertaining to the site and reserve, obtain additional data where required, and investigate the feasibility of developing the project into an operational and producing iron ore mine.

Although prospecting is not seen as an activity that significantly and sustainably contributes to an area's economy, it is a precursor to possible mining activities. The activity of mining has numerous social and economic benefits in local, regional and national context. These include: 1. Job creation 2. Skills development 3. SMME development 4. Local economic development 5. Contribution to local and national tax income (royalties, company's tax etc.) 6. Contribution to the national gross domestic product, and 7. Future business opportunities.

South African economy heavily relies on the mining sector. Successful prospecting for these minerals will boost the current struggling national economy as the project will advance to mining phase. The mining sector has provided more employment opportunities for the citizens in general. There is no reason why this development should not be considered at this particular point in time considering the high probability of a reserve as proved by other resources in the vicinity of the area.

3.g MOTIVATION FOR THE OVERALL PREFERRED SITE, ACTIVITIES AND TECHNOLOGY ALTERNATIVE.

The application area has been selected as the preferred site based on the geological formations in the area.

Some of the techniques employed in the non-invasive prospecting activities will include a literature survey, field reconnaissance / mapping, and geophysical survey of the geology, outcrops. Some of the invasive prospective activities include prospecting boreholes, boreholes to confirm continuity of mineralization & potential deposit size and resource definition drilling.

In terms of the technologies proposed, these have been chosen based on the long-term success of the company in terms of their prospecting history. The prospecting activities proposed in the Prospecting Works Programme is dependent on the preceding phase as previously discussed, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

Consultation with affected landowners and adjacent landowners will be conducted in order to keep them informed about the proposed prospecting activities as well as to capture any comments and concerns they may have regarding the prospecting activity.

It should be noted that the exact location of the boreholes have not been identified at this stage. The location of these boreholes will be dependent on the findings of the non-invasive prospecting activities. Once the proposed target areas for the boreholes have been identified during the phases as set out in Table 3-3 these areas will be investigated and will be subject to the conditions of this document.

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

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

GIS and spatial analysis will be used to determine the location of the boreholes and temporary infrastructure by considering environmental sensitivities. Furthermore, the resource location will be determined through drilling exercises in order to locate the areas that will be most economical to mine, and the extent of the resource that will be mined.



3.h.i Details of the development footprint alternatives considered.

With reference to the site plan provided as Appendix 3 and the location of the individual activities on site, provide details of the alternatives considered with respect to:

a) the property on which or location where it is proposed to undertake the activity;

Portions 1,4,6,7,8,10 and the Remaining extent of the farm Rhenosterfontein 210 JR, portion 3 and the Remaining extent of the farm Naauwpoort 208 JR, located in the Selons River formation, the area has not been mined previously and is mostly made up of natural areas with some cultivation. The site is preferred due the possibility of finding the desired mineral based on geological information.

Therefore, no alternative sites were considered.

b) the type of activity to be undertaken;

The mineral distribution in the portions of the area will be determined following the mineral exploration methods which are outlined in the following text. These mineral exploration methods are planned to follow the mineral exploration value chain where a systematic, phased and cost effective approach of determining the minerals distribution is followed. At the end of each phase, a decision will be taken to proceed or to abandon the project.

- (i) The first phase will be information gathering which includes detailed desktop studies and geological mapping. This will result in a plan showing outcrops and any geological information that will be useful during the subsequent phases of exploration. Feasibility studies will also be conducted at the end of the exploration phases.
- (ii) No geochemical survey is planned.
- (iii) Geophysical Survey – a decision will be taken to conduct geophysical observations or procure geophysical data from commercial sources and organizations that collect them.

c) the design or layout of the activity;

As this is a prospecting application the site location is limited to the approved prospecting area. The location of activities will be determined based on the location of the resource, which will only be determined during Phase 1 of the Prospecting Works Programme.

Final borehole sites to be determined after phase one of the prospecting taking into account sensitive areas that need to be avoided.

d) The technology to be used in the activity

In terms of the technologies proposed, these have been chosen based on the long-term success of the company in terms of their prospecting history. The prospecting activities proposed in the Prospecting Works Programme is dependent on the preceding phase as previously discussed, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

e) the operational aspects of the activity; and

No feasible alternative technologies are available to conduct the prospecting due to the basic nature of the processes. Alternative technologies to the management of water, dust, and noise will be considered as mitigation measures in this report.

Water Supply

Currently it is not known whether there are any water boreholes located on the site and whether access and supply will be granted by the landowner.

Continuous water supply will be required during drilling, and on-site water storage tanks with a capacity of 15,000 l for water supply to the drill, will be used.

When core drilling will be undertaken, a number of settling sumps will be excavated and lined with impervious plastic sheets. The purpose of these sumps are to recycle water and drilling fluids by means of gravity which leads to heavier materials (e.g. drill cuttings) to settle and clean water being produced for re-use. The drill cuttings form a sludge which will be collected in the sumps. These sumps will be fenced, where required, to prevent livestock and public access. The plastic sheets will be removed, and sumps will be backfilled



on completion of drilling. If required, the remaining sludge in sumps is to be treated with a suitable bio-remediation product prior to backfilling or disposal.

Additional water requirements relate to the potable water supply for employees and workers. A temporary 260 l on-site vertical water storage tank for drinking water and generalise by persons will be provided at the drill site.

f) the option of not implementing the activity.

The option of not approving the activities will result in a significant loss to valuable information regarding the mineral reserve status on this property.

In addition to this, 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.



3.h.ii Details of the Public Participation Process Followed

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

Section 41 of NEMA Regulation 982 set out the Legal and Regulatory Requirement for Public Participation. The Public Participation Process (PPP) aims to involve the authorities and I&APs in the project process, and determines their needs, expectations and perceptions which in turn ensures a complete and comprehensive environmental study. An open and transparent process has and been followed at all times and is based on reciprocal dissemination of information. The following will be undertaken during the PPP:

1. Identification of Interested and Affected Parties (IAPs);
2. Notification of IAPs regarding the proposed project;
3. A public information meeting with IAPs;
4. Gathering comments, issues and concerns from IAPs;
5. Responding to IAP comments, issues and concerns;
6. Compilation and submission of results of consultation report to the DMR; and
7. Providing IAPs with the opportunity to review and comment on the basic assessment report.

3.h.iii Summary of issues raised by I&APs

(Complete the table summarising comments and issues raised, and reaction to those responses)

The Table will be updated after the 30 day Public Participation process.



Summary of Issues Raised by I&AP's – National Treasure Minerals (Pty) Ltd

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.
<u>AFFECTED PARTIES</u>				



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

3.h.iv.1 Baseline Environment

3.h.iv.1.a Type of environment affected by the proposed activity.

(Its current geographical, physical, biological, socio- economic, and cultural character).

Table 3-5: Summary of Baseline Environment

Environmental Aspect	Environmental Variable	Description
CLIMATE (Derived from climatic records of Rust de Winter)	TEMPERATURE	Summers warm to hot with a mean monthly maximum temperature for January around 25°C. Winters are cold with a mean monthly minimum temperature of just above 3°C in July.
	RAINFALL	50 mm of rain per annum. Majority of the rainfall during midsummer. Frequent thunderstorms during periods of rainfall.
	FROST	Frequent and restricted to winter months.
SURROUNDING LAND USE		On-Site And Nearby Land-Uses <ul style="list-style-type: none"> Natural Areas with undulating landscape National and Provincial Roads Protected Areas Mines Agricultural Closest Towns <ul style="list-style-type: none"> Rust de Winter Cullinan
HISTORICAL VEGETATION	Eastern Temperate Freshwater Wetlands	There are wetland areas around the site and within the valley bottom, the wetlands drain into the Elands River. The Rust Winter Dam is located 1,3km from the North Western Boarder of the study area.
	Loskop Mountain Bushveld	This vegetation type is characterised by low mountain ranges and ridges with some scattered Savanna trees on low lying areas. The Bushveld vegetation type also exhibits <i>Burkea africana</i> and a denser broad-leaved tree savannah on lower slopes and mid-slopes with prominent <i>Diplorhynchus condylocarpon</i> (Shangoni 2013), Dominant and/or prominent taxa in primary, undisturbed bushveld (Mucina and Rutherford, 2006) would have included following species: Trees: <i>Acacia burkei</i> , <i>Acacia caffra</i> <i>Ochnapulcra</i> , <i>Burkea Africana</i> , <i>Protea caffra</i> , <i>Combretum apiculatum</i> , <i>Pseudolachnostylis maproneifolia</i> <i>Combretum zeyheri</i> <i>Terminalia sericea</i> .



		<p>Shrubs:</p> <p><i>Diplorhynchus condylocarpon, Elephantorrhiza burkei, Mundulea sericea Grewia flava, Psydax livida Vitex rehmannii.</i></p> <p>Herbs:</p> <p><i>Xerophyta retinervis</i></p> <p>Graminoids:</p> <p><i>Aristida transvaalensis, Trachypogon spicatus, Enneapogon pretoriensis, Digitaria eriantha subsp.eriantha, Hereropogon contortus, Setarias phacelata Tristachya biseriate.</i></p> <p>Succulents: <i>Aloe ecklonis</i></p> <p>Low Shrubs: <i>Anthospermum rigidum subsp. pumilum, Stoebe plumosa</i></p> <p>Eastern Highveld Grassland is currently listed as Vulnerable (NEMBA 2011)</p>
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CLIMATE

Rust de Winter has the semi-arid climate prevailing. It is warm to hot all year round and trees don't grow here because of the drought. It consists mainly of sand with grasses and sometimes shrubs. The average annual temperature for Rust de Winter is 25° degrees and there is about 353 mm of rain in a year. It is dry for 215 days a year with an average humidity of 52% and an UV-index of 5 (Climate-data.org 25/07/2021).

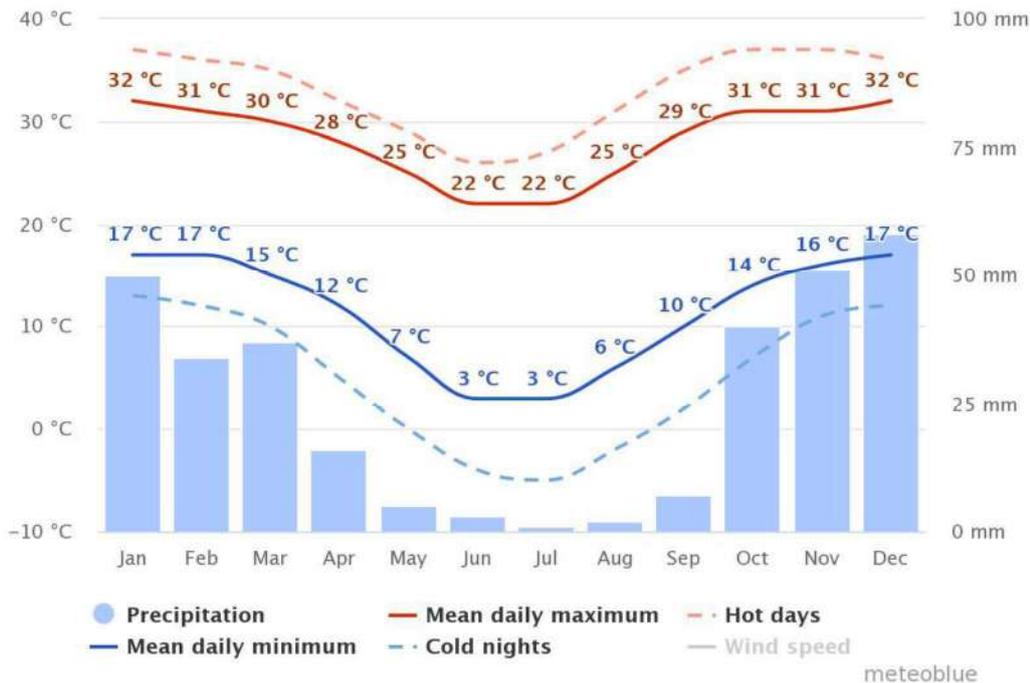


Figure 3-6: Rust de Winter Climate Graph /Weather



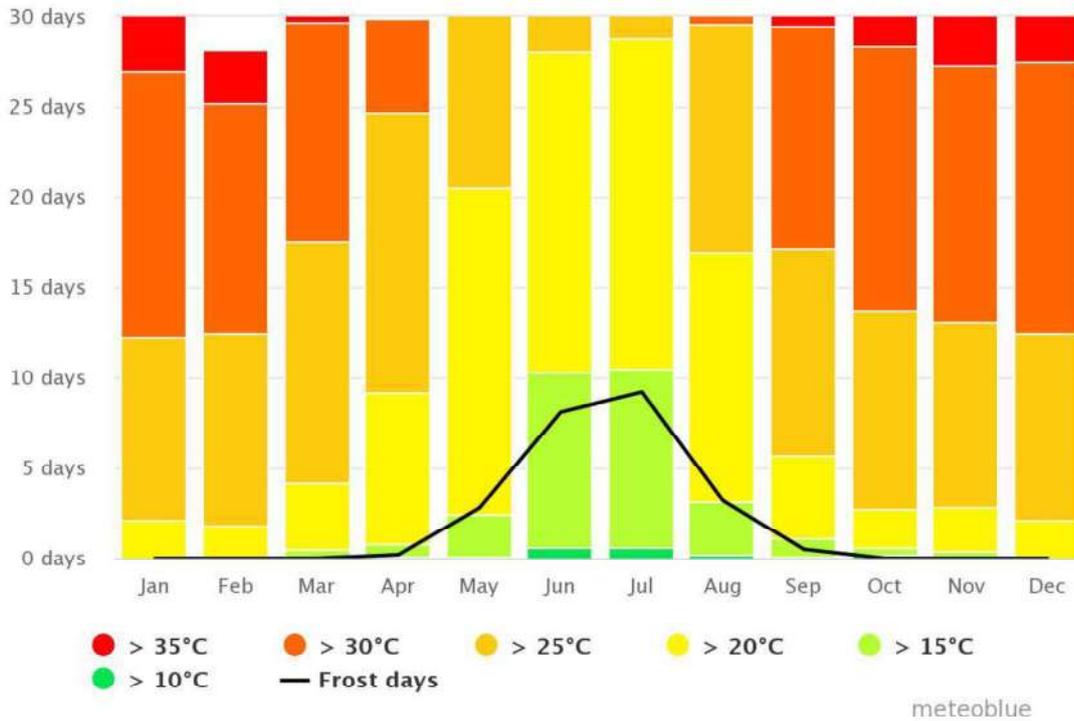


Figure 3-7: Rust de Winter Average Temperature

TOPOGRAPHY

According to Mucina & Rutherford (2006), the average elevation for Central Sandy Bushveld ranges from 850 to 1450 MASL (metres above sea level), while the elevation for Loskop Mountain Bushveld varies between 1050 and 1500 MASL. The average elevation of the study area is 1180 MASL and is associated with mountainous



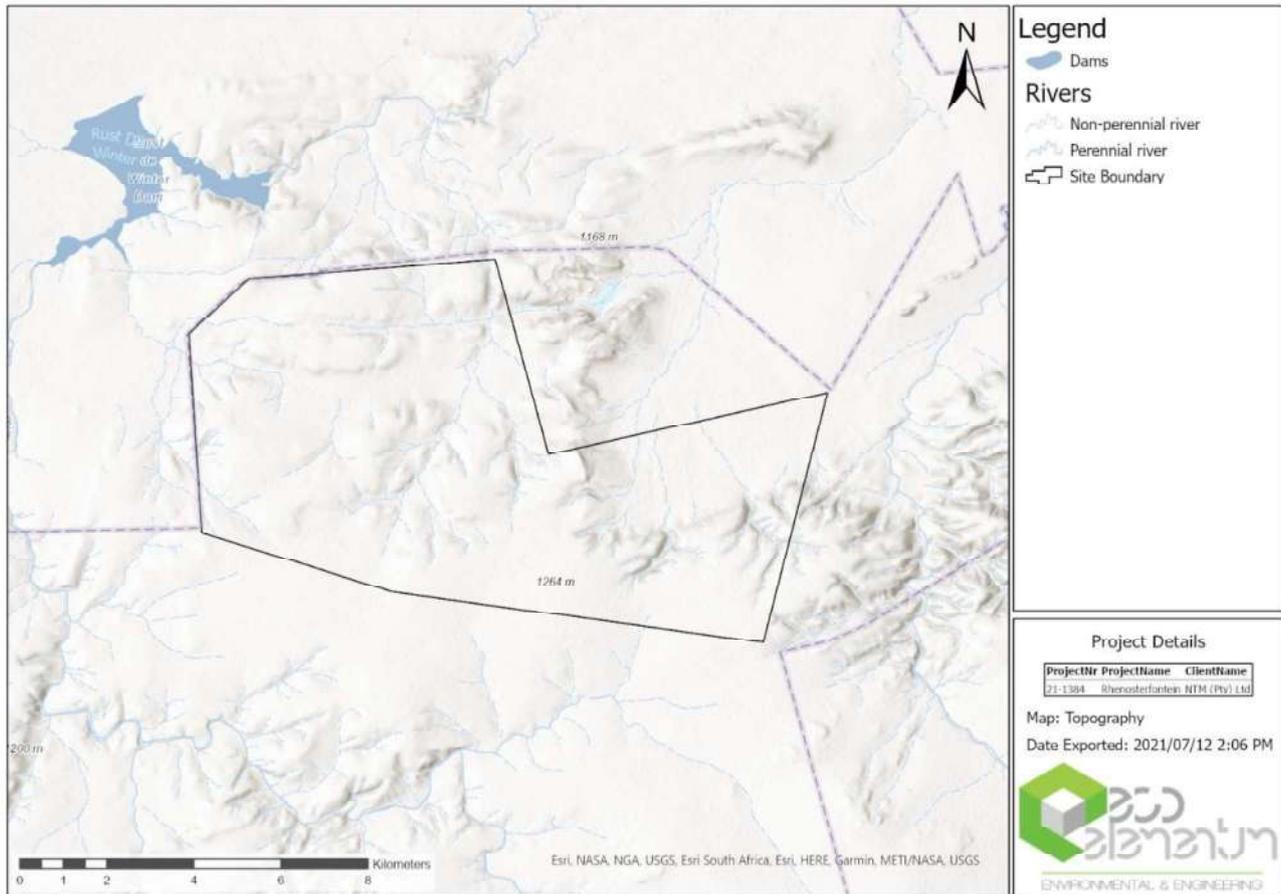


Figure 3-8: Topographical map for the prospecting right

GEOLOGY

Regional Geology

In Book II of the Geological Survey, by I.T. Crocker, J.E.J. Martin and A.P.G. Söhnge, the geology of the Vergenoeg ore body is outlined fully.. The areas ore body was formed approximately 1 950 million years ago when a violent gas vapour eruption occurred through the 3000 - 4000 m thick older Rooiberg Felsites of the Bushveld Complex. This was as a result of a violent gasvapour eruption of the older Rooiberg Felsites of the Bushveld Complex about 1 950 million years ago, the Vergenoeg ore body was formed over a volcanic vent and it has the typical mushroom shape.

Bushveld granite has been observed to typically form on top of the uppermost Rooiberg felsite unit, while the Vergenoeg ore body has been associated with pyroclastic volcanic rocks.

The prospecting right application area is located to the two high-grade metspars in the ore body and numerous veins of metspars radiating from them, the ore body contains several iron ore deposits of different grades.

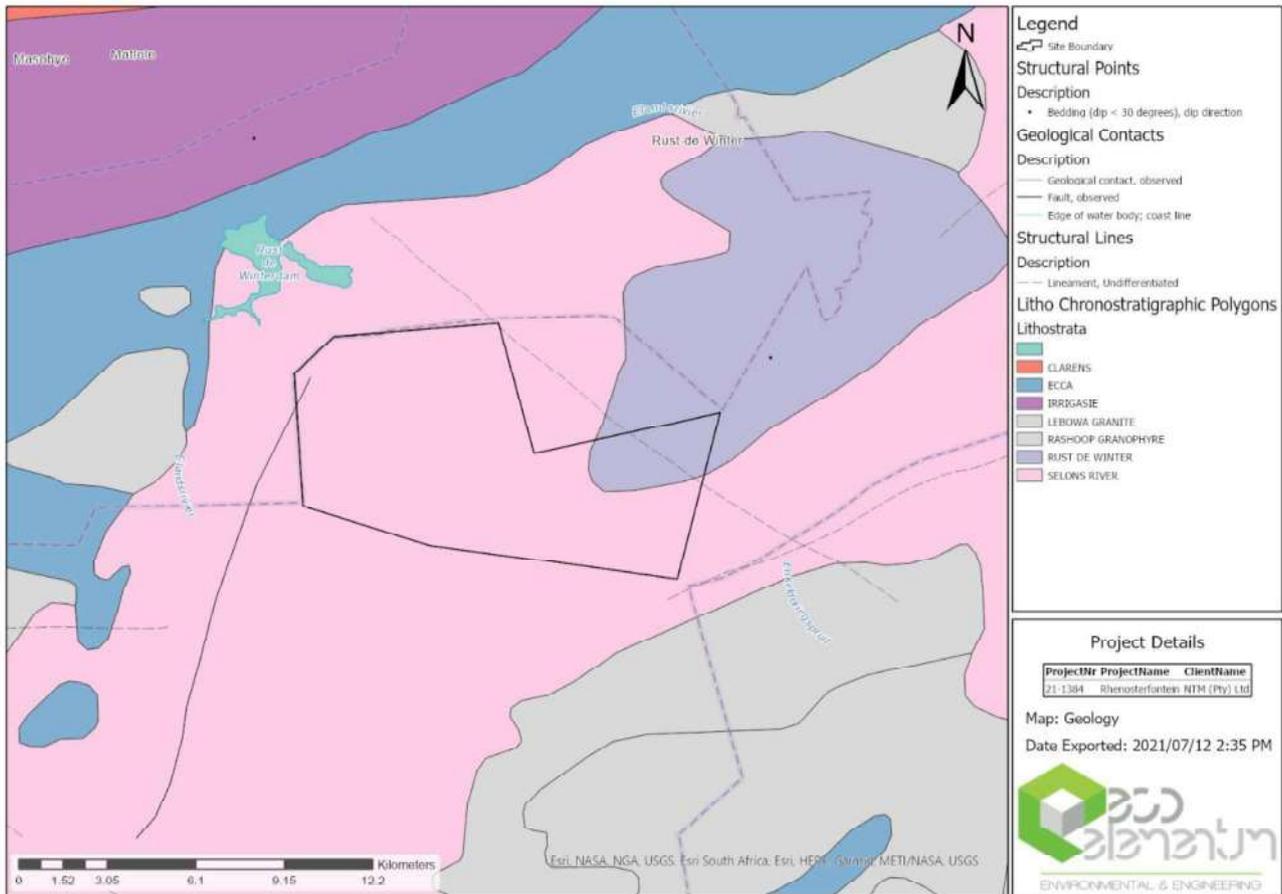


Figure 3-9: General Geology of the study area



SURFACE DRAINAGE FEATURES

The majority of the study area falls within in the B31D quaternary catchment, while the western section falls within the B31C quaternary catchment of the Olifants Water Management Area. The closest perennial river to the study area is the Elands River 4 km to the west and 2 km to the north. A non-perennial river, Enkeldoringspruit, flows 1.6 km to the east. Several non-perennial streams are also found on all of the demarcated farm portions. The Rust de Winter Dam is located approximately 1.7 km to the northwest of the study area.

FLORA

A desktop study was undertaken for the Fauna and Flora section. Once the drill sites have been identified, detailed field impact assessments need to be undertaken and submitted to the department for approval before commencement of Drilling activities.

In terms of vegetation, the study area falls within the Savanna Biome and the Central Bushveld Bioregion. On a local scale the southern half of the study area falls on Central Sandy Bushveld and the northern half on Loskop Mountain Bushveld. According to Mucina & Rutherford (2006), the conservation status for Central Sandy Bushveld is considered vulnerable. The conservation target for this vegetation unit is 19% and less than 3% is conserved, mostly in nature reserves. About 24% is transformed, including about 19% cultivated and 4% urban built-up areas. Central Sandy Bushveld is found in Limpopo, Mpumalanga, Gauteng and the North West Provinces. This vegetation unit is associated with undulating terrain that occurs in a broad arc south of the Springbokvlakte from Pilanesberg in the west through Hammanskraal and Groblersdal to GaMasemola in the east. A narrow band along the north-western edge of the Springbokvlakte extends into some valleys and lower altitude areas within the Waterberg. Rural communities densely populate much of the broad arc south of the Springbokvlakte. Erosion in these areas vary from very low to high (Mucina & Rutherford 2006).

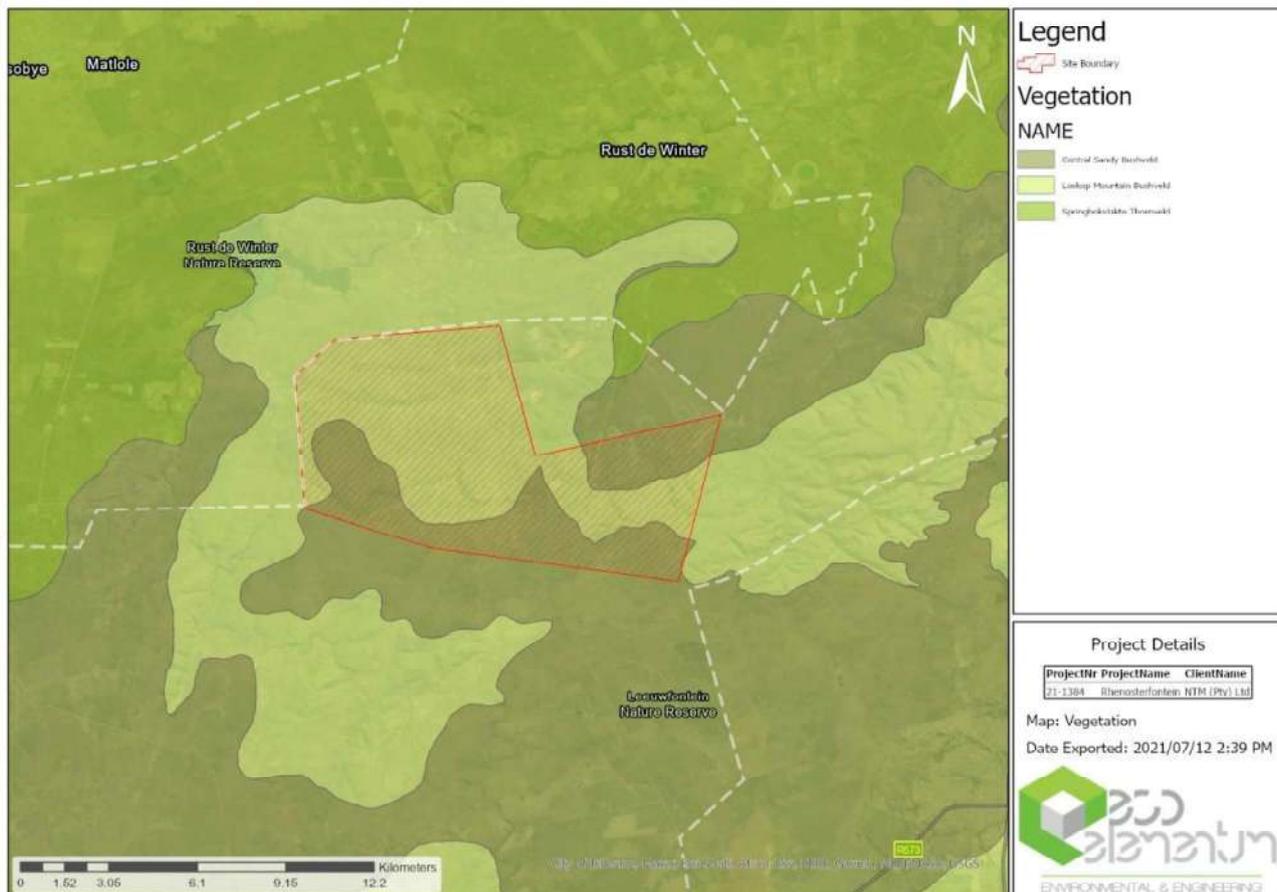


Figure 3-10: Vegetation associated with prospecting area

HERITAGE IMPACT ASSESSMENT



Twenty-six potential sites were identified on the historical aerial images and topographical maps: Three sites on the Remaining Extent of the Farm Naauwpoort 208 JR, four sites on Portion 1/210, six sites on Portion 4/210, two sites on Portion 6/210, one on Portion 7/210, three sites on Portion 8/210, two sites on Portion 10/210, one site intersecting Portions 1/210 and 10/210, one site intersecting Portions 1/210, 7/210 and RE/210, two sites intersecting Portions 4/210 and 7/210, and one site intersecting Portion 7/210 and the RE/210. A total of 16 sites associated with buildings were observed on 1961 aerial imagery. Fifteen of the sites appear to have been demolished as no surface features are noted on contemporary satellite imagery, while one site is associated with intact surface remains. The demolished sites, however, might be associated with subsurface culturally significant remains. It is also unknown whether the site associated with intact buildings have been demolished and replaced by modern buildings. Should any parts of the site observed on the 1961 aerial image still exist, it would be at least 60 years old and would therefore be protected by the NHRA (National Heritage Resources Act) 25 of 1999. The eight sites associated with buildings and two sites associated with kraals identified on the 1984 topographical map appear to have been demolished and are not indicated on the 1967 topographical map or 1961 aerial image. These sites appear not to exceed 60 years of age and are therefore not considered significant from a heritage perspective. Figures 3-11& 3-12 indicate the identified potential sites and sensitive areas.

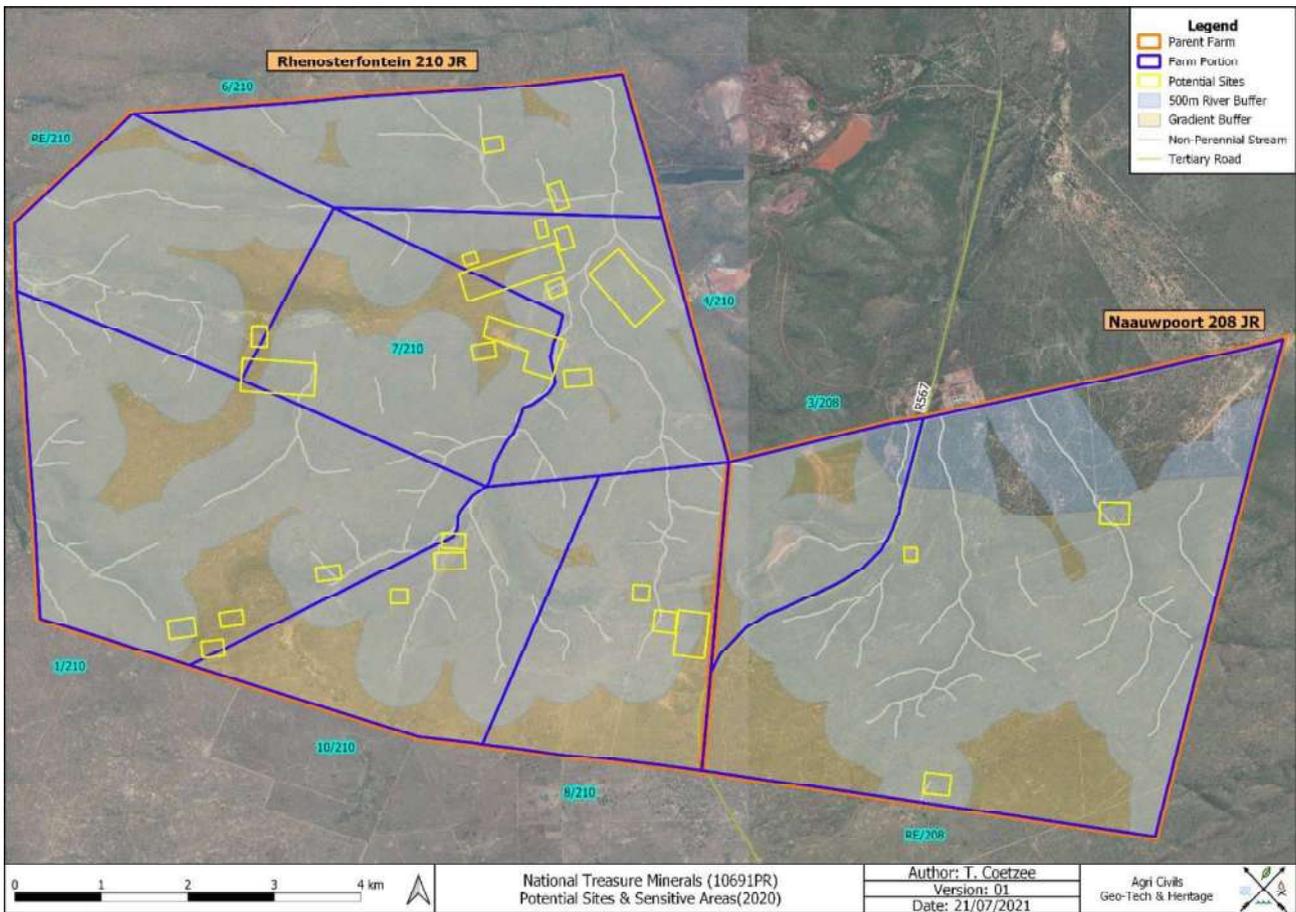


Figure 3-11: Heritage Potential Sites & Sensitive Areas .



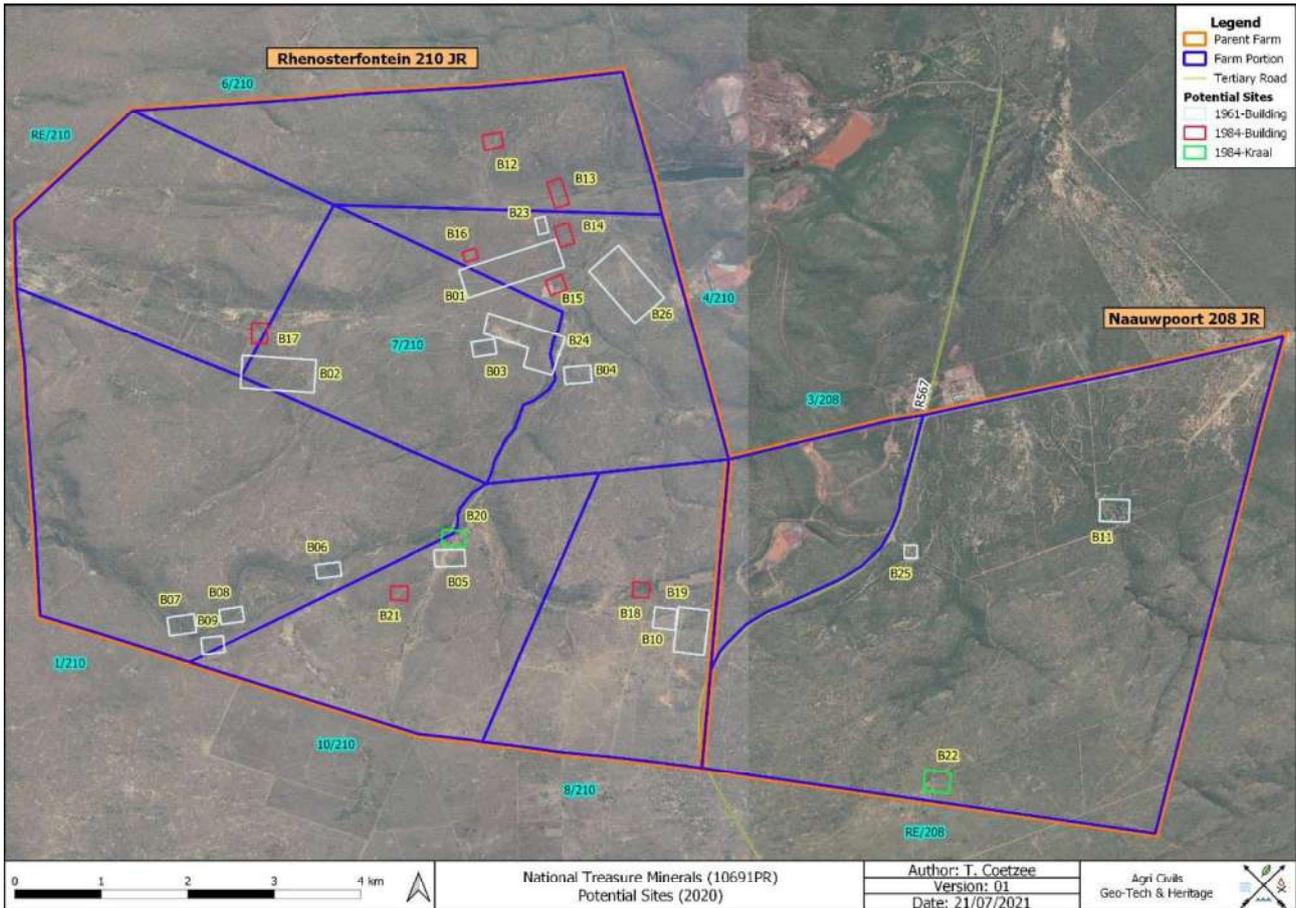


Figure 3-12: Heritage Potential Sites

NOISE ASSESSMENT

The congestion of different types of vehicles and associated increased noise levels takes place along these roads during the day and to a lesser degree during the night. There are noise sensitive areas such as guest houses, houses, schools, entertainment areas along the road network.

The Noise Receiving Environment

The prevailing ambient noise levels along this proposed road vary between built-up areas with high prevailing ambient noise levels to areas where there are low prevailing ambient noise levels because of the rural type district of the area. Certain areas with high levels of ambient noise are located in close proximity to existing roads. The prevailing ambient noise levels are made up out of traffic noise, domestic noise, built-up area noise, industrial type noises and residential type noises. The proposed prospecting right is not a linear type of noise source with only high noise levels during work hours and low noise levels night.

SOCIAL

The proposed Project is located in region 5 of the City of Tshwane Metropolitan Municipality Province of South Africa. According to the CoT website, the region is bordered by the Magaliesberg Mountain range and the N1 to the west and the N4 freeway to the south. Region borders on Mpumalanga to the east and Limpopo to the north. The information in the following section is obtained from the CoT website (<https://www.tshwane.gov.za/sites/regions/Pages/Region-5.aspx>).



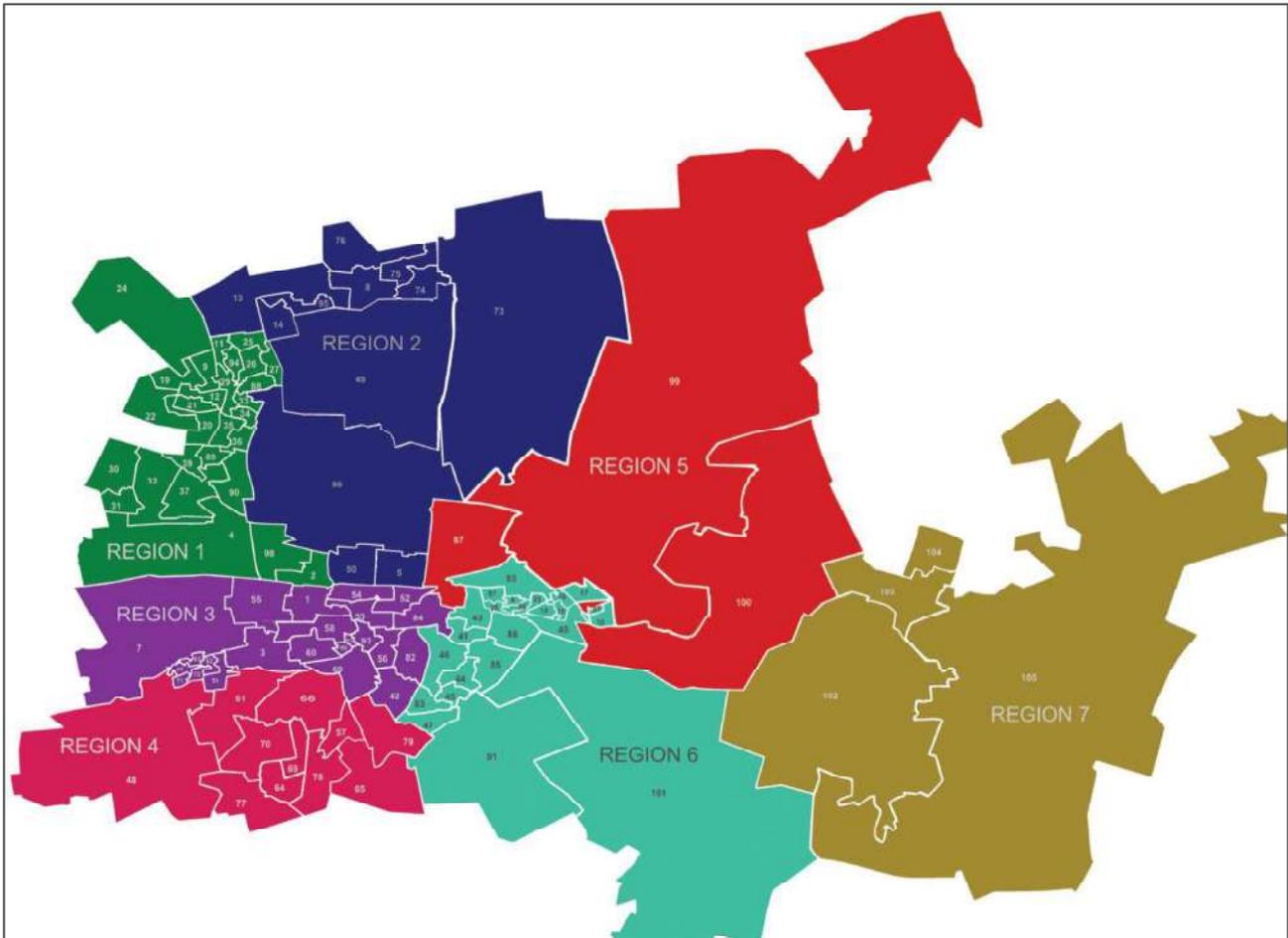


Figure 3-13: City of Tshwane Municipality

Population and Demographics

Region 5 had a population of about 90 898 people according to 2011 Census. The rural population is approximately 15 000 people, and this figure excludes people living in informal settlements. The largest concentration of people in the rural areas is in the south western quadrant, close to Roodeplaas Dam where a population density of 1,6 persons/ha is indicated. The region's relative isolation from the pressures of urbanisation, that are evident in the sub-region, provides for the area's tourism potential. The area is close enough to be accessible, but far enough to provide for a sense of isolation and adventure. The area offers significant recreation, heritage and conservation assets.

Educational Status

Chief Albert Luthuli Municipality is predominantly a municipality whose population does not have tertiary education. Of the total population of the area; only 5% has university degree qualification; 33% have matric, 30% with some secondary education. 15% of the population has primary education, and 15% do not have any education.

Employment and Labour

Only 14.2% people are economically active in the Region. The issue of youth unemployment is of great concern and must be addressed.

Social Infrastructure and Services

The nearest schools, hospitals and sporting facilities are in Pretoria 60 km away, in Bela Bela 75 km away, Hammanskraal 40 km away, and Moloto 35 km away. At Rust de Winter, there is a police station and farm store. Sporting facilities i.e. tennis, are located on the mine property for own use.



3.h.iv.1.b Description of the current land uses.

The study area is located roughly 25 km south Rust de Winter 37 km North west of Cullinan and 40km North East of Hammanskraal. The study area falls within the City of Tshwane Municipality in the Gauteng Province. Access to the demarcated areas appear to be through local roads turning from the R567 tertiary road. The majority of the study area appears to be unspoilt bushveld with small patches of cultivation next to river courses. Buildings and structures are visible on the majority of the farm portions. A vast network of local dirt roads is also associated with the demarcated farm portions.

3.h.iv.1.c Description of specific environmental features and infrastructure on site

SURROUNDING LAND USE	<p>On-Site And Nearby Land-Uses</p> <ul style="list-style-type: none"> • Natural Areas with undulating landscape • National and Provincial Roads • Protected Areas • Mines • Agricultural <p>Closest Towns</p> <ul style="list-style-type: none"> • Rust de Winter • Cullinan 	
HISTORICAL VEGETATION	Loskop Mountain Bushveld	<p>This vegetation type is characterised by low mountain ranges and ridges with some scattered Savanna trees on low lying areas. The Bushveld vegetation type also exhibits <i>Burkea africana</i> and a denser broad-leaved tree savannah on lower slopes and mid-slopes with prominent <i>Diplorhynchus condylocarpon</i> (Shangoni 2013),</p> <p>Dominant and/or prominent taxa in primary, undisturbed bushveld (Mucina and Rutherford, 2006) would have included following species:</p> <p>Trees:</p> <p><i>Acacia burkei, Acacia caffra Ochnapulcra, Burkea Africana, Protea caffra, Combretum apiculatum, Pseudolachnostylis maproneifolia Combretum zeyheri Terminalia sericea.</i></p> <p>Shrubs:</p> <p><i>Diplorhynchus condylocarpon, Elephantorrhiza burkei, Mundulea sericea Grewia flava, Psydax livida Vitex rehmannii.</i></p> <p>Herbs:</p> <p><i>Xerophyta retinervis</i></p> <p>Graminoids:</p> <p><i>Aristida transvaalensis, Trachypogon spicatus, Enneapogon pretoriensis, Digitaria eriantha subsp.eriantha, Hereropogon contortus, Setarias phacelata Tristachya biseriate.</i></p> <p>Succulents: <i>Aloe ecklonis</i></p> <p>Low Shrubs: <i>Anthospermum rigidum subsp. pumilum, Stoebe plumosa</i></p> <p>Eastern Highveld Grassland is currently listed as Vulnerable (NEMBA 2011)</p>



3.h.iv.1.d Environmental and current land use map.

(Show all environmental and current land use features)

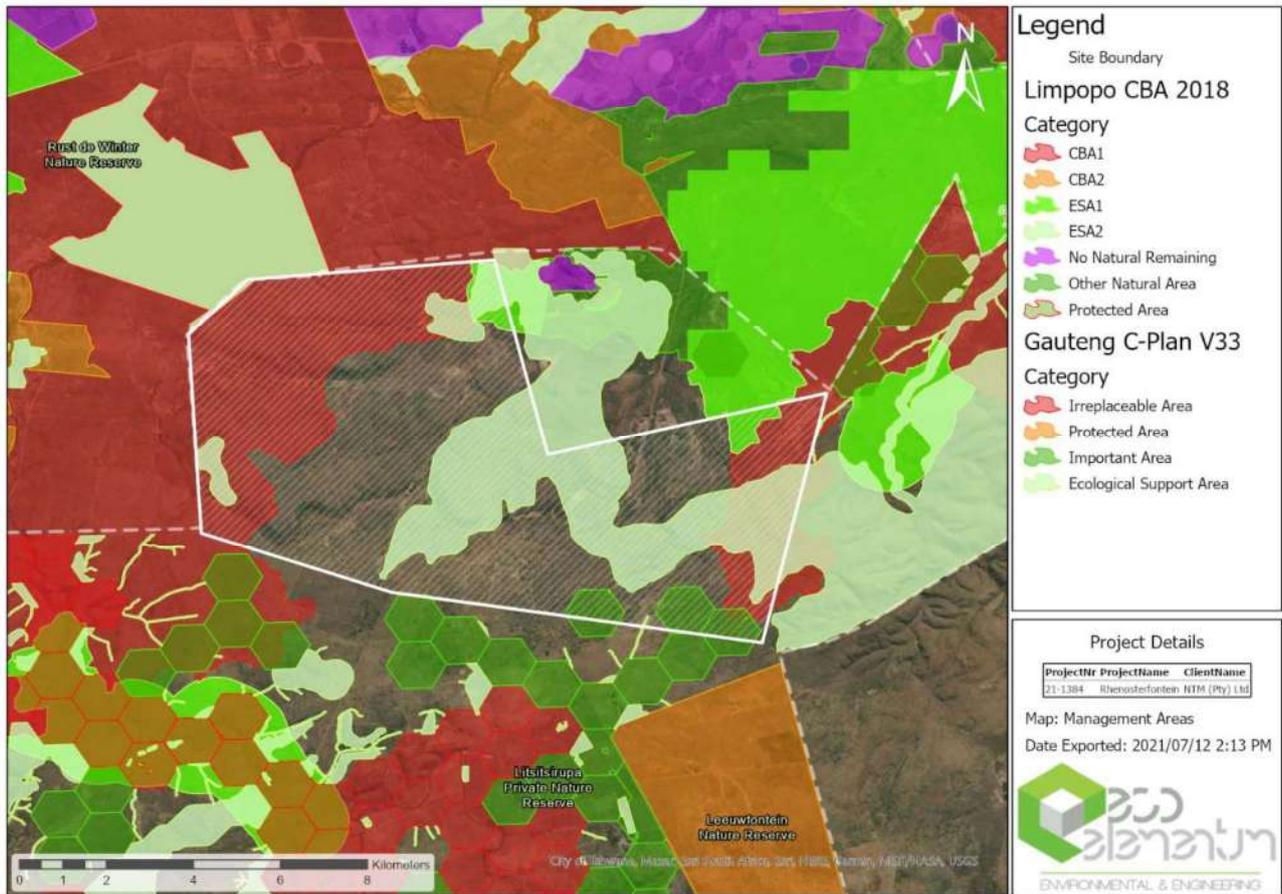


Figure 3-14: Landcover

3.h.v Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impact can be mitigated

Table 3-6: Impact Assessment Table with Mitigation measures

ASSESSMENT OF IMPACTS AND MITIGATION MEASURES					POTENTIAL IMPACTS (without mitigation)	RESIDUAL IMPACTS (with mitigation)
Activity	Potential impact	Affected Aspects	Phase	Mitigation Measures / Enhancement Measures	Significance (Consequence + Probability)	Significance (Consequence + Probability)
Topography						
Levelling of drilling sites	Change in natural topography of the site.	Topography	Construction	Stockpile soils removed for rehabilitation. Rehabilitate to original landform.	Neg Low	Neg Low
Geology						
Removal of geological core.	Creation of conduits between geological strata.	Geology	Operations	Boreholes to be sealed with concrete.	Neg Low	Neg Low
Soils						
Erosion from soil disturbance at drilling sites.	Potential loss of topsoil.	Soils	Operations	Keep the footprint of disturbance as small as practicably possible. Vegetation to be left in place to protect soils where possible. Where vegetation clearance cannot be avoided, storm water management measures to be put in place if there is a risk of soil erosion. Erosion protection where cut and fill and levelling of the drill site occurred.	Neg Low	Neg Low
Erosion from soil disturbance on access roads.	Potential loss of soil resource.	Soils	Construction & Operation	Utilise existing access roads as far as possible. Keep the footprint of disturbance as small as practicably possible. Access roads to follow slope contours where possible. Vegetation to be left in place at sides of the road to protect the soils.	Neg Low	Neg Low



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ASSESSMENT OF IMPACTS AND MITIGATION MEASURES					POTENTIAL IMPACTS (without mitigation)	RESIDUAL IMPACTS (with mitigation)
Activity	Potential impact	Affected Aspects	Phase	Mitigation Measures / Enhancement Measures	Significance (Consequence + Probability)	Significance (Consequence + Probability)
Oil and diesel spills due to inappropriate storage, vehicle maintenance and washing operations.	Risk of soil contamination.	Soils	Construction, Operation and Closure.	Impermeable liners or surfaces to be provided in areas where hydrocarbons are managed. Diesel storage areas to be bunded and regularly checked. Drip trays to be used when any vehicle maintenance is undertaken. Spill kits to be available at drill sites.	Neg Low	Neg Low
Hydrology (Surface Water)						
Spillage from fuels, oils and lubricants.		Surface Water	Construction, Operation and Closure	Implement measures to protect soils from pollution. Boreholes to be outside of the 1 in 50-year flood line or 100 m from the edge of a watercourse, whichever is greater.	Neg Moderate	Neg Low
Increase in sediment loads as a result of erosion and heavy rainfall.	Contamination of surface water.	Surface Water	Construction, Operation and Closure	Implement measures for soil erosion control in accordance with risk assessment. Boreholes to be outside of the 1 in 50-year flood line or 100 m from the edge of a watercourse, whichever is greater.	Neg Low	Neg Low
General and Human Waste.		Surface Water	Construction, Operation and Closure	Contractors may only use designated toilets and waste disposal facilities.	Neg Low	Neg Low
Hydrogeology (Groundwater)						
Seepage of fuels, oils and lubricants.	Contamination of groundwater.	Groundwater	Construction, Operation and Closure.	Implement measures to protect soils from pollution.	Neg Low	Neg Low



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ASSESSMENT OF IMPACTS AND MITIGATION MEASURES					POTENTIAL IMPACTS (without mitigation)	RESIDUAL IMPACTS (with mitigation)
Activity	Potential impact	Affected Aspects	Phase	Mitigation Measures / Enhancement Measures	Significance (Consequence + Probability)	Significance (Consequence + Probability)
Land use and Land Capability						
Intrusion due to drilling and prospecting activities in an area where agricultural land uses are prominent.	Land use conflict.	Land use.	Construction & Operation	Drilling sites must be selected to minimise disturbance of current land use. Relevant agreements must be in place with land owners to define location and extent of drilling sites and rehabilitation measures that will be undertaken at the end of drilling.	Neg Moderate	Neg Low
Land clearing and transformation.	Reduction in land capability.	Land use.	Construction		Neg Low	Neg Low
Fauna, Flora and Ecology						
Establishment of drilling sites and access routes.		Fauna, Flora and avifaunal.	Construction	Site selection aimed at minimising disturbance to natural vegetation.	Neg High	Neg Moderate
Accidental fires.	Removal / damage of natural vegetation	Fauna, Flora and avifaunal.	Construction, Operation and Closure	<ul style="list-style-type: none"> - No smoking at drilling sites. - Code of conduct to include measures for the prevention of fires. - Emergency equipment and procedures for firefighting to be in place. - Adhere to emergency procedures. 	Neg Moderate	Neg Moderate
Establishment of drilling sites and access routes.		Fauna, Flora and avifaunal.	Construction	Site selection aimed at minimising disturbance to sensitive animal habitats and breeding areas.	Neg Moderate	Neg Moderate
Movement of drilling contractors.	Disturbance/ poaching of animals.	Fauna, Flora and avifaunal.	Construction, Operation and Closure	Drilling contractors are only allowed to move within the designated drilling area. Environmental awareness training should include poaching and disturbance of animals.	Neg High	Neg Moderate



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ASSESSMENT OF IMPACTS AND MITIGATION MEASURES					POTENTIAL IMPACTS (without mitigation)	RESIDUAL IMPACTS (with mitigation)
Activity	Potential impact	Affected Aspects	Phase	Mitigation Measures / Enhancement Measures	Significance (Consequence + Probability)	Significance (Consequence + Probability)
Sensitive and Protected Areas						
Establishment of drilling sites and access routes.	Degradation and destruction of sensitive biodiversity-Suitable habitat for the globally threatened red data avifaunal species.	Biodiversity	Construction, Operation and Closure.	Site selection by environmental scientists, detailed avifaunal surveys as well as detailed sensitive habitat mapping will have to be conducted for any potential development in the region.	Neg Moderate	Neg Moderate
Heritage Resources						
Drilling of boreholes will damage / destroy heritage resources in the area.	Cultural heritage resources may be found within the study area.	Heritage Resources	Construction and Operation.	Site selection by environmental scientists is aimed at minimising disturbance to natural vegetation once positions have been finalised.	Neg Moderate	Neg Low
Economic Development						
Employment and use of contractors and purchasing goods.	Contribution to the economy.	Economic Development	Construction and Operation	Preference to be given to the use of local employment, contractors and local suppliers.	Pos Low	Pos Moderate
Dust and noise from prospecting activities.	Creation of nuisance and disturbance to surrounding activities.	Economic Development	Construction, Operation and Closure	Implement measures to minimise air quality and noise impacts. Surrounding neighbours and land owners must be allowed to raise issues and complaints associated with prospecting activities. Their issues must be addressed promptly.	Neg Low	Neg Low
Visual and Sense of Place						
Visual intrusion due to drilling and prospecting activities.	Loss of sense of place due to prospecting activities	Visual and Sense of Place	Construction and Operation	Implement measures to reduce the visual impacts of prospecting activities, i.e. rehabilitation of drill sites and access roads.	Neg Moderate	Neg Low



ASSESSMENT OF IMPACTS AND MITIGATION MEASURES					POTENTIAL IMPACTS (without mitigation)	RESIDUAL IMPACTS (with mitigation)
Activity	Potential impact	Affected Aspects	Phase	Mitigation Measures / Enhancement Measures	Significance (Consequence + Probability)	Significance (Consequence + Probability)
Safety and Security						
Movement of drilling contractors and influx of workers.	Increase in crime.	Safety and Security.	Construction and Operation.	<ul style="list-style-type: none"> Drilling contractors not allowed moving outside of designated areas. Access of personnel related to the prospecting operations will only be allowed on approval by the project manager. All personnel that have access to the property will be provided with access cards. All personnel that have access to the property needs to be made visible. 	Neg Moderate	Neg Low
Overnight accommodation of drilling contractors.		Safety and Security	Construction, Operation and Closure.	Drilling contractors to be housed off the drilling property.	Neg Moderate	Neg Low
Stakeholder Acceptability						
Prospecting activities is a predecessor to mining.	Prospecting on private property.	Stakeholder Acceptability.	Construction, Operation and Closure.	Comply with the MPRDA & NEMA Implement and Comply with the EMP.	Neg Moderate	Neg Low
Prospecting activities is a predecessor to mining.	Prospecting seen as a predecessor to mining and this raises a risk to various environmental impacts.	Stakeholder Acceptability.	Construction, Operation and Closure	An application for a mining right will require a separate public participation process and IAP's will be provided with the opportunity to raise their concerns.	Neg Moderate	Neg Moderate



3.h.vi Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;

(Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which the initial site layout needs revision).

CRITERIA OF ASSIGNING SIGNIFICANCE TO POTENTIAL IMPACTS

The identification and assessment of environmental impacts is a multi-faceted process, using a combination of quantitative and qualitative descriptions and evaluations. It involves applying scientific measurements and professional judgement to determine the significance of environmental impacts associated with the proposed project. The process involves consideration of, inter alia: the purpose and need for the project; views and concerns of interested and affected parties; social and political norms, and general public interest.

The methodology used for assessing impacts associated with the proposed project follows the philosophy of environmental impact assessments, as described in the booklet Impact Significance, Integrated Environmental Management Information Series 5 (DEAT, 2002b). The philosophy is summarised by the following extracts:

- a. The impact magnitude [or intensity] and significance should as far as possible be determined by reference to legal requirements, accepted scientific standards or social acceptability. If no legislation or scientific standards are available, the EIA practitioner can evaluate impact magnitude based on clearly described criteria. Except for the exceeding of standards set by law or scientific knowledge, the description of significance is largely judgemental, subjective and variable. However, generic criteria can be used systematically to identify, predict, evaluate and determine the significance of impacts (DEAT, 2002b).
- b. Determining significance [of impacts] is ultimately a judgement call. Judgemental factors can be applied rigorously and consistently by displaying information related to an issue in a standard worksheet format (Haug et al., 1984 taken from DEAT, 2002b).

The criteria and systematic approach to identify, describe and assess impacts are outlined below.

Impact Ranking Criteria

The criteria used for assessing the significance of the impacts are given in Table 3-7. Cognisance was given to both positive and negative impacts that could result from prospecting.

Although the criteria used for the assessment of impacts attempts to quantify the significance, it is important to note that the assessment is generally a qualitative process and therefore the application of these criteria is open to interpretation. The assessment thus largely relies on the experience of the EAP, and the information provided by specialists appointed to undertake studies for the EIA.

Where the consequence of an event is not known or cannot be determined, the precautionary principle is adhered to, and the worst-case scenario assumed. Where possible, mitigation measures to reduce the significance of negative impacts and to enhance positive impacts are recommended. The detailed actions, which are required to ensure that mitigation is successful, will be given in the EMPr which will form part of the BA report.

Consideration will be given to the phase of the project during which the impact occurs. This identification of the phase is provided to assist with the schedule for the implementation of the management measure.

Mitigation Measures

Mitigation measures were identified for significant impacts. The impacts were ranked before and after the implementation of the mitigation measures. Mitigation potential (risk of mitigation failure) was ranked as per the criteria in found in Table 3-7 below.



Table 3-7: Rating Criteria

Rating Criteria and Symbol / Short Description			Qualitative Description / Explanation of Rating Criteria	
Predictability Weighting (Value Judge (Consequences + Probability) (Negative Impacts))	Duration	1	low	Refers to the total length of time (i.e. number of years) that the impact would or the impact source or risk will be present. Short-term. May occur for hours and are rapidly reversible.
		2	moderate	Medium-term. May occur for a couple of days. Impacts reversible within a three day period.
		3	high	Long-term. May occur throughout the life of the project, but will cease after operations ceases either because of natural processes or human intervention.
		4	very high	Permanent and irreversible. Residual impacts will remain after rehabilitation.
	Frequency	1	low	Refers to the time intervals and how often (i.e. number of days per year) the impact would manifest over the entire duration of the impact. Seldom. Impact would be intermitted (occurs 0-10 % of the time).
		2	moderate	Occasional. Impact would occur now and again (occurs 10-25% of the time).
		3	high	Often (occurs >50% of the time).
		4	very high	Continuous. Impact would occur all the time (occurs 100% of the time).
	Scale	0	none	None. Impact will not occur anywhere.
		1	low	Site impact. No effect beyond the prospecting site. Small area. No sensitive receptors outside prospecting area affected.
		2	moderate	Local. Seldom occurs beyond prospecting site. May affect immediate neighbours, never nearby townships. Small area or small number of sensitive receptors affected.
		3	high	Regional. Widespread impact. Extends beyond the prospecting boundary. Affects nearby townships. Large area or large numbers of sensitive receptors affected.
	Probability	4	very high	Local or regional impact. Impacts over a vast area or over vast numbers of sensitive receptors.
		0	none	Never (0 % likelihood).
		1	low	Conceivable. Will only happen in exceptional circumstances (<10 % likelihood).
		2	moderate	Plausible. Could happen and has occurred here or elsewhere (11-40 % likelihood).
Significance (Consequences + Probability)			Neg Very High	Widespread negative effect. Negative impact that is of the highest order. Potential fatal flaw.
			Neg High	Substantial negative impact.
			Neg Moderate	Negative impact that is real but not substantial.
			Neg Low	Low to negligible negative impact with little real effect.
			Pos Low	Low to insignificant positive impact.
			Pos Moderate	Positive impact that is real but not substantial.
			Pos High	Substantial positive impact.
Predictability Weighting (Value Judge (Consequences + Probability) (Negative Impacts))			Pos very High	Widespread / substantial beneficial effect. An alternative means to achieve the same benefits not possible.
			Used when there is a potential understatement of the significance of a negative impact to increase the significance rating.	
		0	none	No weighting required. Significance rating is a true reflection of the potential effect of the impact.
Rating Criteria and Symbol / Short Description			Qualitative Description / Explanation of Rating Criteria	
Predictability Weighting (Value Judge (Consequences + Probability) (Negative Impacts))		1	low	There may be a slight understatement of the significance of the impact. Impact significance adapted to be slightly higher.
		2	moderate	There may be a moderate understatement of the significance of the impact. Impact significance adapted to be higher.
		3	high	The impact significance rating is highly understated. Impact significance adapted to be higher.
		4	very high	The impact significance rating is severely understated. Impact significance adapted to be higher.
	(Positive Impacts)	Used when there is a potential overstatement of the significance of a positive impact to reduce the significance rating.		
		0	none	No weighting required. Significance rating is a true reflection of the potential effect of the impact.
		1	low	There may be a slight understatement of the significance of the impact. Impact significance adapted to be lower.
		2	moderate	There may be a moderate understatement of the significance of the impact. Impact significance adapted to be lower.
		3	high	The impact significance rating is highly understated. Impact significance adapted to be lower.
		4	very high	The impact significance rating is severely understated. Impact significance adapted to be lower.
Risk of Mitigation Failure	The likelihood of mitigation failure rated based on: - research and technology, - timing, and thus secondary potential of outside influences occurring over time (i.e. climate change, political instability, inter/national economic instability), - financial considerations, - skills and labour availability and potential for human error.			
	0	Very Low Risk	Less than 10% likelihood that mitigation measures could fail. Mitigation implemented quickly, mitigation easy to implement, proven technology used, no special labour skills required.	
	1	Low Risk	10-30% likelihood that mitigation measures could fail.	
	2	Moderate Risk	30 to 60% likelihood that mitigation measures could fail.	
	3	High Risk	60 to 80% likelihood that mitigation measures could fail.	
	4	Very High Risk	>80% likelihood that mitigation measures could fail. May need research and new technologies to be developed, and/or may have to take place over many years after closure, and/or may involve exorbitant/prohibitive expenses to implement successfully, and/or may require highly skilled personnel with special training, and/or have a high risk of human error during the execution of the mitigation.	
IAP Interest			Neg Very High	Widespread concern and/or concerns of very high importance. Concerns difficult to be addressed to satisfaction of authorities or concerned parties. Appeals against project anticipated if not addressed.
			Neg High	Several concerns and/or concerns of high importance. Real and substantial.
			Neg Moderate	Limited concerns. All concerns addressed. Real but not substantial.
			Neg Low	Very minor or minor concerns.
			Neutral	No interest.
			Not defined	Level of interest has not been tested.
			Pos Low	Very little support for project.
		Pos Moderate	Limited support for project.	
			Pos High	General support. May be associated with high community expectations.



Rating Criteria and Symbol / Short Description		Qualitative Description / Explanation of Rating Criteria		
Environmental Impact Description		Description of the direct and indirect effect of human actions and project activities on the environment		
Mitigation Enhancement Measures	Measures	Measures designed to avoid, reduce or remedy adverse potential negative impacts. Includes measures to compensate for residual impacts. Measures designed to expand and augment the effect of potential positive impacts.		
Project Phase	Planning	Activities, impacts and mitigation measures applicable to the planning (or pre-implementation) phase.		
	Construction	Activities, impacts and mitigation measures applicable to the construction phase.		
	Operational	Activities, impacts and mitigation measures applicable to the operational (invasive prospecting) phase.		
	Rehabilitation and Closure	Activities, impacts and mitigation measures applicable to rehabilitation and closure (includes progressive rehabilitation over time leading up to and including rehabilitation at the end of the life of the project). For this project it also covers activities, impacts and mitigation measures applicable to post-closure.		
	Post Closure	Activities, impacts and mitigation measures that would be present after closure. For this project, due to the long life of the project, these are addressed under the Rehabilitation and Closure phase.		
Impact Status	Negative	Impacts with a potential negative / adverse effect.		
	Neutral	Neutral, no impact.		
	Positive	Impacts with a potential positive / beneficial effect.		
Consequence (Severity + Scale) Severity (Intensity + Duration + Frequency) Intensity (Negative Impacts) Intensity (Positive Impacts)	1	low	Slight change, disturbance or nuisance. Targets, limits and thresholds of concern never exceeded. Impacts are rapidly and easily reversible. Require no or only minor interventions or clean-up actions. No complaints expected when the impact takes place.	
		moderate	Moderate change, disturbance or discomfort. Real but not substantial. Targets, limits and thresholds of concern may occasionally be exceeded. Impacts are reversible but may require some effort, cost and time. Sporadic complaints can be expected when the impact takes place.	
		high	Prominent change, disturbance or degradation. Real and substantial. May result in illness or injury. Targets, limits and thresholds of concern regularly exceeded. Regular complaints can be expected when the impact takes place.	
		very high	Severe change, disturbance or degradation. May result in illness, injury or death. Targets, limits and thresholds of concern continually exceeded. Interest group / community mobilisation against project can be expected when the impact takes place. May result in legal action if impact occurs.	
	2	low	Slight change or improvement. Minor benefits.	
		moderate	Moderate change or improvement. Real but not substantial benefits.	
		high	Prominent change or improvement. Real and substantial benefits. General community support.	
		very high	Considerable and large-scale change or improvement. Real and considerable benefit. Widespread support.	
Rating Criteria and Symbol / Short Description		Qualitative Description / Explanation of Rating Criteria		
Assessment Confidence	Pos Very High	Widespread support. May be associated with extremely high community expectations.		
	Diverse Low	Minor interest. Some support. Some concerns.		
	Diverse Moderate	Limited interest. Some support. Some concerns.		
	Diverse High	General interest. Some support. Some concerns.		
	Diverse Very High	Widespread interest. Some support. Some concerns.		
	Complete	No information gaps exist. Decision-making can go ahead.		
	Incomplete	Minor information deficiencies exist but this does not affect decision-making. Decision-making can still go ahead. Not enough information for decision-making. Current data to be supplemented with further monitoring or research.		
Impact Rating Methodology	Weighting	Formula	Example	Rating Criteria
	1.0	I	1.0	Intensity (I)
	1.0	D	1.0	Duration (D)
	1.0	F	1.0	Frequency (F)
	1.0	$S=(I+D+F)/3$	1.0	Severity (S)(Intensity + Duration + Frequency)
	1.0	E	4.0	Scale (Extent) (E)
	1.0	$C=(S+E)/2$	2.5	Consequence (Severity + Extent) (C)
	0.5	P	3.0	Probability (P) WEIGHING OF 0.5 USED TO INCREASE THE CONSERVANCY OF THE ASSESSMENT
		$S1=(C+P)/2$	2.7	Significance (S1) (Consequence + Probability)
		W	0.0	Precautionary Weighting (W)
	$S2=(S+W)$	2.7	Significance with Precautionary Weighting (S2)	
Impact Rating	Formula	Level	Level	
	$\leq -$	-3.6	Neg Very High	
	$\leq -$	-3.0	Neg High	
	$\leq -$	-2.0	Neg Moderate	
	$<$	0.0	Neg Low	
	$>$	0.0	Pos Low	
	$\geq =$	2.0	Pos Moderate	
	$\geq =$	3.0	Pos High	
$\geq =$	3.6	Pos Very High		

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

The following key concerns have been identified:

- It is expected that primary vegetation will be present in the study area, with habitat assumed suitable for several red-data species.
- Further, the ecological state of areas to the west of the site and a portion to the east are currently delineated as Irreplicable areas by the Gauteng C Plan V33, some areas in the centre of the site are delineated as Ecological Support Area. Primary vegetation will need to be verified. Even modified areas, currently seen as ESAs, may be very important as habitat itself or to maintain Irreplicable areas habitat and species therein.



3.h.viii Possible Mitigation Measure that could be applied and the level of risk

Refer to Section 3.h.v and Table 3-6

The following mitigation can be implemented for sections of the proposed properties falling within the important areas. The following environmental management / mitigation plans can be followed if requested:

- Drill site selection must be aimed at minimising disturbance to natural vegetation.
- The site selection should be overseen by environmental scientists. Due to the sensitivity of the area detailed avifaunal surveys as well as detailed sensitive habitat mapping should be conducted before any potential development in the region occurs.
- No-go areas are to be identified where habits are considered to be sensitive.
- Environmental awareness training is to be given to all employees responsible for drilling.
- In order to minimise the impact of drilling activities on surface water a 100-meter buffer was allocated for each stream, river and wetlands.
- The drill sites are still located within the community land but agreement or compensation will need to be sought should the specific site be developed.
- The drilling sites themselves will be provided with safety netting, fencing and signage to ensure no person or animal can access these site.
- Workers and operators will not be housed on site. In addition, rehabilitation objectives will include ensuring that the site is safe.

3.h.ix Motivation where no alternative sites were considered.

No Alternative drill site locations were considered during the study. The project location was however bound to the current location due to the underlying geology. The prospecting right is dependent on the area chosen being susceptible to possible mineral deposits and therefore no alternative site could be considered.

3.h.x Statement motivating the alternative development location within the overall site.

The final layout for the drilling can only be completed once the non-invasive aerial geological surveys have been completed. Invasive prospecting (drilling) will avoid servitudes, suitable habitat for the Globally threatened Red Data avifaunal species, wetlands and 100 m buffer zones, rivers and 100 m buffer zones / 1:100-year flood lines (whichever is greatest), and 50 m buffer zones from potential historical sites, graves and identified protected plants. A detailed terrestrial ecological assessment will be required when the drilling locations are identified and before any construction or operations may occur. Drill site locations are not fixed and need approval by an environmental control officer before drilling. The ECO will, as a minimum, consider:

- The Protected Environment.
- Plant and animal (avi faunal) sensitivity.
- Current land use.
- Servitudes.
- Sensitive features such as households.
- Heritage sites (including graveyards).

3.i FULL DESCRIPTION OF THE PROCESS UNDERTAKEN TO IDENTIFY, ASSESS AND RANK THE IMPACTS AND RISKS THE ACTIVITY WILL IMPOSE ON THE PREFERRED SITE (IN RESPECT OF THE FINAL SITE LAYOUT PLAN) THROUGH THE LIFE OF THE ACTIVITY.

(Including (i) a description of all environmental issues and risks that are identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)

The same impact ranking criteria and methodology was employed as discussed in Section 3.h.vi of this report.

3.j ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK

Refer to Section 3.h.v and Table 3-6.



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3.K SUMMARY OF SPECIALIST REPORTS.

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

List of Studies Undertaken	Recommendations of Specialist Reports	Recommendations that Have Been Included in the EIA Report	Reference to Applicable Section of Report
<p>Archaeological Desktop study</p>	<ul style="list-style-type: none"> Although the 15 demolished sites dating to 1961 appear not to be associated with surface remains, subsurface culturally significant material might be present. Therefore, it is recommended that these sites be avoided by the proposed prospecting activities. Should this not be possible, a qualified archaeologist should be present on-site during prospecting in order to limit potential impact on heritage resources. The one intact site dating to 1961 might be of cultural significance as the possibility exists that the associated buildings and structures exceed 60 years of age. It is therefore recommended that this area be avoided by the proposed prospecting activities. Should this not be possible, a qualified archaeologist should be present on-site during prospecting in order to limit potential impact on heritage resources. The 10 sites dating to 1984 are of contemporary origin and are unlikely to be significant from a heritage perspective. The 500 m buffer zone surrounding perennial/non-perennial rivers is potentially sensitive from a heritage perspective. Care should be exercised when prospecting in this vicinity. The gradient buffer zone that is associated with steep contours is potentially sensitive from a heritage perspective. Care should be exercised when prospecting in this vicinity. It is advised that a qualified archaeologist be contacted whenever uncertainty regarding potential heritage remains exists. Prospecting should not take place in the vicinity of stone cairns, potential burial sites, stone-walling, building ruins or any other heritage material or structures. Should the prospecting outcome result in further development or construction, a full Phase 1 Archaeological Impact Assessment must be conducted on the affected area if triggered. Also, a full Phase 1 AIA must be done should the cumulative impact of the proposed prospecting exceed 0.5 ha. 	<p>X</p>	<p>This table, Section 3.h.iv and Section 3.h.v</p>
<p>Ecological Desktop Study</p>	<ul style="list-style-type: none"> It is expected that primary vegetation will be present in the study area, with habitat assumed suitable for several red-data species. Further, the ecological state of areas to the west of the site and a portion to the east are currently delineated as Irreplicable areas by the Gauteng C Plan V33, some areas in the center of the site are delineated as Ecological Support Area. Primary vegetation, will need to be verified. Even modified areas, currently seen as ESAs, may be very important as habitat itself or to maintain Irreplicable areas habitat and species therein. 	<p>X</p>	<p>This table, Section 3.h.iv and Section 3.h.v</p>



3.1 ENVIRONMENTAL IMPACT STATEMENT

3.1.1 Summary of the key findings of the environmental impact assessment;

The most significant impacts after mitigation and with a cumulative medium to high significance are:

Table 3-8: Summary of key findings

Impact	Significance – without mitigation	Significance – with mitigation	Comment	Mitigation
Negatively affecting the Ecological Support Areas (ESAs).	High	Negative low	The overall ecological state of all areas currently delineated as CBA or ESA, in addition to that of primary vegetation, will need to be verified.	A detailed terrestrial ecological assessment will be required when the drilling locations are identified and before any construction or operations may occur.
Negatively affecting sensitive bird species and the Biodiversity in the area.	Moderate	Negative Low	Apart from those listed, a greater diversity of fauna is expected to be resident on or frequent the study areas, especially due to the presence of rivers and drainage areas.	A thorough faunal survey should thus be undertaken, including downstream habitats, prior to prospecting and potential mining being initiated in the area and before drilling can commence – identification of boreholes.
Negatively affecting the Heritage sites.	Moderate	Negative Low	A total of 16 sites associated with buildings were observed on 1961 aerial imagery. Fifteen of the sites appear to have been demolished as no surface features are noted on contemporary satellite imagery, while one site is associated with intact surface remains. The demolished sites, however, might be associated with subsurface culturally significant remains.	A full Phase 1 AIA must be done should any development that triggers an AIA (Archaeological Impact Assessment) result from the prospecting project, including if the cumulative impact of the proposed prospecting exceeds 0.5 ha.
Negatively affecting the surface water quality.	Moderate	Negative Low	The closest perennial rivers to the is the Elands River and the Rust de Winter Dam is located 1,3km from the site, while several minor drainage lines within the site and in close proximity of the demarcated farm portions.	<ul style="list-style-type: none"> • 100-meter buffer has been established from any surface water resources - Storm water diversion measures and containment will be implemented. • Water will be recycled as far as possible using a closed loop sump system.
Conflicting land uses (agriculture and prospecting).	Moderate	Negative Low		<ul style="list-style-type: none"> • Prospecting will be planned to take place outside of farming activities where possible. • where not possible compensation will be discussed and agreed with the affected party. • rehabilitation will consider further use of the land.



The nature of prospecting involves invasive drilling of sites not exceeding 64 m². The drill sites are not fixed and can be relocated by 1-50 meters. Due to the flexibility of the drill sites and small size the key mitigation is to approve each site on environmental factors by a competent environmental officer. Each active site will be rehabilitated to its natural status before sampling and trenching. The success of the proposed mitigation is high.

3.1.ii Final Site Map

Provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers. Attach as Appendix 3.

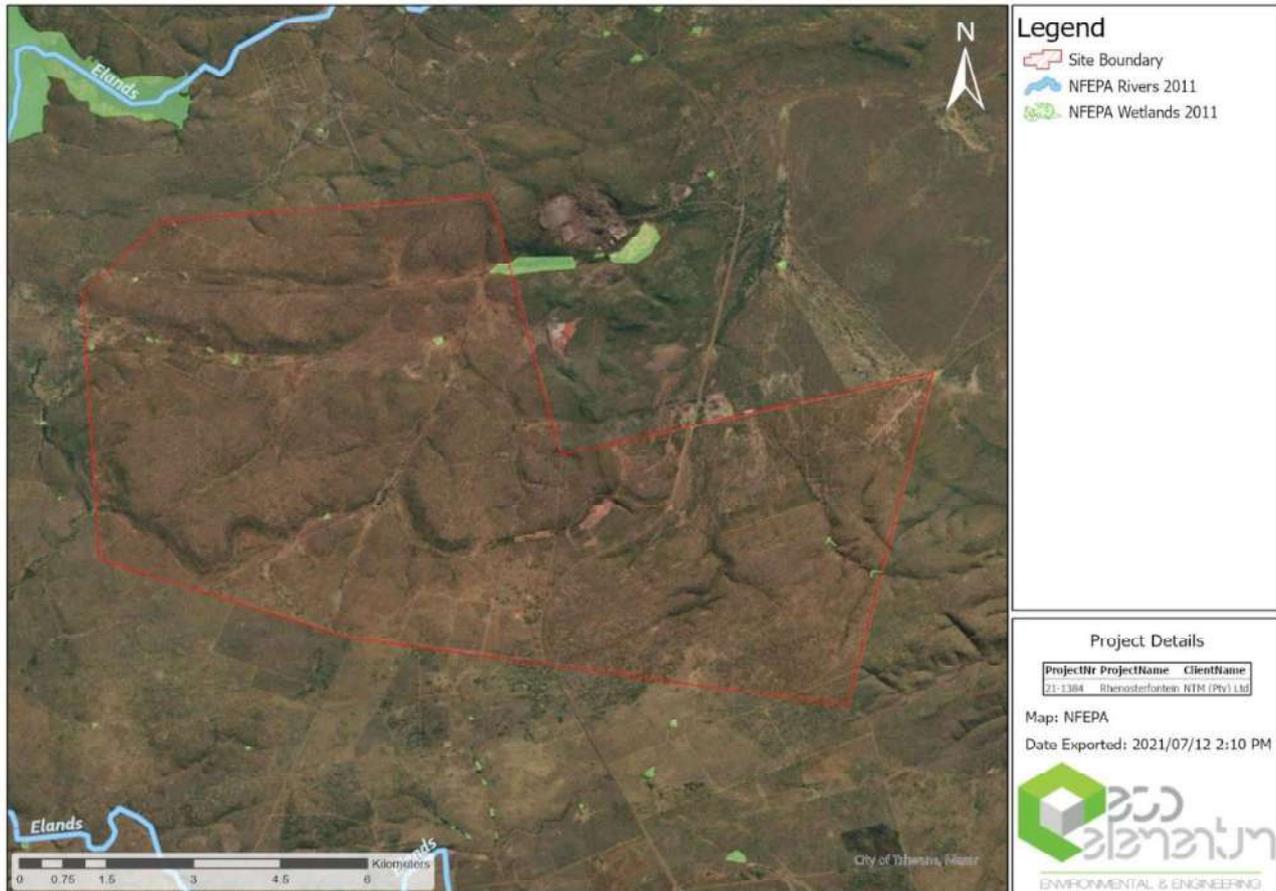


Figure 3-15: Site sensitivities.

3.1.iii Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.

Description	Advantages	Disadvantages
Prospecting drilling.	<ul style="list-style-type: none"> Successful prospecting for these minerals will boost the current struggling national economy as the project will advance to mining phase. The mining sector has provided more employment opportunities for the citizens in general. 	<ul style="list-style-type: none"> Vegetation and topsoil excavated during the drilling. Intrusion due to drilling and prospecting activities in an area where agricultural land uses are prominent.



Description	Advantages	Disadvantages
No-go alternative	<ul style="list-style-type: none"> No activity is to occur within 100 m of any road servitude, wetlands and their 100 m buffer zones, within rivers and their 100 m buffer zone / 1:100-year flood line without the necessary authorisation under NEMA and NWA. Heritage sites and 50 m buffer zones will be preserved at all times unless the necessary permits are obtained under SAHRA. 	<ul style="list-style-type: none"> The option of not approving the activities will result in a significant loss to valuable information regarding the mineral reserve status on this property. In addition to this, 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.

The risks of the project are potential negative impacts on the ecological support area and increased urban sprawl into rural areas.

Positive impact is associated with the brief creation of jobs and is considered of moderate to low significance. This has been assessed in terms of the prospecting operation on its own; however, should this prospecting right be converted into a MR then the social benefits will be of moderate to high significance.

3.m PROPOSED IMPACT MANAGEMENT OBJECTIVES AND THE IMPACT MANAGEMENT OUTCOMES FOR INCLUSION IN THE EMPR;

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

The objectives of impact mitigation and management are to:

- Primarily pre-empt impacts and prevent the realisation of these impacts - PREVENTION.
- To ensure activities that are expected to impact on the environment are undertaken and controlled in such a way so as to minimise their impacts – MODIFY and / or CONTROL.
- To ensure a system is in place for treating and/or rectifying any significant impacts that will occur due to the proposed activity – REMEDY.
- Implement an adequate monitoring programme to:
 - Ensure that mitigation and management measure are effective.
 - Allow quick detection of potential impacts, which in turn will allow for quick response to issue/impacts.
 - Reduce duration of any potential negative impacts.

Environmental impact management outcomes are:

- Conduct prospecting activities responsibly and ensure operation is compliant with legislative requirements.
- Protect the biophysical environment as far as possible, specifically wetlands and riverine areas and any protected species observed on site.
- Protect the water resources in the area as far as possible.
- Ensure atmospheric pollution is kept to a minimum.
- Ensure adequate rehabilitation to allow continued grazing land use.
- Ensure socially responsible activities.
- Protect historical and cultural sites if they are observed on site.

3.n ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION.

- A detailed terrestrial ecological assessment will be required when the drilling locations are identified and before any construction or operations may occur.



- Heritage sites and 50 m buffer zones will be preserved at all times unless the necessary permits are obtained under SAHRA.
- No activity is to occur within 100 m of any road servitude, wetlands and their 100 m buffer zones, within rivers and their 100 m buffer zone / 1:100-year flood line without the necessary authorisation under NEMA and NWA.
- Planning before carrying out prospecting activities in a particular area, and surveying the area before conducting invasive prospecting, is critical to ensure the sensitive areas are preserved and to ensure prospecting proceeds in a manner compliant with national legislation.
- Rehabilitation must be applied on an on-going basis and no sites must be left exposed for more time than necessary to obtain the necessary data. All areas disturbed during the drilling process must be rehabilitated to previous land use capability.

3.o DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE.

At this stage the exact locations of the invasive prospecting are unknown due to the fact that the locations will be dependent on the findings of the non-invasive techniques. This is not seen as a major gap as the lack of this knowledge has been worked into the EMP as well as the proposed conditions stipulated above. In general, the approach will be as follows for invasive prospecting:

- Activities must remain outside all wetland areas until authorisation has been obtained under NEMA and NWA.

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

3.p.i Reasons why the activity should be authorized or not.

- From a heritage point of view, prospecting may proceed on the demarcated portions, subject to the abovementioned conditions and recommendations.
- A detailed terrestrial ecological assessment will be required when the drilling locations are identified and before any construction or operations may occur.
- The EAP believes that the authorisation for the remaining portions of the activity should be granted.
- The risks of the remaining proposed prospecting activity are minimal and can be easily mitigated by following the mitigation measures stipulated in the EMP, which will reduce impacts significantly to acceptable levels which will easily recover.

3.p.ii Conditions that must be included in the authorisation

- A detailed terrestrial ecological assessment will be required when the drilling locations are identified and before any construction or operations may occur.
- No activity is to occur within 100 m of any road servitude.
- No activities to occur within 100 m of any wetlands and their 100 m buffer zones, within rivers and their 100 m buffer zone / 1:100 year flood line without the necessary authorisation under NEMA and NWA.
- Heritage sites and 50 m buffer zones will be preserved at all times unless the necessary permits are obtained under SAHRA.
- Planning before carrying out prospecting activities in a particular area, and surveying the area before conducting invasive prospecting, is critical to ensure the sensitive areas are preserved and to ensure prospecting proceeds in a manner compliant with national legislation.
- Rehabilitation must be applied on an on-going basis and no sites must be left exposed for more time than necessary to obtain the necessary data. All areas disturbed during the drilling process must be rehabilitated to previous land use capability.

3.q PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED.

5 Years.

3.r UNDERTAKING

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

The applicant representative, Mr. Douglas Mongwe hereby confirms the undertaking to ensure implementation and compliance with the basic assessment report and environmental management programme.



3.3 FINANCIAL PROVISION

CALCULATION OF CLOSURE QUANTUM									
Prospecting Right Ref: GP 30/5/11/21/10691 PR					Provinces: Gauteng				
Evaluators: Eco Elementum (Pty) Ltd					Date: July 2021				
General Information	Risk Class		[B] CPI Adjusted Master Rate		[A] Quantity	Units	[C] Multiplication Factor	[D] Weighting Factor 1: Nature of Terrain	Sub Totals [E = A*B*C*D]
	Environmental Sensitivity	WF 1: Nature of Terrain Weighting Factor	WF 2: Proximity to Urban Area Weighting Factor	STEP 4.3	STEP 4.5		STEP 4.3	STEP 4.4	
Component No	Main Activities Itemized Descriptions			STEP 4.3	STEP 4.5		STEP 4.3	STEP 4.4	NOTES & SUPPORTING EXPLANATIONS
1	Dismantling of processing plant and structures			R 16,59	0,00	m3	1,00	1,00	R 0,00
2(A)	Demolition of steel buildings and structures			R 231,09	0,00	m2	1,00	1,00	R 0,00
2(B)	Demolition of reinforced concrete buildings and structures			R 340,55	0,00	m2	1,00	1,00	R 0,00
3	Rehabilitation of access roads			R 41,35	800,00	m2	1,00	1,00	R 33 080,00
4(A)	Demolition and rehabilitation of electrified railway lines			R 401,36	0,00	m	1,00	1,00	R 0,00
4(B)	Demolition and rehabilitation of non-electrified railway lines			R 218,92	0,00	m	1,00	1,00	R 0,00
5	Demolition of housing and facilities			R 462,17	0,00	m2	1,00	1,00	R 0,00
6	Open-cast rehabilitation including final voids and ramps			R 235 221,83	0,00	ha	1,00	1,00	R 0,00
7	Sealing of shafts, adits and inclines			R 124,06	0,00	m3	1,00	1,00	R 0,00
8(A)	Rehabilitation of overburden and spoils			R 161 517,37	0,00	ha	1,00	1,00	R 0,00
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing waste)			R 201 116,96	0,00	ha	1,00	1,00	R 0,00
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)			R 564 284,21	0,00	ha	1,00	1,00	R 0,00
9	Rehabilitation of subsided areas			R 135 246,47	0,00	ha	1,00	1,00	R 0,00
10	General surface rehabilitation, including gassing of denuded areas			R 127 949,00	0,26	ha	1,00	1,00	R 33 266,74
11	River diversions			R 127 949,00	0,00	ha	1,00	1,00	R 0,00
12	Fencing			R 145,95	0,00	m	1,00	1,00	R 0,00
13	Water management (Separating clean and dirty water, managing polluted water and managing the impact on groundwater, including treatment, when required)			R 48 649,81	0,00	ha	1,00	1,00	R 0,00
14	2 to 3 years of maintenance and after care			R 17 027,43	0,26	ha	1,00	1,00	R 4 427,13
15	Specialist study			R 45 000,00	1,00	report	1,00	1,00	R 45 000,00
Subtotal 1 (1 to 15 above)									R 115 773,87
Subtotal 1									R 115 773,87
Preliminary and General									R 13 892,86
Contingency									R 11 577,39
Subtotal 2 (Subtotal 1 plus sum of management and contingency)									R 25 470,25
Subtotal 3									R 141 244,12
GRAND TOTAL (Subtotal 3 plus 15% VAT)									R 162 430,74





3.s.i Explain how the aforesaid amount was derived.

The Quantum was calculated using the guideline document developed by the Department of Mineral Resources in 2005. In addition, consideration has been given to Section 41 of the Mineral & Petroleum Resource Development Act, N0 28 of 2002.

The quantum has been aligned with the rehabilitation and allows for the site to be rehabilitated back to the original status of the site. This will include:

- Ensuring all pollution generating activities are eliminated.
- Ensuring all infrastructure is removed from site.
- Ensuring that the existing land use can continue.
- Ensuring that the site is safe for humans and animals.

The rehabilitation sites will have a footprint of 64 m² for 42 sites as this is the area determined that needs to be cleared for drilling from previous experience. The maps and illustrations attached therefore indicate the site layout and sizes associated in order to do prospecting drilling.

Only one prospecting site will be active at a time as there is only one drill rig that will be used. This therefore allows minimum exposure and impact as concurrent rehabilitation can be carried out. Once drilling is complete at one site (usually within one day) the rehabilitation can be done immediately and soils and vegetation replaced.

Existing roads will be used as far as possible, and it is not possible to identify any new access roads at this stage as its route will be determined in conjunction with the landowner and activities on the property at that time. No other infrastructure, offices or housing, will be present within the prospecting area and all employees will be housed in nearby towns. Vegetation establishment is monitored after the first rain to ensure sustainability in the rehabilitation efforts.

3.s.ii Confirm that this amount can be provided for from operating expenditure.

The provision forms part of the capital expense of the project and is not included in the operational budget allocated in the prospecting works programme. Allowance has been made for environmental reporting in the operational budget.

3.t SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

3.t.i Compliance with the provisions of sections 24(4)(a) and (b) read with section 24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of 1998). The EIA report must include the:-

3.t.i.1 *Impact on the socio-economic conditions of any directly affected person.*

(Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim.

The proposed prospecting activities are expected to be limited and thus opportunities for employment will be low. However, consideration will be given to local procurement of goods and services where practicable.

There may be concern that the introduction of the prospecting workforce into the farm communities can result in disputes. The prospecting workforce is not to interfere with any farm labourers or communities. No persons are to reside on the properties during prospecting activities.

3.t.i.2 Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act. (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act, attach the investigation report as Appendix 4 and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6 and 2.12. herein).



Section 3(2) of the National Heritage Resources Act, No. 25 of 1999 provides a description of all items that is classified as national estate. The EAP has evaluated the list in comparison with the project site. A heritage assessment must be initiated prior to invasive drilling.

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

Section 24(4) (b) (i) of the Act specifies “investigation 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”.

The alternatives assessed and the impacts associated with the alternatives assessed have been fully presented in Section 3.h and Section 3.l.iii.



PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT



4. ENVIRONMENTAL MANAGEMENT PROGRAMME

4.a DETAILS OF THE EAP

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

Name of The Practitioner: Ms. Jane Mahaba
 Tel No.: 012 807 0383
 Fax No. : 086 714 5397
 e-mail address: jane@ecoe.co.za

4.b DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

Both non-invasive and invasive prospecting activities will be undertaken as part of the proposed Prospecting Work Programme (PWP). The application will follow a phased approach, where the prospecting work program is divided into several sequential phases.

The proposed areas of interest within the application area will be defined within the course of prospecting activities. It is anticipated that the invasive program will consist of 42 boreholes.

Regarding the length of the boreholes an average of 150 m was used for budget purposes although the lengths will differ depending on where you are drilling in the project area.

Vegetation will be cleared at the borehole locations within the application area. Minor access tracks will be created to access the proposed borehole sites where there are no existing roads. The total length of the access routes is anticipated to be 5 000 m and the approximate width is 3 m.

At the end of each phase there will be a brief period of compiling and evaluating results. The results will not only determine whether prospecting proceeds, but also the manner in which it will go forward. The applicant will only action the next phase of prospecting, once satisfied with the results obtained in the previous phases. In addition, smaller, non-core parts of the prospecting work program will be undertaken, if warranted. A description of the planned invasive and non-invasive activities is detailed below.

DESCRIPTION OF PLANNED NON-INVASIVE ACTIVITIES:

(These activities do not disturb the land where prospecting will take place e.g. aerial photography, desktop studies, aeromagnetic surveys, etc.)

The Non-Invasive methods which will be used during the exploration program span all the four phases in different time frames. They are outlined in the following text.

Literature Study – During this stage information pertaining to the geological, geographical, environmental and geomorphological including the topographical and infrastructural systems of the area will be studied with the aim of designing the prospecting program and also the impact that the programs will have in the environmental and the ecosystem of the area. Information will be gathered from relevant areas including the Council of the Geoscience and other commercial areas where it may be available. Sources of information will include geological reports, general geological text books and geological maps, topographical maps, agricultural and land use maps. Visits to the area will also be conducted in order to acquire information that might not be available in literature. Detailed geological information will then be gathered which will be used in planning further prospecting and exploration strategy.

Geological Mapping – This stage will include the field traverse in the farm collecting geological information. Lithological contacts, outcrops, faults, dykes, folds will be mapped including their attitude and characteristics like dip and strikes, thickness etc. This information will be correlated with the literature study information in order to correlate with the correct stratigraphy and lithological units.



Interpretation of Information and decision making – This item appears in all the phases towards the end of the data gathering sub-programs. In Phase 1, this will mean that maps will be drawn depicting the data which is of the geological nature of the area. Using all other information, a decision will then be taken as to whether it is feasible to carry on or if the project should be abandoned.

Sampling and resource modelling. - This stage entails sampling the core from drilling as well as data manipulation to produce drilling results information. Resource modelling is conducted which will result in tonnages and grade distribution. However, this is still in low geological confidence. From the results, a decision will be taken if prospecting will be continued. During the non-invasive methods, additional information is gathered in the form of prefeasibility studies. This includes the determination of the suitable mining method and its costs. Other information that is gathered includes the macro and the micro economics that will determine the feasibility of the project.

DESCRIPTION OF PLANNED INVASIVE ACTIVITIES:

(These activities result in land disturbances e.g. sampling, drilling, bulk sampling, etc.)

Planned invasive prospecting methods entail conducting drilling to ascertain the existence of the expected minerals, its thickness and distribution. Samples will be taken and analysed. The number of boreholes planned is 42:

- Reconnaissance drilling: 10.
- Resource drilling: 12.
- Feasibility drilling: 20.

The depths will vary from very shallow (approx. 30m) to nearly 150m. The exact depths of the boreholes will be determined while the drilling program is underway as influenced by the depths and dips measured in the previous boreholes. Trenching will not be conducted. No other excavations, bulk sampling or pitting is planned.



4.c COMPOSITE MAP

(Provide a map (Attached as an Appendix 3) at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers)

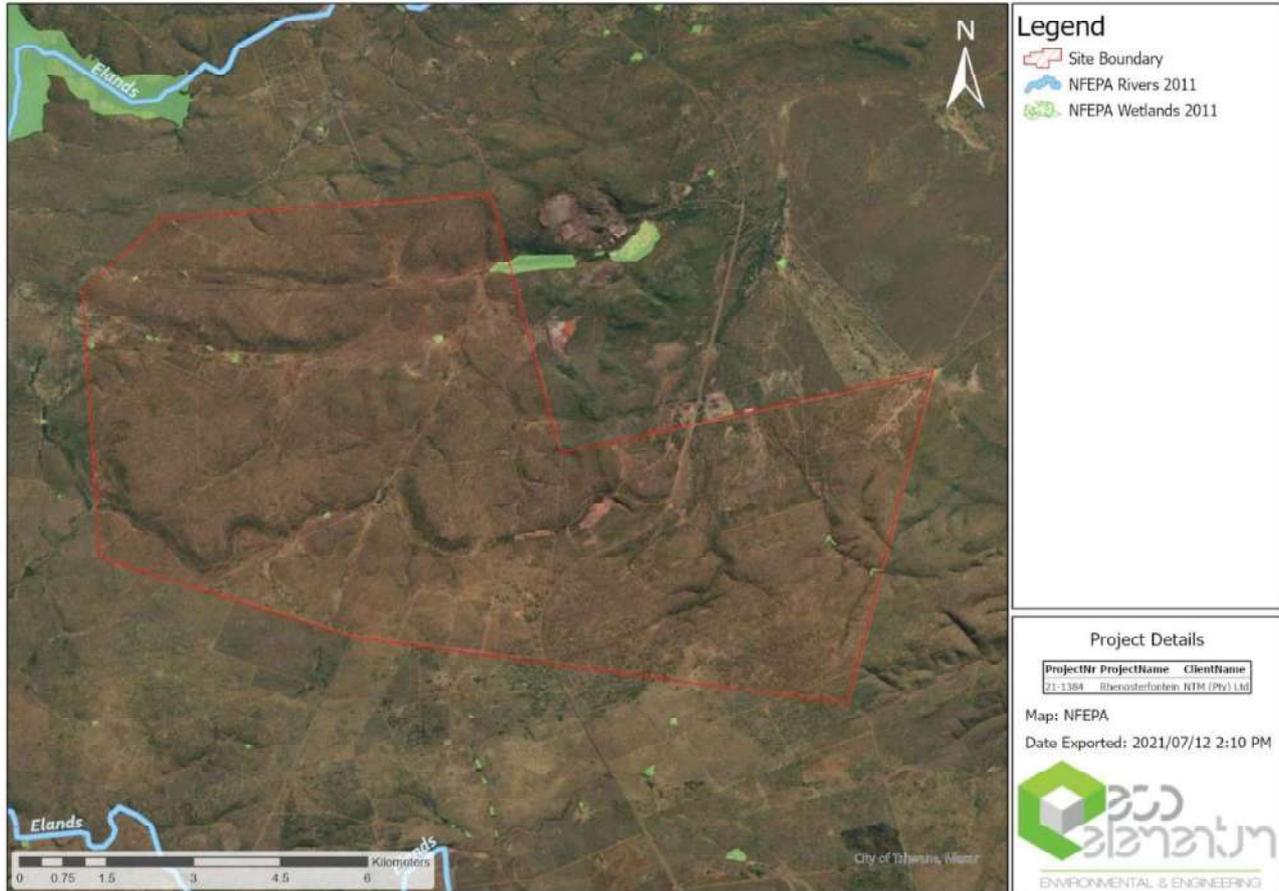


Figure 4-1: Site Proposed Layout

4.d DESCRIPTION OF IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

4.d.i Determination of closure objectives.

The closure objective allows for the site to be rehabilitated back to the original status of the site. This will include:

1. Ensuring all pollution generating activities are eliminated.
2. Ensuring all infrastructure is removed from site.
3. Ensuring that the existing land use can continue.
4. Ensuring that the site is safe for humans and animals.

Vegetation establishment is monitored after the first rain to ensure sustainability in the rehabilitation efforts.

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

Only a small volume of water will be required during drilling. Approximately 15 m³ of water will be used per day for a maximum of 20 days. This amounts to a total maximum of 300 m³.

Water will also be brought onto site for potable use, this is estimated at 5 litres per person / day.



4.d.iii Has a water use licence has been applied for?

No water use licence or water use registration has been applied for. The project aims to utilise water from existing lawful users, an irrigation board or water services provider. Should water be required from a water resource if the above is unsuccessful a water use registration will be applied for.

No watercourses will also be impacted by the activity and a 100 m buffer has been created around all watercourses to limit the need for 21(c) or 21(i) water use licences or registration.

4.d.iv Impacts to be mitigated in their respective phases.

OBJECTIVES

This section provides for the environmental management of all prospecting activities to be undertaken in the prospecting area. The objective of this section is to detail actions required to address the potential impacts resulting from the identified activities to be undertaken during the establishment, operation and rehabilitation of drilling sites within the prospecting right area. This section elaborates on the implementation of the mitigation measures documented in the detailed impact assessment.

Environmental Impacts

The aim of this section is to reduce the significance of negative impacts and enhance positive impacts as far as practicably possible. The overall objectives are thus to:

- Minimize disturbance on the physical environment including the protection of soils, surface water and groundwater during drilling operations;
- Minimize disturbance to the ecological environment and prevent disturbance to sensitive sites;
- prevent disturbance of sites of cultural and historical importance;
- Minimize disturbance to current land uses and neighbouring activities;
- Provide for a forum for consultation with land owners and affected parties; and
- Facilitate socio-economic development where practicable.

Rehabilitation

Prospecting activities are to be undertaken in a manner which facilitates site rehabilitation and the restoration of pre-disturbance land capabilities. The primary objectives for rehabilitation include the:

- Removal of all infrastructure and material introduced to site.
- Removal of all wastes and their appropriate disposal.
- Promotion of the rapid re-establishment of natural vegetation and the restoration of site ecology; and
- Facilitation of the re-establishment of the land use and land capability to as close as reasonably possible to the original conditions.

Action Plan

The various actions that need to be implemented, to ensure that the environmental objectives are met, are detailed in this section. The actions are aimed at preventing or mitigating environmental impacts and implementing the rehabilitation plan. The management actions are stated in a manner that ensures that they can be audited during the performance assessment programme.

Time Schedule

Timeframes detail the implementation schedule of management actions. The successful implementation and commencement within the timeframes are to be monitored as part of the performance assessment programme.



Requirements for Implementation

Additional measures that will need to be put in place to allow for the successful implementation of the action plan are listed where relevant. The table below presents the actions that need to be implemented to address the potential impacts resulting from the identified activities to be undertaken during the establishment, operation and rehabilitation of drilling sites within the prospecting right area. The management actions are stated in a manner that ensures that they can be audited during the performance assessment programme. Once approved by the relevant authorities, the provisions of the EMP are legally binding on the project applicant and all its contractors and suppliers.



Table 4-1: Impacts to be mitigated in their respective phases, Impact Management outcomes, Impact Management Action

ACTIVITIES (E.g. For prospecting - drill site, site camp, ablation facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc..)	PHASE (Of operation in which activity will take place. State; Planning and design, Pre-Construction, Construction, Operational, Rehabilitation, Closure, Post closure).	SIZE AND SCALE of disturbance (volumes, tonnages and hectares or m ²)	MITIGATION MEASURES (describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	TIME PERIOD IMPLEMENTATION Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required.	FOR
Prospecting (drill) site clearance	Construction	640 m ²	The prospecting is aimed at minimising disturbance to natural vegetation once the positions have been finalised. No-go areas to be identified. Environmental awareness training of all employees responsible for drilling. A heritage assessment and paleontological impact assessment need to be undertaken prior to any invasive site activities. ECO to approve drill site location considering biodiversity, water resources, heritage and land use, Consult with landowner on drill site location, demarcates drill site for safety, Create an upstream berm to divert, clean stormwater around the site, Create a downstream berm to contain any dirty water.	NEM: BA SANBI Resources Act Implementation of the Impact management hierarchy to avoid, minimise, mitigate and rehabilitate. Compliance to GN704 of the National Water Act	Prior to construction	
Establish water recycling sumps	Construction	2 m ²	Remove topsoil where sumps will be placed for rehabilitation.	- to meet rehabilitation Standards.	During construction.	



ACTIVITIES (E.g. For prospecting - drill site, site camp, ablation 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, ablation, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	PHASE (Of operation in which activity will take place. State; Planning and design, Pre-Construction, Construction, Operational, Rehabilitation, Closure, Post closure).	SIZE AND SCALE of disturbance (volumes, tonnages and hectares or m ²)	MITIGATION MEASURES (describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	TIME PERIOD IMPLEMENTATION FOR Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either:- Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.
Clearance of access roads	Construction	800 m ²	Line drill sumps with plastic to limit groundwater seepage. ECO to approve access road Route. Limit clearance to two lane tracks.	- to limit groundwater contamination.	During construction.
Establish prospecting site	Construction	25 – 64 m ²	Chemical toilets need to be placed in close proximity to the drill site. - All chemicals and fuels need to be stored in a bunded area. - bins for general waste need to be provided. - signage indicating hazards need to be placed at the entrance of the site. - drill rig operators and labourers need to be provided with identification cards. - no labourers are to be housed on site.	-Implementation of the Impact management hierarchy to avoid, minimise, mitigate and rehabilitate. Occupation Health requirement. Management of hazardous substances.	During construction.
Operation of the drill site	Operation	25 – 64 m ²	General waste needs to be collected and disposed at a licensed facility. - during rainfall events the drilling sumps need to be covered with plastic.	- impact mitigation.	During operations.



ACTIVITIES (E.g. For prospecting - drill site, site camp, ablation 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, ablation, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	PHASE (Of operation in which activity will take place. State; Planning and design, Pre-Construction, Construction, Operational, Rehabilitation, Closure, Post closure).	SIZE AND SCALE of disturbance (volumes, tonnages and hectares or m ²)	MITIGATION MEASURES (describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	TIME PERIOD IMPLEMENTATION FOR Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either:- Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.
			<ul style="list-style-type: none"> - no employees are allowed outside of the drill site barricading without permission from the site manager. - water is to be sourced from existing users. - working hours is only permitted during daytime hours. - vehicles are not permitted to exceed 30 km/h within the drill properties. 		
Decommissioning and rehabilitation of the drill site Access roads.	Rehabilitation	25 – 64 m ²	<ul style="list-style-type: none"> - All infrastructure needs to be removed from the site. - All waste and spillage need to be cleaned and disposed of appropriately. - drill sump water should be reused or allowed to evaporate. - plastic from drill sumps need to be removed. - Chemical toilets need to be cleaned before I can be moved to the following drill site. - The drill hole must be capped or sealed to limit water ingress and ensure safety for humans and animals. 	<ul style="list-style-type: none"> - Rehabilitation standards and objectives. 	Rehabilitation.



ACTIVITIES (E.g. For prospecting - drill site, site camp, ablation 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, ablation, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	PHASE (Of operation in which activity will take place. State; Planning and design, Pre-Construction, Construction, Operational, Rehabilitation, Closure, Post closure).	SIZE AND SCALE of disturbance (volumes, tonnages and hectares or m ²)	MITIGATION MEASURES (describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	TIME PERIOD IMPLEMENTATION FOR
			- vehicles are not permitted to exceed 30 km/h within the drill properties.		Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either:- Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.



4.e IMPACT MANAGEMENT OUTCOME

Refer to Section 4.d.iv and Table 4-1.

4.f IMPACT MANAGEMENT ACTIONS

Refer to Section 4.d.iv and Table 4-1

4.f.i Financial Provision

4.f.i.1 Determination of the amount of Financial Provision.

4.f.i.1.a Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.

The Quantum was calculated using the guideline document developed by the Department of Mineral Resources in 2005. In addition, consideration has been given to Section 41 of the Mineral & Petroleum Resource Development Act, No 28 of 2002.

The quantum has been aligned with the rehabilitation and allows for the site to be rehabilitated back to the original status of the site. This will include:

- Ensuring all pollution generating activities are eliminated.
- Ensuring all infrastructure is removed from site.
- Ensuring that the existing land use can continue.
- Ensuring that the site is safe for humans and animals.

The rehabilitation sites will have a footprint of 64 m² for 20 sites as this is the area determined that needs to be cleared for drilling from previous experience. The maps and illustrations attached therefore indicate the site layout and sizes associated in order to do prospecting drilling.

Application for Prospecting right for Iron Ore in respect of Portions 1,4,6,7,8,10 and the Remaining Portion of the farm Rhenosterfontein 210 JR, portion 3 and the remaining portion of the farm Naauwpoort 208JR situated in the City of Tshwane Municipality Gauteng Province of South Africa with maximum of 42 drill boreholes are required to determine the available resource. Only one prospecting site will be active at a time as there is only one drill rig that will be used. This therefore allows minimum exposure and impact as concurrent rehabilitation can be carried out. Once drilling is complete at one site (usually within one day) the rehabilitation can be done immediately and soils and vegetation replaced.

Existing roads will be used as far as possible, and it is not possible to identify any new access roads at this stage as its route will be determined in conjunction with the landowner and activities on the property at that time. No other infrastructure, offices or housing, will be present within the prospecting area and all employees will be housed in nearby towns. Vegetation establishment is monitored after the first rain to ensure sustainability in the rehabilitation efforts.

4.f.i.1.b Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.

The basic assessment report and environmental management programme will be provided to IAPs for review and comment for 30 days. The objective is to communicate to IAP's during the public consultation process.

4.f.i.1.c Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure.

Vegetation and topsoil excavated during the drilling process will be stockpiled next to sumps where it will serve as a storm water diversion berm. On completion of the drilling process, the rehabilitated sumps will be backfilled with the stockpiled material.



4.f.i.1.d Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.

The rehabilitation per drilling boreholes will provide a project site backfilled ,capping of boreholes, closing of trenches and vegetating of disturbed areas (where not within cultivated lands).

4.f.i.1.e Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.

The total provision amounts to the number of holes requiring rehabilitation at any given moment. This ensures that should the project application become insolvent prematurely the costs of rehabilitation can be recovered. Existing roads will be used as far as possible, and it is not possible to identify any new access roads at this stage as its route will be determined in conjunction with the landowner and activities on the property at that time. No other infrastructure, offices or housing, will be present within the prospecting area and all employees will be housed in nearby towns. The quantum as calculated using the Department’s guideline is provided in the Table below.

Table 4-2: Closure Quantum

CALCULATION OF CLOSURE QUANTUM								Version 1.0: Closure Quantum for FY2020	
Prospecting Right Ref: GP 30/5/11/12/10691 PR						Province: Gauteng			
Evaluators: Eco Elementum (Pty) Ltd						Date: July 2021			
General Information	Risk Class	High (A)	National Treasure Minerals - Prospecting Right						
	Environmental Sensitivity	Medium							
	WF 1: Nature of Terrain Weighting Factor	Flat 1.00							
	WF 2: Proximity to Urban Area Weighting Factor	Peri-Urban 1.05							
Component No	Main Activities Itemized Descriptions	[B] CPI Adjusted Master Rate	[A] Quantity	Units	[C] Multiplication Factor	[D] Weighting Factor 1: Nature of Terrain	Sub Totals [E = A*B*C*D]	NOTES & SUPPORTING EXPLANATIONS	
		STEP 4.3	STEP 4.5		STEP 4.3	STEP 4.4			
1	Dismantling of processing plant and structures	R 16,59	0,00	m3	1,00	1,00	R 0,00		
2(A)	Demolition of steel buildings and structures	R 231,09	0,00	m2	1,00	1,00	R 0,00		
2(B)	Demolition of reinforced concrete buildings and structures	R 340,55	0,00	m2	1,00	1,00	R 0,00		
3	Rehabilitation of access roads	R 41,35	800,00	m2	1,00	1,00	R 33 080,00	Existing gravel roads to be used mainly - contingency provided for offroad areas	
4(A)	Demolition and rehabilitation of electrified railway lines	R 401,36	0,00	m	1,00	1,00	R 0,00		
4(B)	Demolition and rehabilitation of non-electrified railway lines	R 218,92	0,00	m	1,00	1,00	R 0,00		
5	Demolition of housing and facilities	R 462,17	0,00	m2	1,00	1,00	R 0,00		
6	Opencast rehabilitation including final voids and ramps	R 235 221,83	0,00	ha	1,00	1,00	R 0,00		
7	Sealing of shafts, adits and inclines	R 124,06	0,00	m3	1,00	1,00	R 0,00		
8(A)	Rehabilitation of overburden and spoils	R 161 517,37	0,00	ha	1,00	1,00	R 0,00		
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing waste)	R 201 116,96	0,00	ha	1,00	1,00	R 0,00		
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)	R 584 284,21	0,00	ha	1,00	1,00	R 0,00		
9	Rehabilitation of subsided areas	R 135 246,47	0,00	ha	1,00	1,00	R 0,00		
10	General surface rehabilitation, including grassing of denuded areas	R 127 949,00	0,26	ha	1,00	1,00	R 33 266,74	Entire disturbed footprint 42x boreholes 64m2 each (42x64=2688m2)	
11	River diversions	R 127 949,00	0,00	ha	1,00	1,00	R 0,00		
12	Fencing	R 145,95	0,00	m	1,00	1,00	R 0,00		
13	Water management (Separating clean and dirty water, managing polluted water and managing the impact on groundwater, including treatment, when required)	R 48 649,81	0,00	ha	1,00	1,00	R 0,00		
14	2 to 3 years of maintenance and after care	R 17 027,43	0,26	ha	1,00	1,00	R 4 427,13	Entire disturbed footprint (2688m2)	
15	Specialist study	R 45 000,00	1,00	report	1,00	1,00	R 45 000,00	Final closure study: GNR1147 Format	
Subtotal (1 to 15 above)							R 115 773,87		
Subtotal 1			Weighting Factor 2			1	R 115 773,87		
1	Preliminary and General		12% of Subtotal 1 if less than R100mil				R 13 892,86		
2	Contingency		6% of Sub Total 1 if more than R100mil				R 11 577,39		
Subtotal 2 (Subtotal 1 plus sum of management and contingency)							R 25 470,25		
Subtotal 3							R 141 244,12		
GRAND TOTAL (Subtotal 3 plus 15% VAT)							R 162 430,74		

4.f.i.1.f Confirm that the financial provision will be provided as determined.

The applicant hereby commits to undertaking to provide the calculated amount in the form of either method provided in section 53 of the MPRD Regulations and the financial provisioning regulations, 2015 Published under Government Notice R1147 (GN R. 39425 of 2015). It should however be noted that no new guideline for determining the quantum for closure and rehabilitation has been published and therefore the guideline published under the MPRDA regulation was used to assess the quantum for closure liability.

MECHANISMS FOR MONITORING COMPLIANCE WITH AND PERFORMANCE ASSESSMENT AGAINST THE ENVIRONMENTAL MANAGEMENT PROGRAMME AND REPORTING THEREON, INCLUDING –

4.g MONITORING OF IMPACT MANAGEMENT ACTIONS

4.h MONITORING AND REPORTING FREQUENCY (TABLE 4-3).



- 4.i RESPONSIBLE PERSONS (TABLE 4-3).
- 4.j TIME PERIOD FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS (TABLE 4-3).
- 4.k MECHANISM FOR MONITORING COMPLIANCE (TABLE 4-3).

Table 4-3: Mechanisms for Monitoring Compliance with and Performance Assessment Against the Environmental Management Programme and Reporting thereon, including.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Drill site establishment, moving and rehabilitation	Disturbance of vegetation, Degradation and destruction of sensitive biodiversity- Suitable habitat for the globally threatened red data avifaunal species. Contamination of ground and surface water. Disturbance of heritage Resources. Land use conflicts Noise and dust generation Rehabilitation sustainability	Pre-site establishment, with no go areas and approval by EO and avifaunal specialist. The following portion will then be excluded/buffered as the Gauteng Visual assessment. Pre-site establishment risk Assessment Pre-site establishment risk assessment. Complaint register. Rehabilitation closure report.	Project environmental officer. Site manager Project environmental officer Project environmental officer	Prior to site establishment. (Once off) During operations and closure. (Bi-monthly) Prior to site establishment Prior to site establishment (Once off) During operations and closure (continuous) Post closure
Entire operational site	All activities and impacts identified.	Auditing all site activities in compliance with the management commitments.	Project environmental officer.	During life of project. (monthly)

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

A performance assessment / Environmental audit will be undertaken as stipulated in the Environmental Authorisation OR once in Phase 2 and in rehabilitation, which should include the assessment of the financial provision. The performance assessment will be conducted by an external consultant throughout the life of prospecting as required under NEMA. This is conducted to assess the adequacy and compliance to the EMP, EA and the relevant legislation. The reports should be submitted to the DMR.

4.m ENVIRONMENTAL AWARENESS PLAN

4.m.i Manner in which applicant intends to inform his / her employees of any environmental risk which may result from their work.

An environmental awareness training manual will be developed for the prospecting project.

All employees must be provided with environmental awareness training to inform them of any environmental risks that may result from their work and of the manner in which the risks must be dealt with to avoid pollution or the degradation of the environment.

Employees should be provided with environmental awareness training before operations start. All new employees should be provided with environmental awareness training. Environmental awareness and training is an important aspect of the implementation of the EMP. The onus is on the different parties involved in the various stages of the life cycle of the project to be environmentally conscious. Hence,



it is suggested that all members of the project team are familiar with the findings of the site-specific EA report and the EMPr. For instance, the contractor is responsible for the lack of environmental knowledge of his/her crew members. The contractor could forward internal environmental awareness and training procedures to the project manager and environmental officer for comment prior to the commencement of the project. Likewise, the above is applicable to the programming, design, operations and maintenance, and decommissioning teams. Environmental awareness ensures that environmental accidents are minimised, and environmental compliance maximized.

All staff and contractors will be submitted to an annual training / awareness course as to inform the staff of any environmental risks which may result from their work and the manner in which the risks must be dealt with in order to avoid pollution or the degradation of the environment.

Section 39 (3) (c) requires that an applicant who prepares an Environmental Management Programme or Environmental Management Plan must “develop an environmental awareness plan describing the manner in which the applicant intends to inform his or her employees of any environmental risks which may result from the work and the manner in which the risks must be dealt with in order to avoid pollution and degradation of the environment”. Environmental Awareness is required not only for management and employees (as described in Section 39 (3) (c) but also for visitors to the site. the following strategies and plans will be put into place for each of the parties.

Visitor Environmental Awareness

Visitor / sub-contractor environmental awareness will be generated through the provision of a signboard describing very briefly the environmental considerations applicable to them. The signboard should contain the following information:

- Statement of the applicant’s commitment to environmental principles;
- List of the “rules” to which the visitor must abide. This will include:
 - No littering. Dispose of all waste in the bins provided;
 - No fires;
 - Stay on demarcated roadways and paths only;
 - Kindly report any environmental infringements they may notice; and
 - Check your vehicle/equipment for diesel/oil leaks.

Senior and Middle Management Environmental Awareness:

Achieving environmental awareness at upper levels of management is slightly different from the process at the operational level. There is often a fair level of the general value of environmental awareness, but site-specific issues will most often need to be communicated. This will be achieved by:

- Management must make themselves fully familiar with the EMPr;
- Ensuring that there is a spare copy of the approved EMPr at his/her disposal; management is encouraged to make notes in the document regarding the difficulty / ease of implementing the environmental management measures. These notes should be sent to the consultants to assist in future revisions of the EMPr;
- The manager must ensure that the operators perform regular monitoring of their workstations / areas.

During the management’s execution of their activities/being at the site, the management must constantly be aware of and observant of especially the following:

- Dust levels - movement outside of demarcated areas;
- Litter management - general housekeeping;
- Erosion during rainy season.

Topsoil management – fuel / oil management/leaks/changes;

- Success of operational re-vegetation; and
- Alien vegetation.

Operator / Workforce Environmental Awareness:

Achieving environmental awareness amongst the operators and labour is probably the most important because they are usually present at the place where most environmental transgressions take place or in fact cause them. It is the aim of increased environmental awareness to reduce any such environmental transgressions.



Increasing environmental awareness at these levels can be achieved through the following strategies:

- Induction environmental training must take place prior to any contract period.
- Training: Each and every employee (contractor or not) must go through an environmental training process where at least the following items area covered:
 - The oil / fuel management policy must be explained to the employees. The reason for the policy must also be explained (i.e., to not impact on groundwater, surface water, soil quality etc.);
 - The domestic and industrial waste management policy & method must also form part of the training;
 - The topsoil handling method and the reasons for preserving topsoil (i.e., post prospecting re vegetation, erosion prevention etc.);
 - Alien vegetation management: How to recognize and remove such species;
 - Protection of the natural veld by not driving/manoeuvring or walking through the demarcated protection areas. Reporting that demarcation posts/tape is broken or removed;

Emergency management procedures such as dealing with oil spills or fires must also be drilled; and

- Such training will, in this case, be carried out by the site manager/resident engineer.

4.m.ii Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment.

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

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

4.n SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

The following specific information will be required by the competent authority:

- The financial provision will be reviewed annually.



UNDERTAKING

The EAP herewith confirms

- c. the correctness of the information provided in the reports
- d. the inclusion of comments and inputs from stakeholders and I&APs ;
- e. the inclusion of inputs and recommendations from the specialist reports where relevant; and
- f. that the 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 are correctly reflected herein.



Signature of the Environmental Assessment Practitioner:

Eco Elementum (Pty) Ltd

Name of Company:

26 July 2021

Date:

-END-



APPENDIX A: EAP CV





MASERIBANE JANE MAHABA

ABOUT



Jane has more than 13 years' experience in the field of Environmental Management. Her experience includes various aspects of environmental management including permitting, stakeholder engagement (including authority consultation), compliance monitoring and auditing. She worked on projects in the Built environment, mining, industrial and government sectors and these projects required various permits and licenses in terms of the different environmental and associated legislation. In recent years she worked on expanding her knowledge in the sustainability space and continued to develop herself. Jane is extremely passionate about the environment and communities.

CAREER HISTORY



Senior Environmental Assessment Practitioner

Eco Elementum (Pty) Ltd
Pretoria
April 2021 - Current

Role:

Environmental Management, Sustainability, Compliance Auditing, Different Permit Applications, Stakeholder Engagement, Project Programme and Management as well as Specialist Management.

Environmental Specialist

Siyakha Consulting (Pty) Ltd
Johannesburg
August 2019 – May 2020

Role:

Environmental Advisory, Environmental Auditing and Policy Review, Green Economy initiative advisory, Business Development, Development of ESG offering and Market Research.

Independent Environmental Assessment Practitioner (Director)

Botebo Tsebo Management (Pty) Ltd
Johannesburg
June 2017 – 2020

Role:

Environmental Project Management (Mining, Industrial and Infrastructure), Management and co-ordination of: specialists, Project Budget and Programme and all Project Plans. Responsible. For development of terms of reference and project

Proposals as well as: Stakeholder Engagement, Client Liaison, and Management, Business Development and Sustainability Advisory.

QUALIFICATIONS



BSc Animal, Plant and Environmental Sciences

University of the Witwatersrand
2003 – 2005

Senior Certificate Matric (Grade 12)

Residensia Secondary High School
2002

SKILL / EXPERTISE



Additional Training

- Effective Workplace Communication Certificate with GIBB as part of their Leadership programme (May 2016).
- Time Management Effective Workplace Communication Certificate with GIBB as part of their Leadership programme (June 2016).
- Environmental Awareness and Legal Liability for Management with Green Gain Consulting (04 May 2010).
- Environmental Legal Training with Cameron Cross – Environmental, Health & Safety Attorneys (July 2008).
- Water Use Licence Application training with S Du Toit (M.Sc Pri.Sci.Nat.) (April 2008).

REGISTRATIONS



Professional Registrations

- Registered Professional Natural Scientist in Geological Science with the South African Council for Natural Scientific Professions (SACNASP) – Cert.Sci.Nat 119631.

Project Experience



Environmental Impact Assessment and Reporting:		
DATE	CLIENT	DESCRIPTION
2019-2020	Ezeetile Adhesives Manufacturers	Environmental Assessment Practitioner- Environmental Impact Assessment and AEL for a new plant in Mokopane.
2018-2019	Ezeetile Adhesives Manufacturers	Environmental Assessment Practitioner-Environmental Impact Assessment for a new plant in Zeerust.
2017-present	Midturon Information Consultants	Environmental Assessment Practitioner-Variou Basic Assessments for Fuel Station projects.
2017	AEL for Jay Bee Castings	Environmental Assessment Practitioner and Environmental Advisor for Section 24 G application.
2017	City of Johannesburg	Environmental Assessment Practitioner –Basic Assessment for Rehabilitation of Wetlands in the Upper Klip and Lower Klip Catchments.
2014-2015	Assmang Beeshoek Iron Ore mine	Environmental Consultant: Basic Assessment
2014-2015	Consol Glass sand mining project	Environmental Support: Draft EIA and EMP and undertake Public Participation.
2012-2013	Kangra Coal mine	Environmental Consultant: Drafting EIA and EMP.
2012-2013	Eskom Bighorn substation	Environmental Assessment Practitioner: Basic Assessment.
2009	Pandora	Environmental Consultant: Drafting EMPR for land parcel consolidation mining right application.
2008-2009	Kalahari Umtu transmission line and substation.	Environmental Consultant : Drafting EIA and EMP; managing specialists.
2008-2009	Millsite Residential development	Environmental Assistant: Drafting EIA and EMP.
2008	Lonmin decline shafts	Environmental Assistant (Support): Assisting with finalising EMPR.
2007- 2008	Transnet's Iron Ore handling facility, Saldanha	Environmental Assistant (Support): Phase 2 expansion.
Socio-Economic and Strategic		
2020		Environmental Specialist: Research & Development, Environmental, Social and Governance Product Development.
2019	Anglo Coal Kromdraai mine	Environmental Specialist: Feasibility Assessment, Green Engine.
2016	Limpopo Development Agency Tubatse SEZ	Environmental Scientist: Managing project and assisting with technical coordination of specialists Strategic Environmental Assessment.
2010	Pixley ka Seme Local Municipality	Environmental Scientist: Drafting socio-economic EMF report.
Water Use License (WUL)		
2017	City of Johannesburg	Environmental Assessment Practitioner –WULA for Rehabilitation of Wetlands in the Upper Klip and Lower Klip Catchments for the Pregio Investments.
2016	South 32 Klipspruit Colliery Project	Environmental Project Manager: IWULA and IWWMP Update.
2013-2015	Gold One Backfill Project	Environmental Consultant: IWULA and IWWMP.
2012	Total Coal SA	Environmental Consultant: Assist in conducting an Integrated Water Use License Audit.
Waste Management		
2016	Eskom	Environmental Assessment Practitioner: Basic Assessment for decommissioning of general waste landfill.
2013-2014	Papercor Maratek	Environmental Scientist: Managing a Basic Assessment process for recycling of hazardous waste.
2012	Beeshoek mine landfill	Environmental Scientist: Conducting the audit of a waste license.
2011-2012	Rustenburg Local Municipality	Environmental Scientist: Basic Assessments for various waste transfer stations across the municipality.
2010-2011	Delmas	Environmental Scientist: Involved in drafting the Scoping Report and conducting public participation for Interwaste proposed landfill in the area.
Other		
2016-present	University of Johannesburg Geography and Environmental Department	Guest Lecturer: Annual lectures on industry experience at the undergraduate and post grad.
2017	LSEED	Consultant: Limpopo mine conservation audit.
2018	Pregio Investment cc	Environmental Screening for nine school sites.
2016	South 32 Klipspruit Colliery	Environmental Manager: Gap Analysis.
2010-2011	Mooi-Mgeni Transfer Scheme	Stakeholder Engagement Support. Establishment of an Environmental Monitoring Committee for Phase 2.



APPENDIX B: PUBLIC PARTICIPATION REPORT



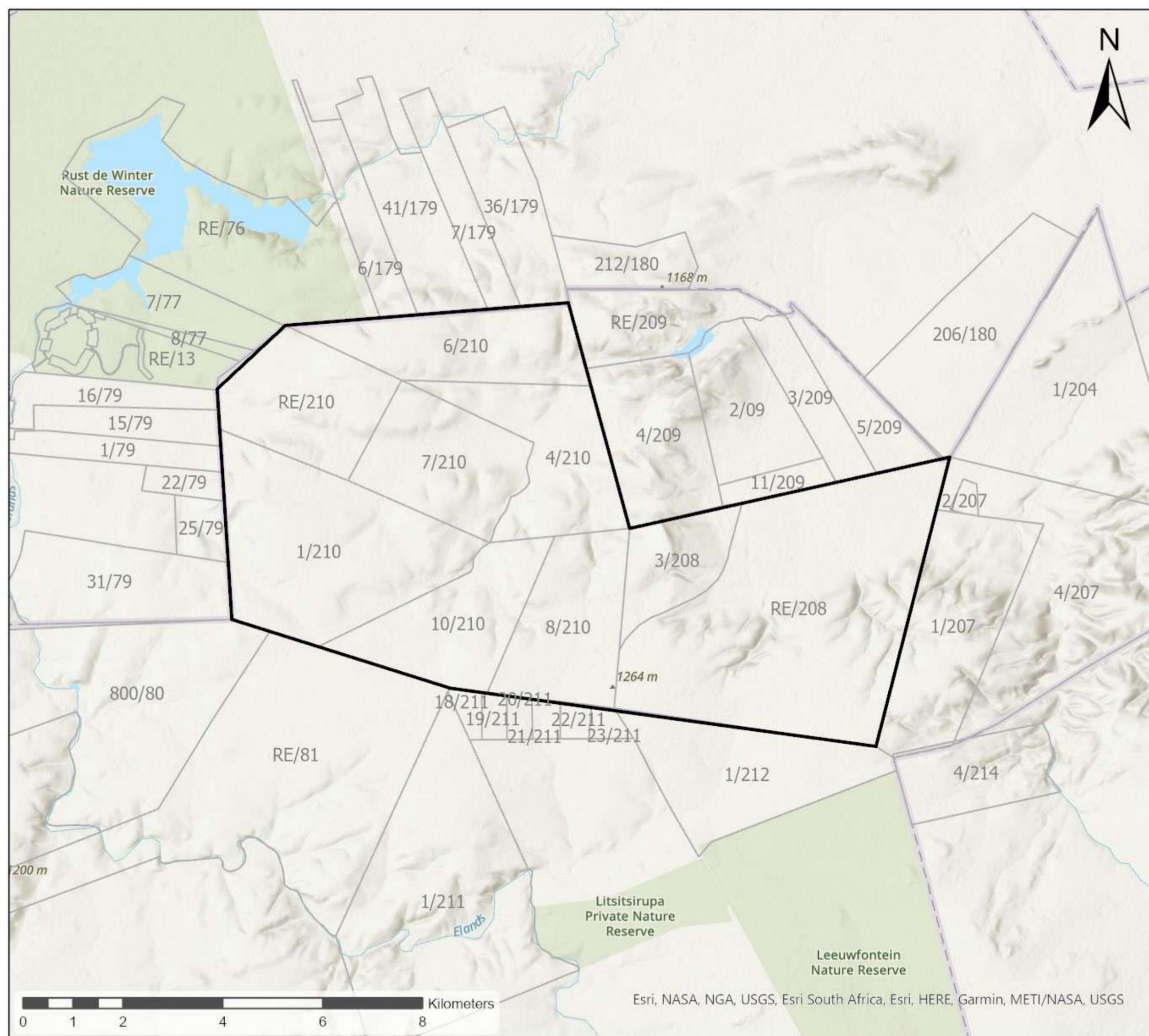
APPENDIX B

Proof of PPP

PPP Report will be submitted once the initial Public Review and Participation period has ended

APPENDIX C: CONCEPTUAL LAYOUT MAPS



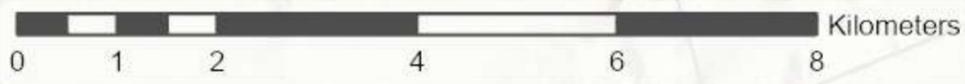


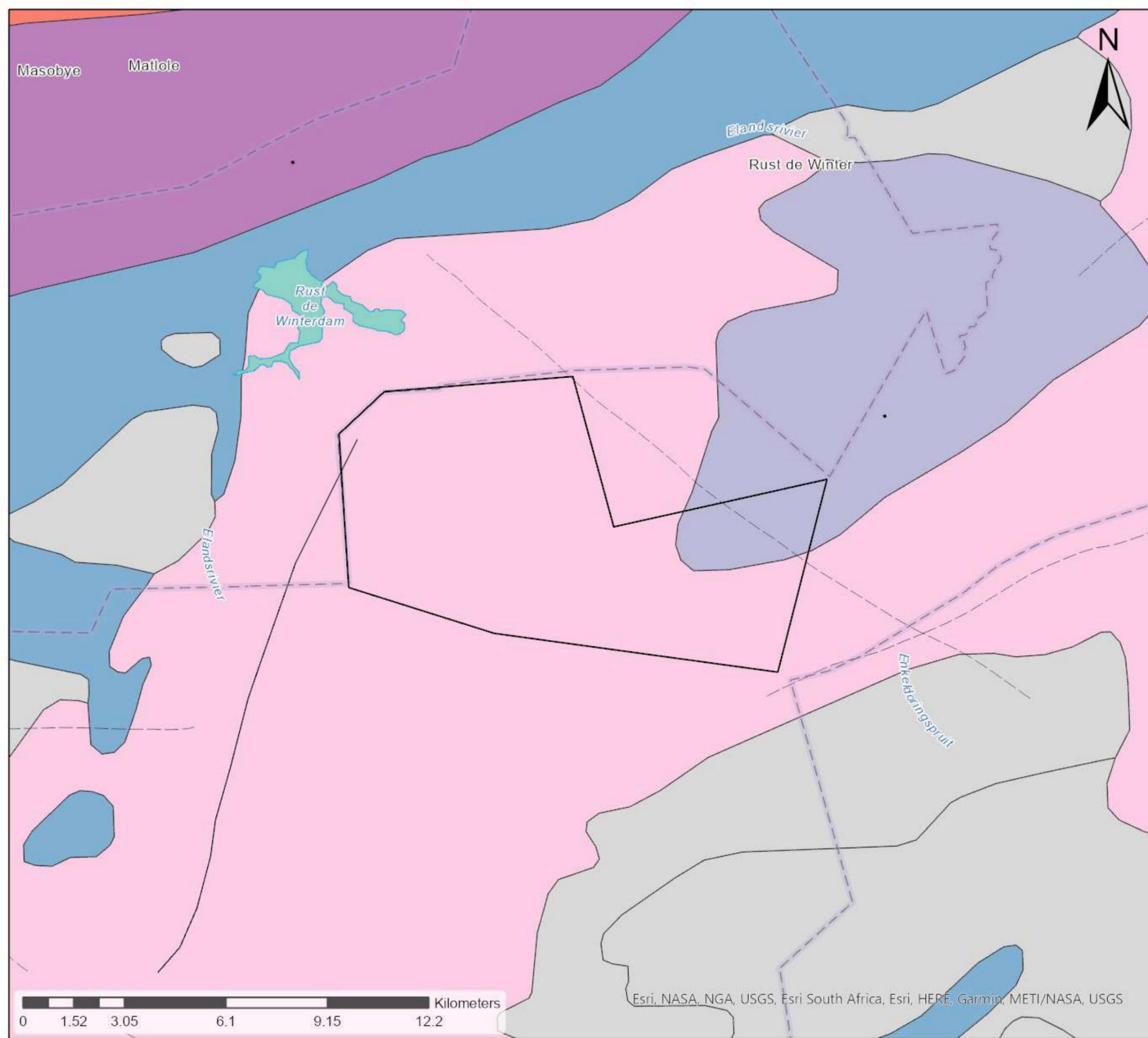
- ### Legend
-  Site Boundary
 -  Mpumalanga Boundary Farm Portions
 -  Limpopo Boundary Farm Portions
 -  Gauteng Boundary Farm Portions

Project Details

ProjectNr	ProjectName	ClientName
21-1384	Rhenosterfontein NTM (Pty) Ltd	

Map: Boundary Farm Portions
 Date Exported: 2021/07/12 2:30 PM





Legend

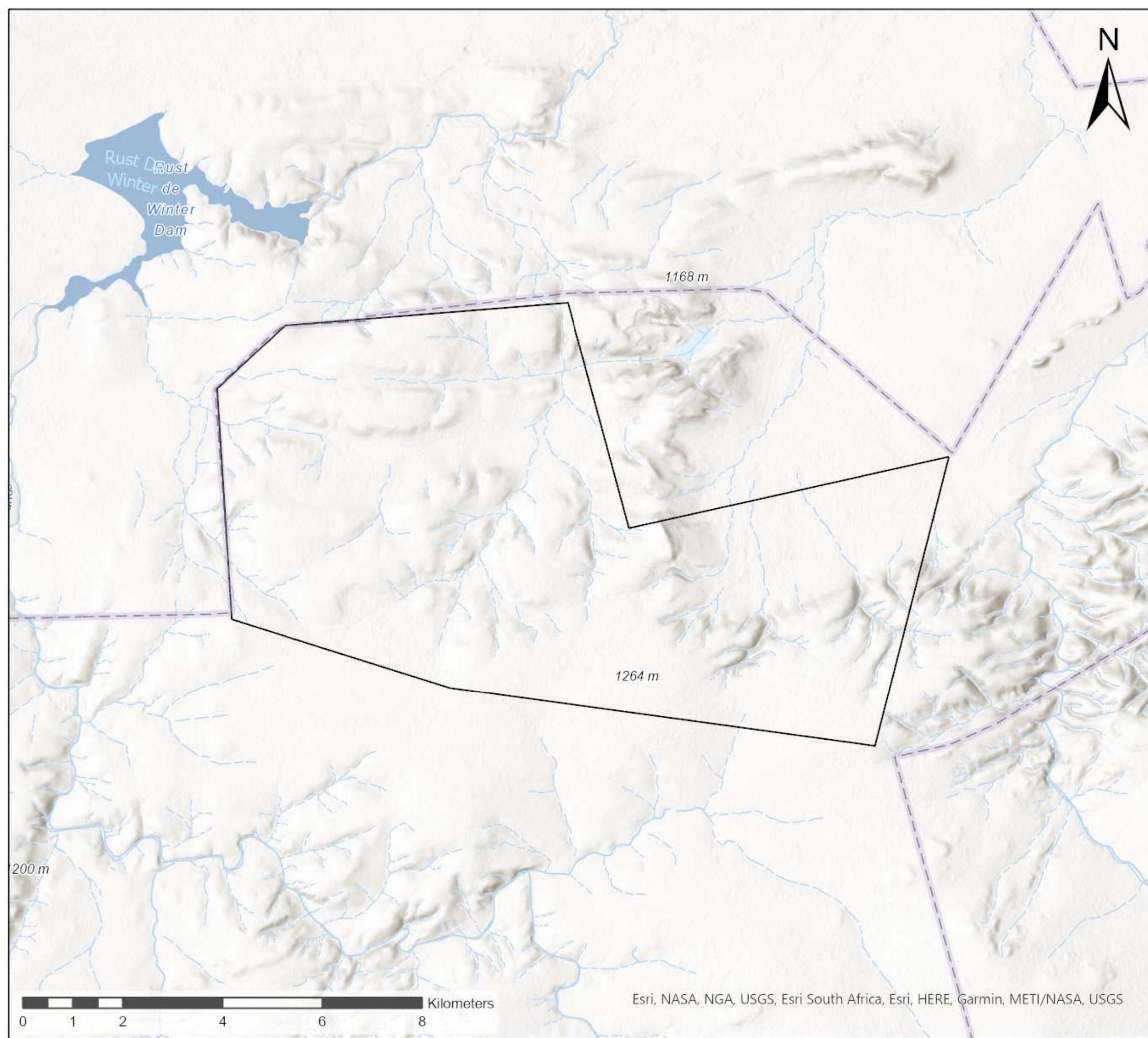
-  Site Boundary
- Structural Points**
- Description
 - Bedding (dip < 30 degrees), dip direction
- Geological Contacts**
- Description
 - Geological contact, observed
 - Fault, observed
 - Edge of water body; coast line
- Structural Lines**
- Description
 - Lineament, Undifferentiated
- Litho Chronostratigraphic Polygons**
- Lithostrata**
-  CLARENS
-  ECCA
-  IRRIGASIE
-  LEBOWA GRANITE
-  RASHOOP GRANOPHYRE
-  RUST DE WINTER
-  SELONS RIVER

Project Details

ProjectNr	ProjectName	ClientName
21-1384	Rhenosterfontein	NTM (Pty) Ltd

Map: Geology
 Date Exported: 2021/07/12 2:35 PM





Legend

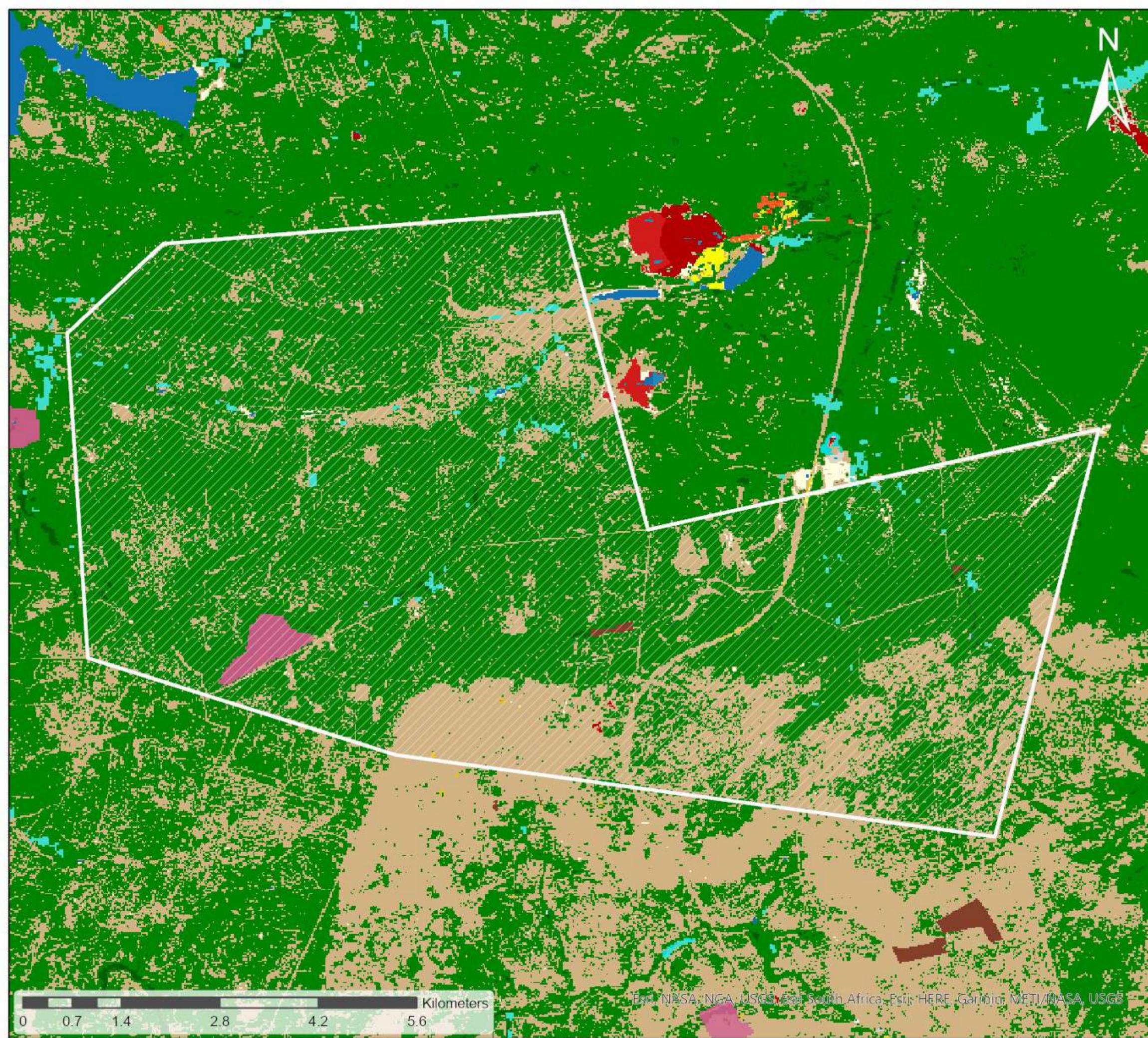
-  Dams
- Rivers**
-  Non-perennial river
-  Perennial river
-  Site Boundary

Project Details

ProjectNr	ProjectName	ClientName
21-1384	Rhenosterfontein	NTM (Pty) Ltd

Map: Topography
 Date Exported: 2021/07/12 2:06 PM





Legend

Site Boundary

RSALandcover2018_Clip

- contiguous low forest & thicket
- dense forest & woodland
- open woodland
- contiguous & dense plantation forest
- open & sparse plantation forest
- sparsely wooded grassland
- natural grassland
- natural pans (flooded @ observation times)
- artificial dams (including canals)
- artificial flooded mine pits
- herbaceous wetlands (currently mapped)
- herbaceous wetlands (previously mapped)
- natural rock surfaces
- dry pans
- eroded lands
- bare riverbed material
- other bare
- commercial annual crops rain-fed / dryland
- fallow land & old fields (trees)
- fallow land & old fields (bush)
- fallow land & old fields (grass)
- residential formal (tree)
- residential formal (bush)
- residential formal (low veg / grass)
- residential formal (bare)
- village scattered (bare & low veg/ grss combo)
- industrial
- roads & rails (major linear)
- mines: surface infrastructure
- mines: extraction pits, quarries
- mine: tailings and resource dumps

Project Details

ProjectNr	ProjectName	ClientName
21-1384	Rhenosterfontein NTM (Pty) Ltd	

Map: Landcover

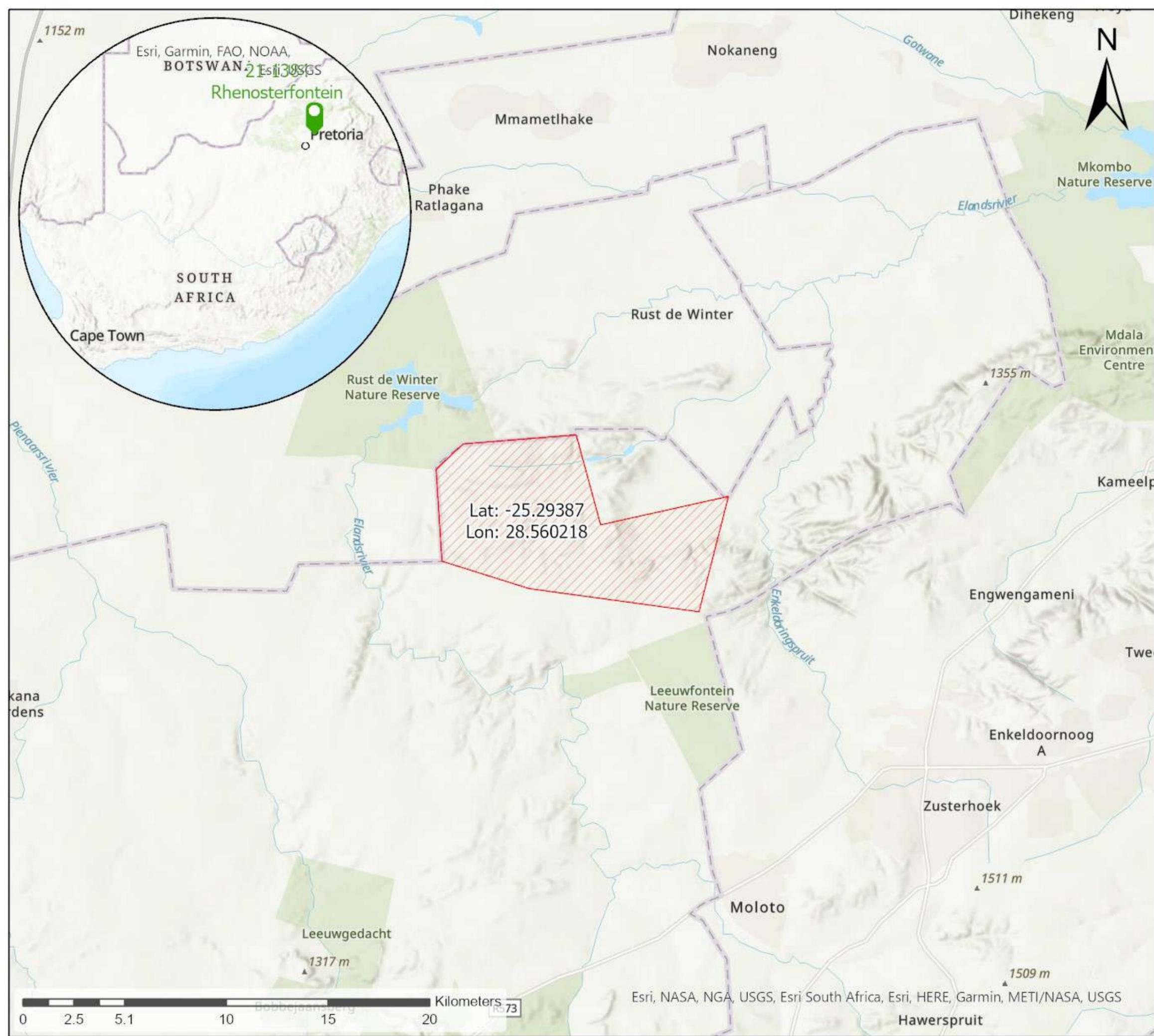
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ENVIRONMENTAL & ENGINEERING



Esri, NASA, NGA, USGS, Esri, South Africa, Esri, HERE, Garmin, METI, NASA, USGS



Legend

-  Site Boundary

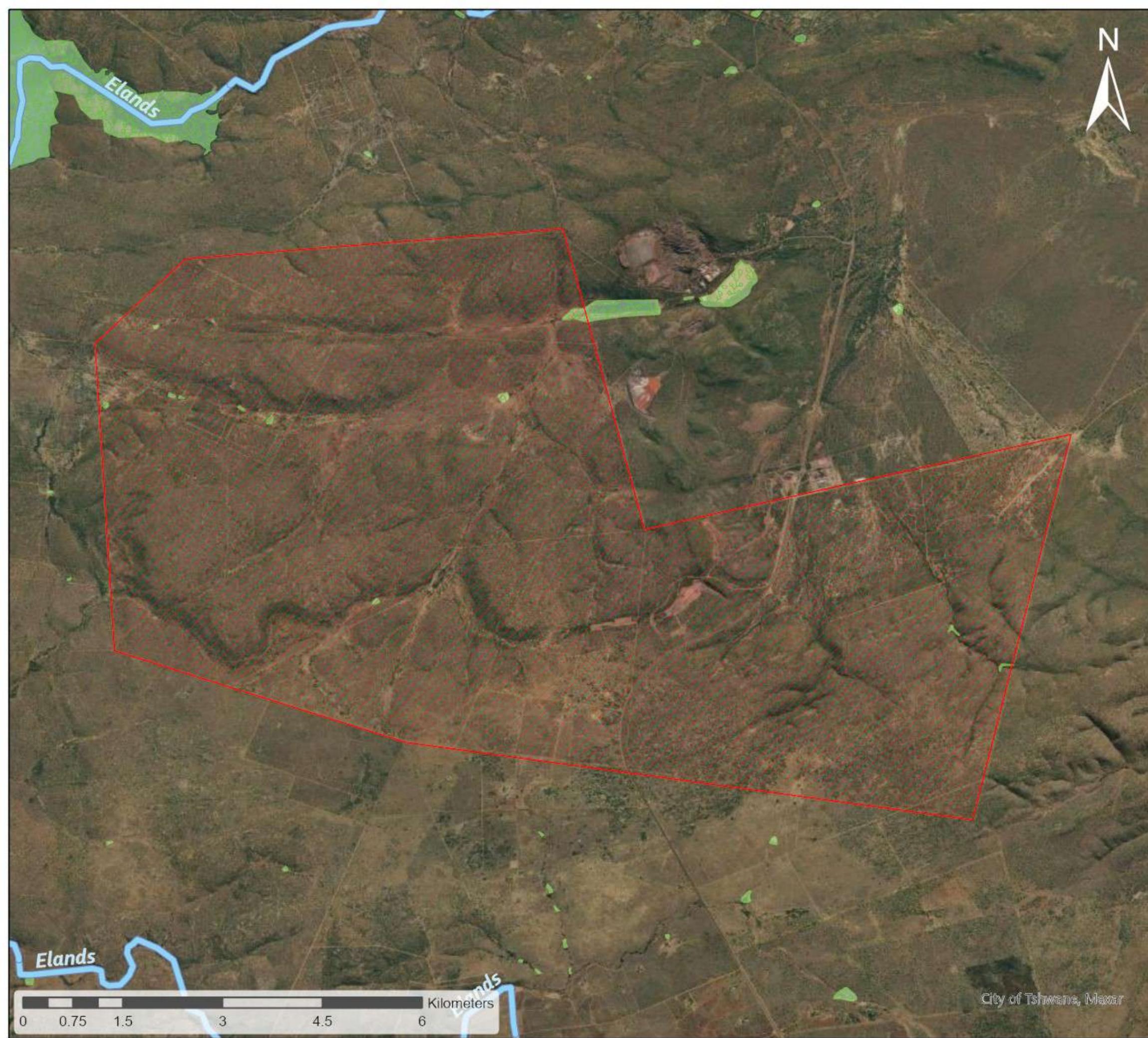
Project Details

ProjectNr	ProjectName	ClientName
21-1384	Rhenosterfontein	NTM (Pty) Ltd

Map: Locality
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ENVIRONMENTAL & ENGINEERING



Legend

-  Site Boundary
-  NFEPA Rivers 2011
-  NFEPA Wetlands 2011

Project Details

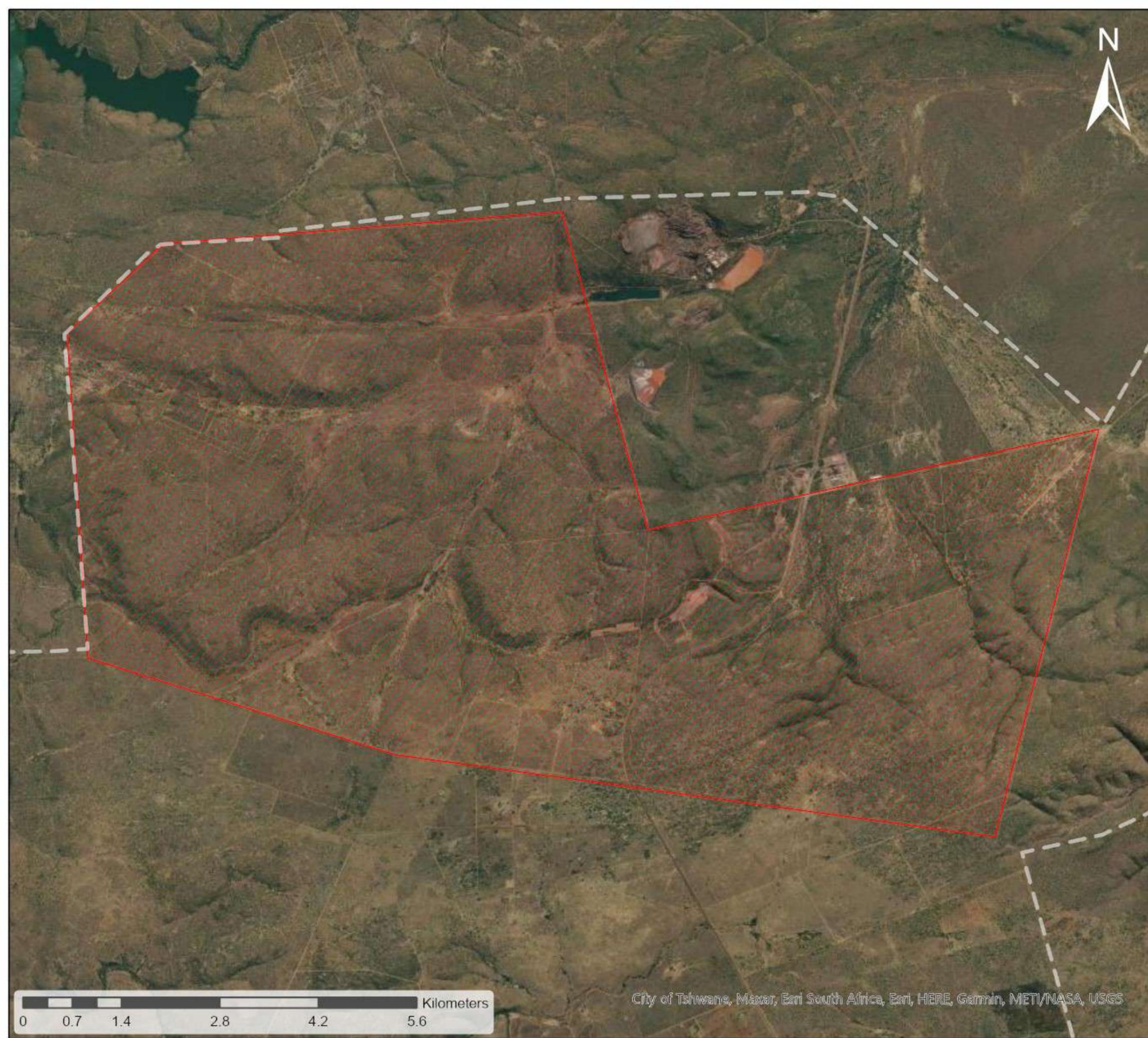
ProjectNr	ProjectName	ClientName
21-1384	Rhenosterfontein	NTM (Pty) Ltd

Map: NFEPA
Date Exported: 2021/07/12 2:10 PM



City of Tshwane, Maxar

0 0.75 1.5 3 4.5 6 Kilometers



Legend

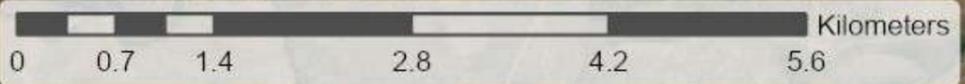
 Site Boundary

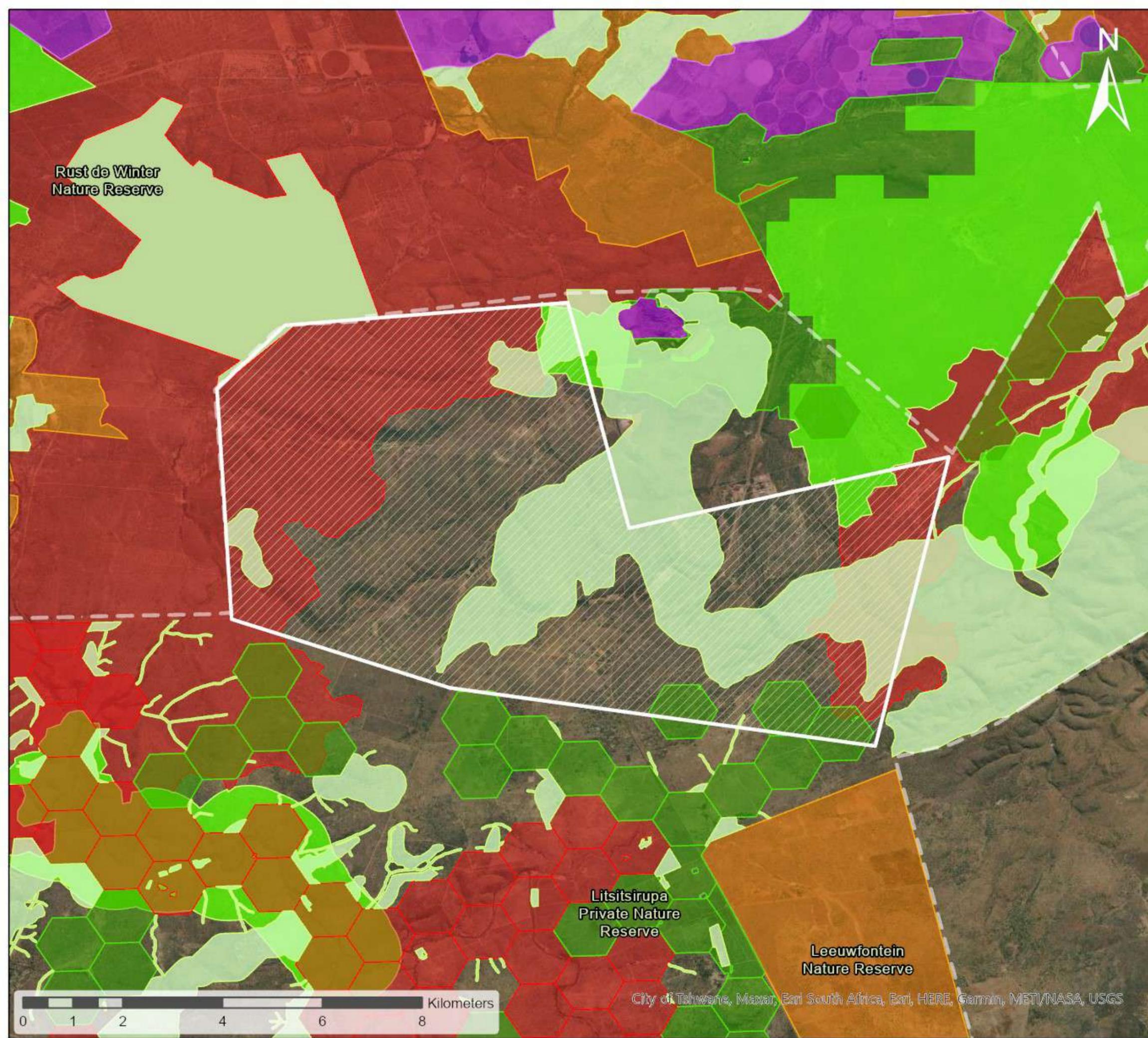
Project Details

ProjectNr	ProjectName	ClientName
21-1384	Rhenosterfontein	NTM (Pty) Ltd

Map: Satellite

Date Exported: 2021/07/12 2:08 PM





Legend

Site Boundary

Limpopo CBA 2018

Category

-  CBA1
-  CBA2
-  ESA1
-  ESA2
-  No Natural Remaining
-  Other Natural Area
-  Protected Area

Gauteng C-Plan V33

Category

-  Irreplaceable Area
-  Protected Area
-  Important Area
-  Ecological Support Area

Project Details

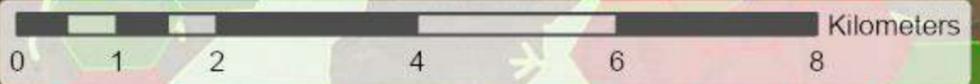
ProjectNr	ProjectName	ClientName
21-1384	Rhenosterfontein	NTM (Pty) Ltd

Map: Management Areas

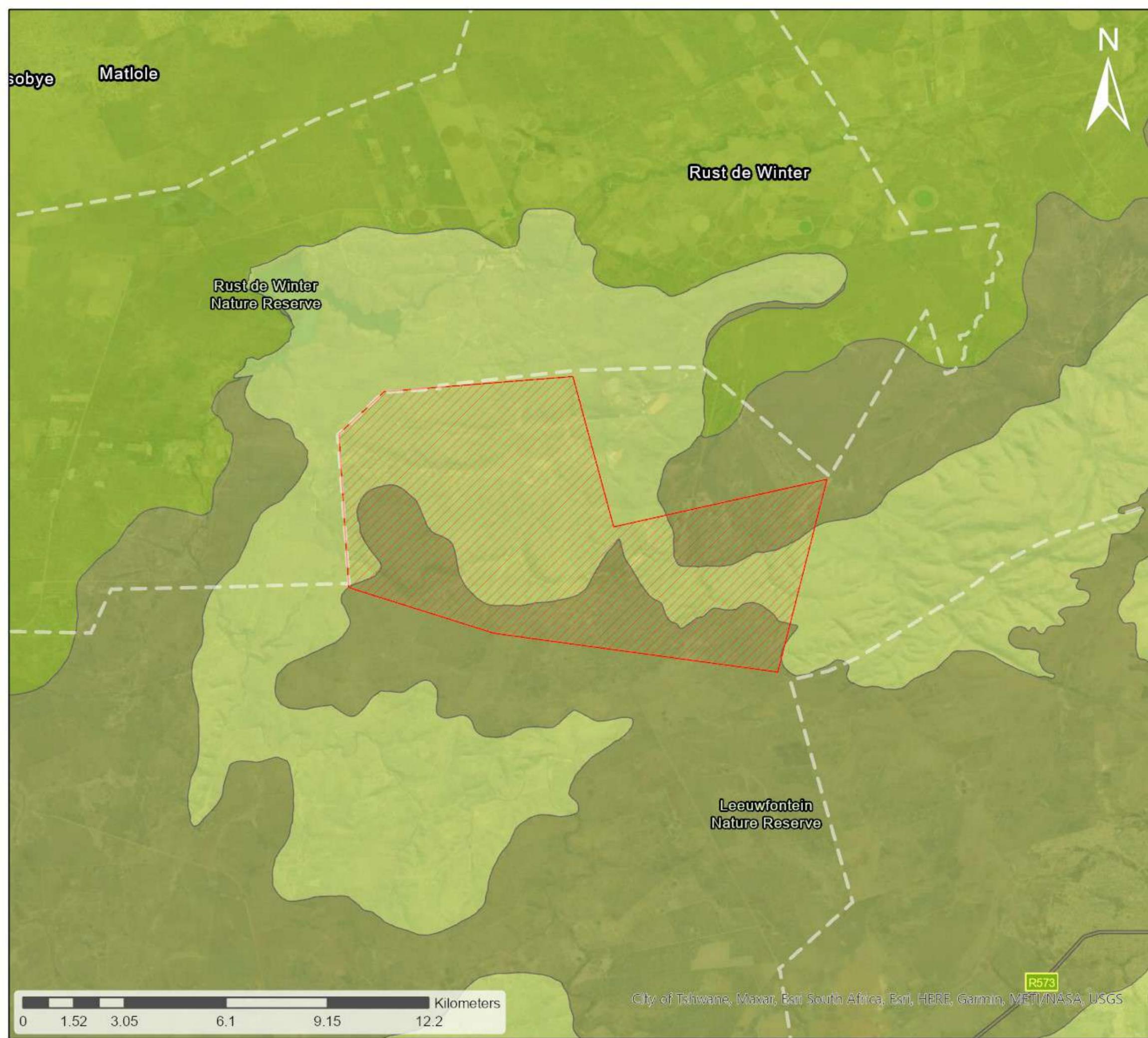
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ENVIRONMENTAL & ENGINEERING



City of Tshwane, Maxar, Esri South Africa, Esri, HERE, Garmin, METI/NASA, USGS



Legend



Site Boundary

Vegetation

NAME

-  Central Sandy Bushveld
-  Loskop Mountain Bushveld
-  Springbokvlakte Thornveld

Project Details

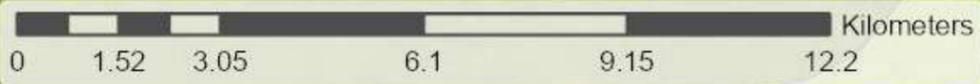
ProjectNr	ProjectName	ClientName
21-1384	Rhenosterfontein	NTM (Pty) Ltd

Map: Vegetation

Date Exported: 2021/07/12 2:39 PM



ENVIRONMENTAL & ENGINEERING



APPENDIX D: SPECIALIST STUDIES



ARCHAEOLOGICAL DESKTOP STUDY

**for the Application of a Prospecting Right
on the Farm Rhenosterfontein 210 JR and
Naauwpoort 208 JR, Cullinan, Gauteng**

**Author ©:
Tobias Coetzee, MA (Archaeology) (UP)
July 2021**

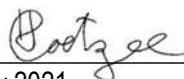
Archaeological Desktop Study for the Application of a Prospecting Right on the Farm Rhenosterfontein 210 JR and Naauwpoort 208 JR, Cullinan, Gauteng

For: Eco Elementum (Pty) Ltd
361 Oberon Ave
Glenfield Office Park
Nika Building
Faerie Glen
Pretoria
0081

Report No: 21-1384-AUTH
Project Name: NTM - Rhenosterfontein 10691 PR
Version: 1

Email: tobias.coetzee@gmail.com

- I, Tobias Coetzee, declare that –
- I act as the independent specialist;
- I am conducting any work and activity relating to the proposed National Treasure Minerals (Pty) Ltd Project in an objective manner, even if this results in views and findings that are not favourable to the client;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have the required expertise in conducting the specialist report and I will comply with legislation, regulations and any guidelines that have relevance to the proposed activity;
- I have not, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this declaration are true and correct.



Date: 26 July 2021

Executive Summary

The author was appointed by Eco Elementum (Pty) Ltd to undertake an Archaeological Desktop study for National Treasure Minerals (Pty) Ltd on the listed Farm Portions (**Table 1**) within the City of Tshwane Metropolitan Municipality in the Gauteng Province. The study area is located roughly 37 km north of Cullinan. The aim of this report is to contextualise the general study area in terms of heritage resources and will provide the developers with general information regarding potentially sensitive areas. This will also shed light on what is to be expected during a Phase 1 Archaeological Impact Assessment and aid in interpreting finds.

A total of 26 sites consisting of 24 buildings and 2 kraals were noted on historical topographical maps and aerial imagery (**Table 2**). Based on contemporary satellite imagery, one of these sites is associated with surface remains, while 25 appear to have been demolished as no surface remains are visible on satellite imagery. Although no surface remains are evident, subsurface culturally significant material might still be present. Ten of the demolished sites appear not to exceed 60 years of age and are therefore not considered significant from a heritage perspective. The remaining identified sites, consisting of demolished and intact buildings, should be avoided by the proposed prospecting activities. The 500 m River and gradient buffer areas are also considered potentially sensitive from a heritage perspective and care should be exercised when prospecting within these areas. A full Phase 1 AIA (Archaeological Impact Assessment) must be done should any development that triggers an AIA result from the prospecting project, including if the cumulative impact of the proposed prospecting exceeds 0.5 ha.

List of Abbreviations

AIA – Archaeological Impact Assessment

CRM – Cultural Resource Management

DMR – Department of Mineral Resources

EIA – Environmental Impact Assessment

ESA – Early Stone Age

ha – Hectare

HIA – Heritage Impact Assessment

km – Kilometre

LIA – Late Iron Age

LSA – Later Stone Age

m – Metre

MASL – Metres Above Sea Level

MEC – Member of the Executive Council

MSA – Middle Stone Age

NHRA – National Heritage Resources Act

SAHRA – South African Heritage Resources Agency

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1. Project Background

1.1 Introduction

Eco Elementum (Pty) Ltd appointed the author to undertake an Archaeological Desktop study for National Treasure Minerals (Pty) Ltd on nine farm portions of the Farms Rhenosterfontein 210 JR and Naauwpoort 208 JR within the City of Tshwane Metropolitan Municipality in the Gauteng Province. The study area is located roughly 37 km north of Cullinan (**Figure 1**) and the identified farm portions are listed in **Table 1**. The purpose of this study is to contextualise the demarcated study area in order to determine the scope of heritage resources that might be encountered during the prospecting phase and subsequent heritage studies, as well as to provide recommendations for the safeguarding of archaeological resources during prospecting. The aim of this report is to provide the developer with information regarding heritage resources in the vicinity of the study area based on results from previous studies, written historical information and historical topographical maps and aerial photographs.

In the following report, a broad overview of the proposed prospecting is provided and the study area is contextualised in terms of heritage resources. The prospecting application is for iron ore. The legislation section included serves as a guide towards the effective identification and protection of heritage resources and will apply to any such material unearthed during the prospecting phase.

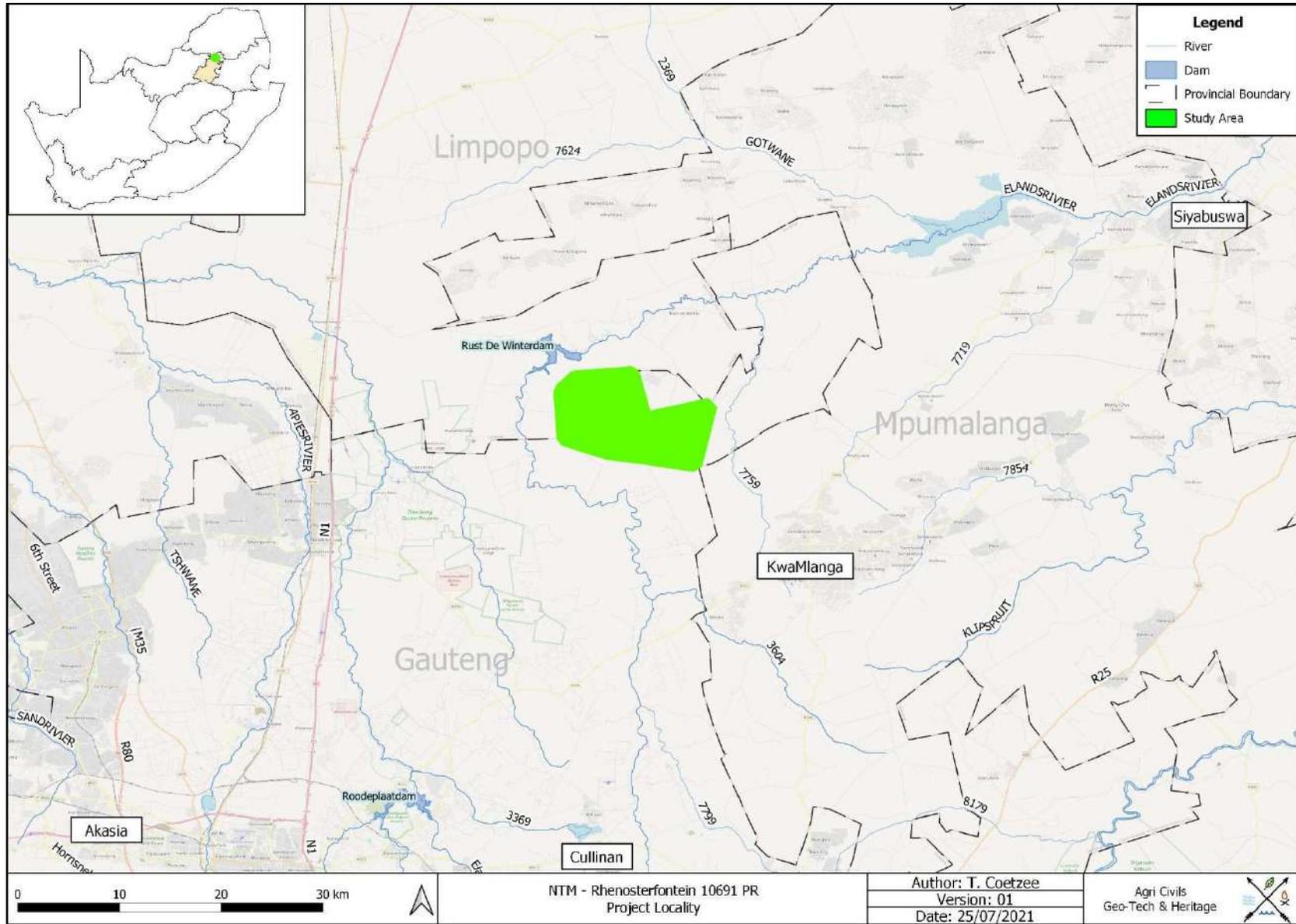


Figure 1: Regional and provincial location of the study area.

1.2 Legislation

The South African Heritage Resources Agency (SAHRA) aims to conserve and control the management, research, alteration and destruction of cultural resources of South Africa and to prosecute if necessary. It is therefore crucially important to adhere to heritage resource legislation contained in the Government Gazette of the Republic of South Africa (Act No.25 of 1999), as many heritage sites are threatened daily by development. Conservation legislation requires an impact assessment report to be submitted for development authorisation that must include an AIA if triggered.

Archaeological Impact Assessments (AIAs) should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources that might occur in areas of development and (b) make recommendations for protection or mitigation of the impact of the sites.

1.2.1 The EIA (Environmental Impact Assessment) and AIA processes

Phase 1 Archaeological Impact Assessments generally involve the identification of sites during a field survey with assessment of their significance, the possible impact that the development might have, and relevant recommendations.

All Archaeological Impact Assessment reports should include:

- a. Location of the sites that are found;
- b. Short descriptions of the characteristics of each site;
- c. Short assessments of how important each site is, indicating which should be conserved and which mitigated;
- d. Assessments of the potential impact of the development on the site(s);
- e. In some cases a shovel test, to establish the extent of a site, or collection of material, to identify the associations of the site, may be necessary (a pre-arranged SAHRA permit is required); and
- f. Recommendations for conservation or mitigation.

This AIA report is intended to inform the client about the legislative protection of heritage resources and their significance and make appropriate recommendations. It is essential to also provide the heritage authority with sufficient information about the sites to enable the authority to assess with confidence:

- a. Whether or not it has objections to a development;
- b. What the conditions are upon which such development might proceed;
- c. Which sites require permits for mitigation or destruction;

- d. Which sites require mitigation and what this should comprise;
- e. Whether sites must be conserved and what alternatives can be proposed to relocate the development in such a way as to conserve other sites; and
- f. What measures should or could be put in place to protect the sites which should be conserved.

When a Phase 1 AIA is part of an EIA, wider issues such as public consultation and assessment of the spatial and visual impacts of the development may be undertaken as part of the general study and may not be required from the archaeologist. If, however, the Phase 1 project forms a major component of an AIA it will be necessary to ensure that the study addresses such issues and complies with Section 38 of the National Heritage Resources Act.

1.2.2 Legislation regarding archaeology and heritage sites

National Heritage Resource Act No.25 of April 1999

Buildings are among the most enduring features of human occupation, and this definition therefore includes all buildings older than 60 years, modern architecture as well as ruins, fortifications and Farming Community settlements. The Act identifies heritage objects as:

- objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects, meteorites and rare geological specimens;
- visual art objects;
- military objects;
- numismatic objects;
- objects of cultural and historical significance;
- objects to which oral traditions are attached and which are associated with living heritage;
- objects of scientific or technological interest;
- books, records, documents, photographic positives and negatives, graphic material, film or video or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996), or in a provincial law pertaining to records or archives;
- any other prescribed category.

With regards to activities and work on archaeological and heritage sites this Act states that:

“No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.” (34. [1] 1999:58)

and

“No person may, without a permit issued by the responsible heritage resources authority:

- (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;*
- (b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;*
- (c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or*
- (d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.”(35. [4] 1999:58)*

and

“No person may, without a permit issued by SAHRA or a provincial heritage resources authority:

- (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;*
- (b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority;*
- (c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) and excavation equipment, or any equipment which assists in the detection or recovery of metals.” (36. [3] 1999:60)*

On the development of any area the gazette states that:

“...any person who intends to undertake a development categorised as:

- (a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;*
- (b) the construction of a bridge or similar structure exceeding 50m in length;*

- (c) *any development or other activity which will change the character of a site-*
 - i. *exceeding 5000m² in extent; or*
 - ii. *involving three or more existing erven or subdivisions thereof; or*
 - iii. *involving three or more erven or divisions thereof which have been consolidated within the past five years; or*
 - iv. *the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;*
- (d) *the re-zoning of a site exceeding 10000m² in extent; or*
- (e) *any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.” (38. [1] 1999:62-64)*

and

“The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:

- (a) *The identification and mapping of all heritage resources in the area affected;*
- (b) *an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;*
- (c) *an assessment of the impact of the development on such heritage resources;*
- (d) *an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;*
- (e) *the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;*
- (f) *if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and*
- (g) *plans for mitigation of any adverse effects during and after the completion of the proposed development.” (38. [3] 1999:64)*

The Human Tissues Act (65 of 1983) and Ordinance on the Removal of Graves and Dead Bodies (Ordinance 7 of 1925) protects graves younger than 60 years. These fall under the jurisdiction of the National Department of Health and the Provincial Health Departments. Approval for the exhumation and re-burial must be obtained from the relevant Provincial MEC as well as the relevant Local Authorities. Graves 60 years or older fall under the jurisdiction of the National Heritage Resources Act as well as the Human Tissues Act, 1983.

2. Study Area and Project Description

2.1 Location & Physical Environment

The National Treasure Minerals (Pty) Ltd project is situated on the properties listed in **Table 1 & Figure 2**.

Table 1: Property name & coordinates.

Property	Portion	Map Reference (1:50 000)	Lat (y)	Lon (x)	Extent (ha)
Naauwpoort 208 JR	RE/208	2528BC	-25.307848	28.604973	2099.8
Naauwpoort 208 JR	3/208	2528BC	-25.298578	28.583260	342.0
Rhenosterfontein 210 JR	RE/210	2528BC	-25.269783	28.517007	620.0
Rhenosterfontein 210 JR	1/210	2528BC	-25.295808	28.520442	1214.4
Rhenosterfontein 210 JR	4/210	2528BC	-25.279494	28.560484	618.9
Rhenosterfontein 210 JR	6/210	2528BC	-25.259687	28.545701	602.0
Rhenosterfontein 210 JR	7/210	2528BC	-25.280549	28.541781	618.2
Rhenosterfontein 210 JR	8/210	2528BC	-25.309708	28.564522	620.0
Rhenosterfontein 210 JR	10/210	2528BC	-25.309116	28.543779	604.1
Total					7339.3

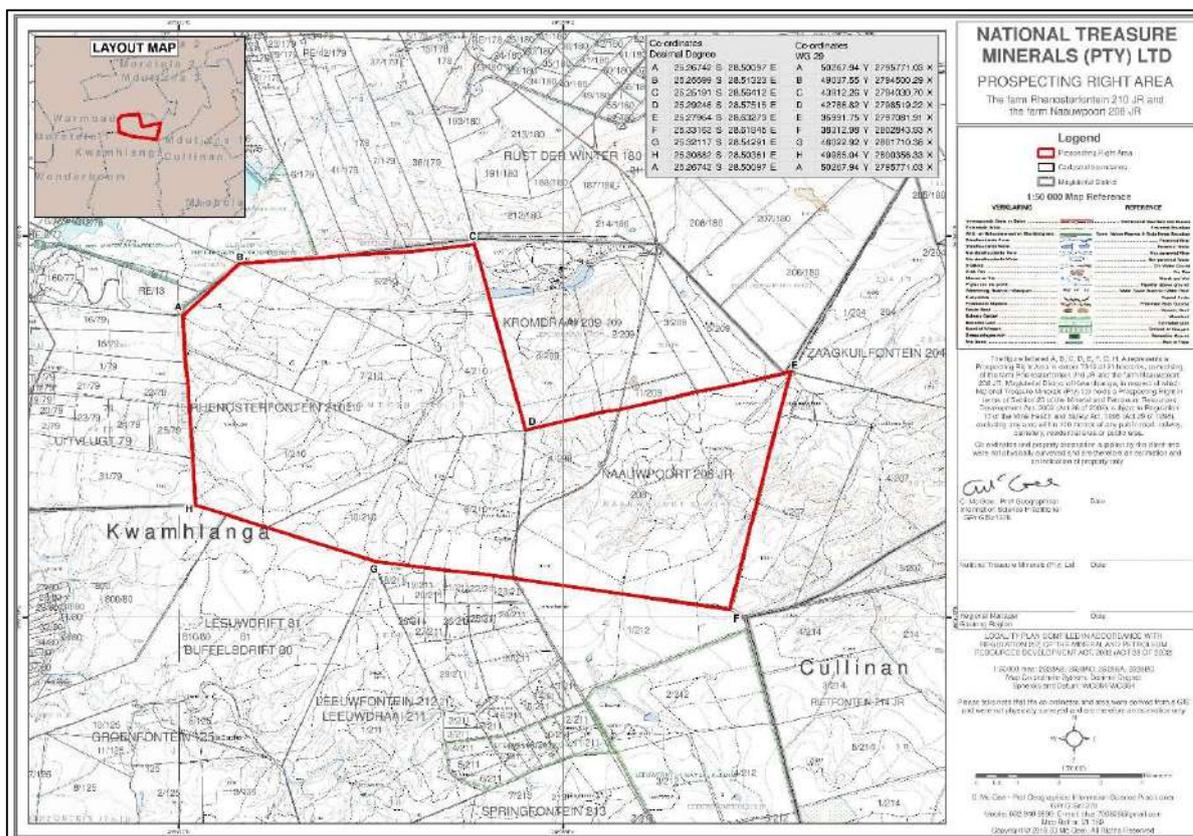


Figure 2: Proposed layout map (Provided by Eco Elementum 2021).

Cullinan is located roughly 37 km to the south of the proposed prospecting area, while Pretoria is located 56 km to the southwest and Belabela 45 km to the northwest. The demarcated farm portions fall within the City of Tshwane Metropolitan Municipality in the Gauteng Province. The R568 secondary road runs in a northeast-southwest direction approximately 14 km to the east, while the R567 tertiary road divides Portion 3 and the Remaining Extent of the Farm Naauwpoort 208 JR.

In terms of vegetation, the study area falls within the Savanna Biome and the Central Bushveld Bioregion. On a local scale the southern half of the study area falls on Central Sandy Bushveld and the northern half on Loskop Mountain Bushveld. According to Mucina & Rutherford's (2006), the conservation status for Central Sandy Bushveld is considered vulnerable. The conservation target for this vegetation unit is 19% and less than 3% is conserved, mostly in nature reserves. About 24% is transformed, including about 19% cultivated and 4% urban built-up areas. Central Sandy Bushveld is found in Limpopo, Mpumalanga, Gauteng and the North West Provinces. This vegetation unit is associated with undulating terrain that occurs in a broad arc south of the Springbokvlakte from Pilanesberg in the west through Hammanskraal and Groblersdal to GaMasemola in the east. A narrow band along the north-western edge of the Springbokvlakte extends into some valleys and lower-altitude areas within the Waterberg. Rural communities densely populate much of the broad arc south of the Springbokvlakte. Erosion in these areas vary from very low to high (Mucina & Rutherford's 2006).

Loskop Mountain Bushveld, on the other hand, is found in the Mpumalanga, Limpopo and Gauteng Provinces and occurs on mountains in the vicinity of Loskop Dam extending to Bronkhorstspuit and Rust de Winter. In terms of conservation, Loskop Mountain Bushveld is considered least threatened with a conservation target of 24%. About 15% is statutorily conserved in the Loskop Dam and Mabusa Nature Reserves, with an additional 2% conserved in other reserves. Less than 3% has been transformed by cultivation and urban built-up areas. Erosion generally varies between low and very low (Mucina & Rutherford 2006).

According to Mucina & Rutherford (2006), the average elevation for Central Sandy Bushveld ranges from 850 to 1450 MASL (metres above sea level), while the elevation for Loskop Mountain Bushveld varies between 1050 and 1500 MASL. The average elevation of the study area is 1180 MASL and is associated with mountainous terrain.

The study area falls within the summer rainfall region and the average annual rainfall is roughly 677 mm per year. The average annual temperature is 18.3 °C. The average summer temperature is 22.1 °C, while the winter temperature averages 12 °C (Climate-data.org accessed 25/07/2021).

The majority of the study area falls within in the B31D quaternary catchment, while the western section falls within the B31C quaternary catchment of the Olifants Water Management Area. The closest perennial river to the study area is the Elands River 4 km to the west and 2 km to the north. A non-perennial river, Enkeldoringspruit, flows 1.6 km to the east. Several non-perennial streams are also found on all of the demarcated farm portions. The Rust de Winter Dam is located approximately 1.7 km km to the northwest of the study area.

Access to the demarcated areas appear to be through local roads turning from the R567 tertiary road. The majority of the study area appears to be unspoilt bushveld with small patches of cultivation next to river courses. Buildings and structures are visible on the majority of the farm portions. A vast network of local dirt roads is also associated with the demarcated farm portions.

2.2 Project description

The prospecting right application for iron ore covers approximately 7339.3 ha (**Figures 3 & 4**). For the prospecting phase, however, several sites will be selected for geotechnical drilling. These boreholes and its associated activities will impact on a surface area of between 250 and 625 m². The full extent of the drill site will also be demarcated and no drilling will be done outside of the boundary.

Prospecting activities will include the following:

Current access roads will be used as far as possible, but in cases where access roads to drill sites do not exist, a single track will be selected based on the area where the least environmental impact will occur. The same

tracks will be used should repeated access be required. Vegetation and topsoil excavated during the drilling process will be stockpiled next to sumps where it will serve as a storm water diversion berm. On completion of the drilling process, the rehabilitated sumps will be backfilled with the stockpiled material. Because a constant water supply is needed for the drilling process, 15 000l will be stored in tanks. The plastic-lined sumps will be used to recycle water through a filter process in order to maintain a constant clean water source for the purpose of drilling. In terms of potable water for employees and workers, a temporary 260l tank will be placed on-site. Additional facilities will include temporary portable toilets, berms, and a maximum of 60m³ of diesel fuel located on an impermeable surface with bunds.

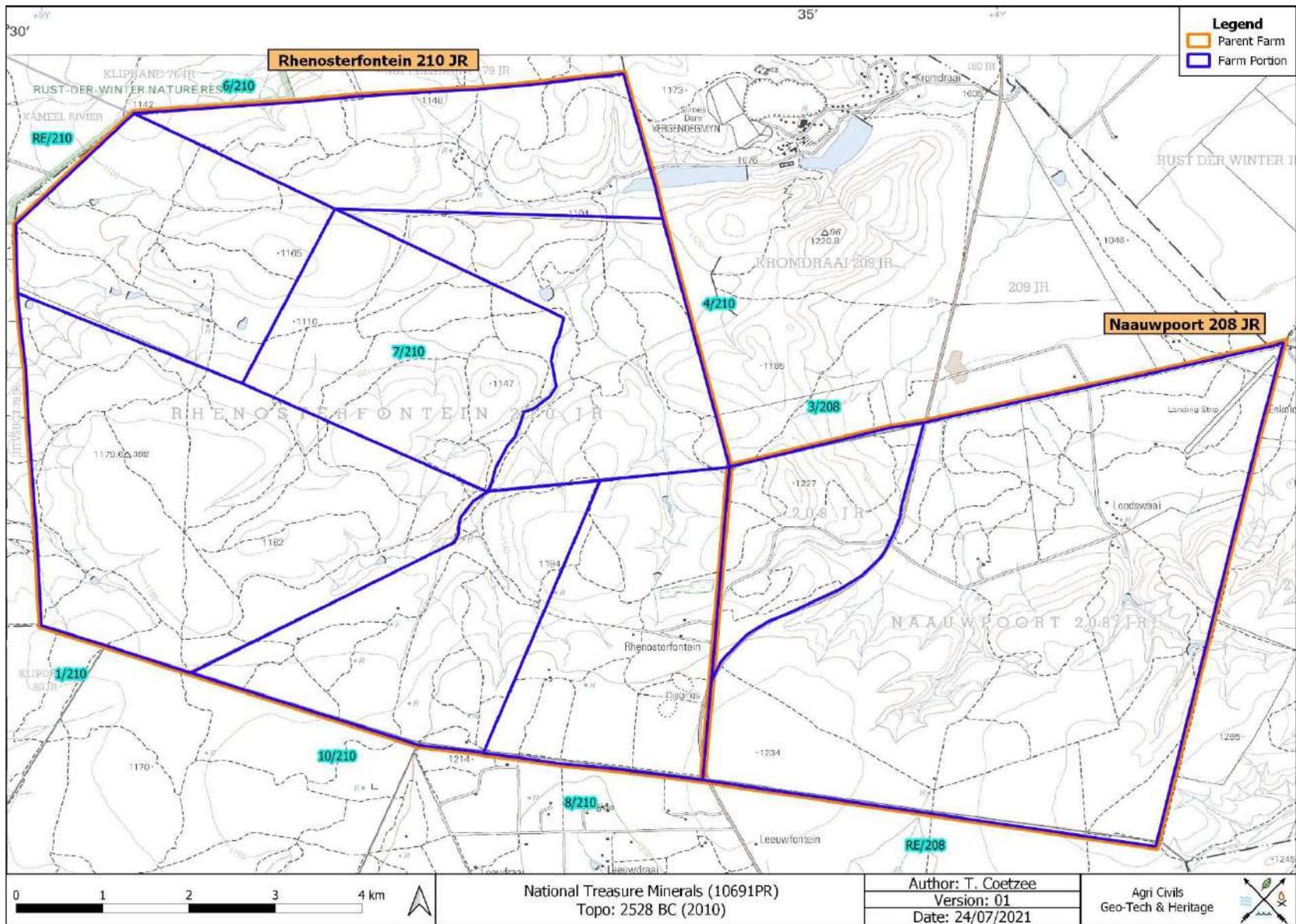


Figure 3: Segment of SA 1:50 000 2528 BC indicating the area demarcated for prospecting.

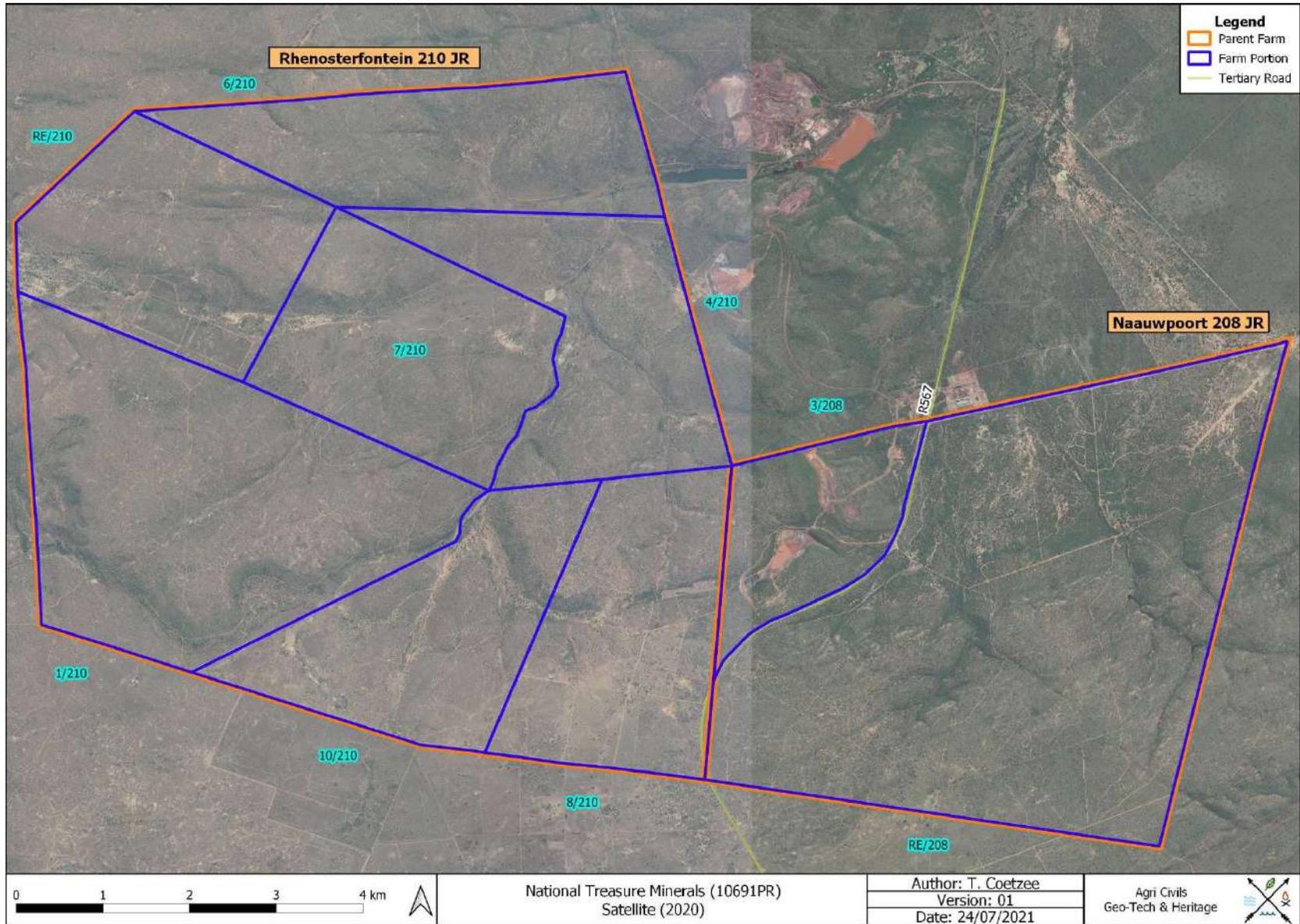


Figure 4: Proposed prospecting area portrayed on a 2020 satellite image.

3. Archaeological Background

Southern African archaeology is broadly divided into the Early, Middle and Later Stone Ages; Early, Middle and Later Iron Ages; and Historical or Colonial Periods. This section of the report provides a general background to archaeology in South Africa.

3.1 The Stone Age

The earliest stone tool industry, the Oldowan, was developed by early human ancestors which were the earliest members of the genus *Homo*, such as *Homo habilis*, around 2.6 million years ago. It comprises tools such as cobble cores and pebble choppers (Toth & Schick 2007). Archaeologists suggest these stone tools are the earliest direct evidence for culture in southern Africa (Clarke & Kuman 2000). The advent of culture indicates the advent of more cognitively modern hominins (Mitchell 2002: 56, 57).

The Acheulean industry completely replaced the Oldowan industry. The Acheulian industry was first developed by *Homo ergaster* between 1.8 to 1.65 million years ago and lasted until around 300 000 years ago. Archaeological evidence from this period is also found at Swartkrans, Kromdraai and Sterkfontein. The most typical tools of the ESA (Early Stone Age) are handaxes, cleavers, choppers and spheroids. Although hominins seemingly used handaxes often, scholars disagree about their use. There are no indications of hafting, and some artefacts are far too large for it. Hominins likely used choppers and scrapers for skinning and butchering scavenged animals and often obtained sharp ended sticks for digging up edible roots. Presumably, early humans used wooden spears as early as 5 million years ago to hunt small animals.

Middle Stone Age (MSA) artefacts started appearing about 250 000 years ago and replaced the larger Early Stone Age bifaces, handaxes and cleavers with smaller flake industries consisting of scrapers, points and blades. These artefacts roughly fall in the 40-100 mm size range and were, in some cases, attached to handles, indicating a significant technical advance. The first *Homo sapiens* species also emerged during this period. Associated sites are Klasies River Mouth, Blombos Cave and Border Cave (Deacon & Deacon 1999).

Although the transition from the Middle Stone Age to the Later Stone Age (LSA) did not occur simultaneously across the whole of southern Africa, the Later Stone Age ranges from about 20 000 to 2000 years ago. Stone tools from this period are generally smaller, but were used to do the same job as those from previous periods; only in a different, more efficient way. The Later Stone Age is associated with: rock art, smaller stone tools (microliths), bows and arrows, bored stones, grooved stones, polished bone tools, earthenware pottery and beads. Examples of Later Stone Age sites are Nelson Bay Cave, Rose Cottage Cave and Boomplaas Cave (Deacon & Deacon 1999). These artefacts are often associated with rocky outcrops or water sources. The LSA site, Fort Troje, is located just north of Cullinan and approximately 29 km south of the proposed prospecting project (Korsman et al. 1998: 95). **Figures 5 – 7** below shows examples of stone tools often associated with the ESA, MSA and LSA of southern Africa.

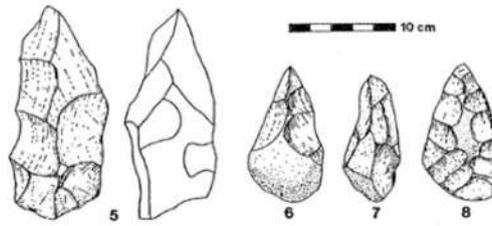


Figure 5: ESA artefacts from Sterkfontein (Volman 1984).

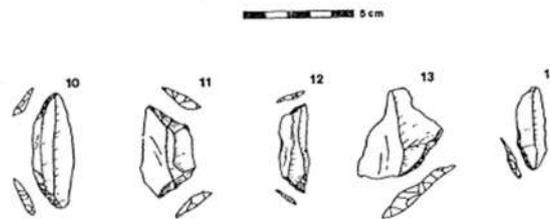


Figure 6: MSA artefacts from Howiesons Poort (Volman 1984).



Figure 7: LSA scrapers (Klein 1984).

3.2 The Iron Age & Historical Period

The Early Iron Age marks the movement of farming communities into South Africa in the first millennium AD, or around 2500 years ago (Mitchell 2002:259, 260). These groups were agro-pastoralist communities that settled in the vicinity of water in order to provide subsistence for their cattle and crops. Archaeological evidence from Early Iron Age sites is mostly artefacts in the form of ceramic assemblages. The origins and archaeological identities of this period are largely based upon ceramic typologies. Some scholars classify Early Iron Age ceramic traditions into different “streams” or “trends” in pot types and decoration, which emerged over time in southern Africa. These “streams” are identified as the Kwale Branch (east), the Nkope Branch (central) and the Kalundu Branch (west). Early Iron Age ceramics typically display features such as large and prominent inverted rims, large neck areas and fine elaborate decorations. This period continued until the end of the first millennium AD (Mitchell 2002; Huffman 2007). Some well-known Early Iron Age sites include the Lydenburg Heads in Mpumalanga, Happy Rest in the Limpopo Province and Mzonjani in Kwa-Zulu Natal.

The Middle Iron Age roughly stretches from AD 900 to 1300 and marks the origins of the Zimbabwe culture. During this period cattle herding appeared to play an increasingly important role in society. However, it was proved that cattle remained an important source of wealth throughout the Iron Age. An important shift in the Iron Age of southern Africa took place in the Shashe-Limpopo basin during this period, namely the development of

class distinction and sacred leadership. The Zimbabwe culture can be divided into three periods based on certain capitals. Mapungubwe, the first period, dates from AD 1220 to 1300, Great Zimbabwe from AD 1300 to 1450, and Khami from AD 1450 to 1820 (Huffman 2007: 361, 362).

The Late Iron Age (LIA) roughly dates from AD 1300 to 1840. It is generally accepted that Great Zimbabwe replaced Mapungubwe. Some characteristics include a greater focus on economic growth and the increased importance of trade. Specialisation in terms of natural resources also started to play a role, as can be seen from the distribution of iron slag which tend to occur only in certain localities compared to a wide distribution during earlier times. It was also during the Late Iron Age that different areas of South Africa were populated, such as the interior of KwaZulu Natal, the Free State, the Gauteng Highveld and the Transkei. Another characteristic is the increased use of stone as building material. Some artefacts associated with this period are knife-blades, hoes, adzes, awls, other metal objects as well as bone tools and grinding stones.

The general region of the study area is well known for LIA sites. The area west of Wonderboompoort is associated with one of the earliest LIA sites. Further to the west a high concentration of sites is also found that stretches to Olifantspoort in the Magaliesberg. These sites date to the Moloko period that roughly stretched from AD 1100 – 1500 (Van Vollenhoven 2006).

Oral traditions of Nguni-speaking Ndebele groups indicate their sites in the area to the east of Pretoria, while heritage reports conducted on the stone-walled sites of this area suggest that Ndebele-speaking people inhabited this area between the late 1600s and mid-1800s (Antonites 2020).

According to Van Vuuren (2006), Ndebele oral traditions state that they first settled at Emhlangeni, translating to “At the reeds”, near Randfontein in the Gauteng Province. Accordingly, they entered the Pretoria region during the early to mid- 1600s and settled at KwaMnyamana, which translates to “Place of the Black Hills”. KwaMnyamana is located close to the Hippo Quarries crusher site on the farms De Onderstepoort (300JR) and Doornpoort (295JR). The first chief to settle at this site was called Musi. A split between his sons caused the Ndebele to divide into several tribal entities. The descendants of the youngest son, Ndzungza, moved further to the east, while the descendants of the eldest son, Manala, stayed behind.

A later Ndebele invasion that was led by Mzilikaze in 1827, settled at Kungwini, present day Wonderboom in Pretoria North. In 1832, the Zulu king Dingane attacked Mzilikaze at Kungwini. According to Van Vollenhoven (2006), the Sotho-Tswana groups are the largest Bantu language speaking people who are formed by the Northern and Southern Sotho, as well as the Tswana. These groups are responsible for large stone-walled towns and according to oral histories, these groups re-established themselves after the 1827 arrival of Mzilikaze during the Mfecane/Difaquane.

The Historical period mainly deals with Europe's discovery, settlement and impact on southern Africa. Some topics covered by the Historical period include Dutch settlement in the Western Cape, early mission stations, Voortrekker routes and the Anglo Boer War. This time period also saw the compilation of early maps by missionaries, explorers, military personnel, etc.

3.3 Examples of Heritage Sites

Figures 8 – 15 are examples of heritage sites sometimes encountered – such areas should be avoided.



Figure 8: Example of undecorated potsherds.



Figure 9: Example of a decorated potsherd.



Figure 10: Example of a potential granary base.



Figure 11: Example of a stone-walled site.



Figure 12 : Example of a broken lower grinding stone.



Figure 13: Example of a dilapidated stone-walled site.



Figure 14: Example of a historical building.

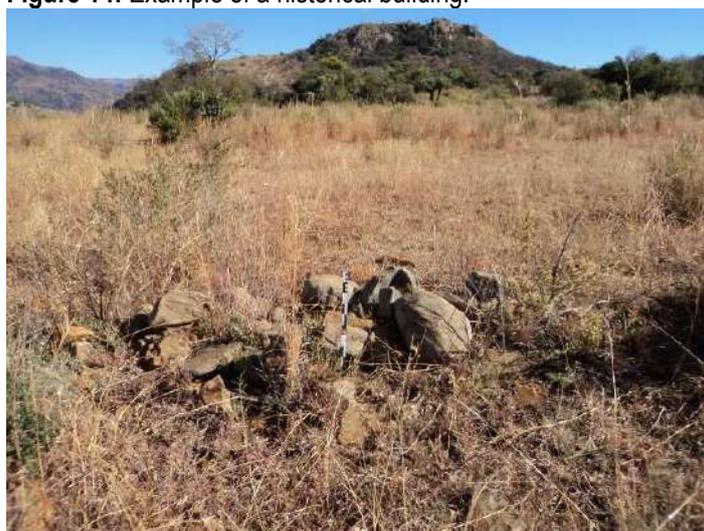


Figure 15: Example of a potential informal grave.

3.4 Previous Heritage Studies

Chicken breeding facility – Buffelsdrift 179 JR

A Heritage Impact Assessment was conducted for a chicken breeding facility on the Farm Buffelsdrift 179 JR. The demarcated impact area was approximately 4000 m² and is located roughly 5 km north of the proposed National Treasure Minerals (Pty) Ltd project. Van Schalkwyk (2007) surveyed the study area and located two cemeteries. The presence of LIA sites in the vicinity of the Rust de Winter dam is also noted.

132kV Power Line between Rust de Winter Substation and the Nokeng Substation

A Phase 1 HIA was conducted by Pistorius (2011) for the construction of a 132 kV power line between the Rust de Winter substation and the Nokeng substation near Rust de Winter Dam. The power line is located directly northeast of the proposed National Treasure Minerals (Pty) Ltd project area and appears to intersect Portion 3 and the Remaining Extent of the Farm Naauwpoort 208 JR. The study recorded two cemeteries and three houses dating to the historic period. A strong possibility for Stone Age and Iron Age remains are also noted.

Nokeng Fluorspar Mine

Kruger (2016) conducted an Archaeological Impact Assessment for the Nokeng Fluorspar Mine on Portions 4 and 11 and the Remaining Extent of Portion 2 of the Farm Kromdraai 209 JR and Portion 1 of the Farm Naauwpoort 209 JR. Based on the property description, the Nokeng Fluorspar project area partially intersects the National Treasure Minerals (Pty) Ltd project area towards the east. The project entails surface infrastructure and development on approximately 140 ha. The study, that serves as an update to the initial heritage study conducted by Kusel (2009), lists the presence of cemeteries, building ruins, a MSA stone tool scatter and an Iron Age stone-walled site with terracing.

4. Evaluation

The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions. Historical structures are defined by Section 34 of the National Heritage Resources Act, 1999, while other historical and cultural significant sites, places and features, are generally determined by community preferences.

A fundamental aspect in the conservation of a heritage resource relates to whether the sustainable social and economic benefits of a proposed development outweigh the conservation issues at stake. There are many aspects that must be taken into consideration when determining significance, such as rarity, national significance, scientific importance, cultural and religious significance, and not least, community preferences. When, for whatever reason the protection of a heritage site is not deemed necessary or practical, its research potential must be assessed and if appropriate mitigated in order to gain data / information which would otherwise be lost. Such sites must be adequately recorded and sampled before being destroyed.

5. Statement of Significance & Recommendations

5.1 Statement of significance

The study area: Several portions of the Farms Rhenosterfontein 210 JR and Naauwpoort 208 JR, Gauteng.

As can be seen from previous research done in the area, the general region is significant from a heritage perspective. Heritage sites are likely to include Stone Age, Iron Age, historical sites, and cemeteries/burial sites. Since heritage sites, such as burial sites, are not always clearly identifiable due to disturbed/removed surface features, care must be exercised when prospecting.

The **Appendix A** figures indicate the study area on 1967, 1984, 1995, 2001 and 2010 topographical maps, as well as on 1961 aerial images, while **Table 2** lists the potential sites, type of site, location, estimated extent and current status as observed on recent satellite imagery. **Figures 16 & 17** indicate the identified potential sites and sensitive areas.

Twenty-six potential sites were identified on the historical aerial images and topographical maps: Three sites on the Remaining Extent of the Farm Naauwpoort 208 JR, four sites on Portion 1/210, six sites on Portion 4/210, two sites on Portion 6/210, one on Portion 7/210, three sites on Portion 8/210, two sites on Portion 10/210, one site intersecting Portions 1/210 and 10/210, one site intersecting Portions 1/210, 7/210 and RE/210, two sites intersecting Portions 4/210 and 7/210, and one site intersecting Portion 7/210 and the RE/210.

A total of 16 sites associated with buildings were observed on 1961 aerial imagery. Fifteen of the sites appear to have been demolished as no surface features are noted on contemporary satellite imagery, while one site is associated with intact surface remains. The demolished sites, however, might be associated with subsurface culturally significant remains. It is also unknown whether the site associated with intact buildings have been demolished and replaced by modern buildings. Should any parts of the site observed on the 1961 aerial image still exist, it would be at least 60 years old and would therefore be protected by the NHRA (National Heritage Resources Act) 25 of 1999.

The eight sites associated with buildings and two sites associated with kraals identified on the 1984 topographical map appear to have been demolished and are not indicated on the 1967 topographical map or 1961 aerial image. These sites appear not to exceed 60 years of age and are therefore not considered significant from a heritage perspective.

Table 2: Potential site location.

Site No	Type	Parent Farm	Farm Portion	Current Status	Estimated Extent (ha)	Lat (y)	Lon (x)
B01	Building	Rhenosterfontein 210 JR	4, 7	Demolished	35.9	-25.272543	28.552586
B02	Building	Rhenosterfontein 210 JR	1, 7, RE	Demolished	29.2	-25.283579	28.528359
B03	Building	Rhenosterfontein 210 JR	7	Demolished	4.3	-25.280851	28.549722
B04	Building	Rhenosterfontein 210 JR	4	Demolished	5.5	-25.283650	28.559467
B05	Building	Rhenosterfontein 210 JR	10	Demolished	6.2	-25.302818	28.546163
B06	Building	Rhenosterfontein 210 JR	1	Demolished	4.2	-25.304079	28.533567
B07	Building	Rhenosterfontein 210 JR	1	Demolished	6.0	-25.309817	28.518328
B08	Building	Rhenosterfontein 210 JR	1	Demolished	4.2	-25.308833	28.523515
B09	Building	Rhenosterfontein 210 JR	1	Demolished	4.5	-25.311954	28.521560
B10	Building	Rhenosterfontein 210 JR	8	Demolished	17.0	-25.310465	28.571262
B11	Building	Naauwpoort 208 JR	RE	Intact	8.0	-25.297835	28.615221
B12	Building	Rhenosterfontein 210 JR	6	Demolished	3.4	-25.259190	28.550650
B13	Building	Rhenosterfontein 210 JR	6	Demolished	4.9	-25.264619	28.557414
B14	Building	Rhenosterfontein 210 JR	4	Demolished	3.8	-25.269044	28.558069
B15	Building	Rhenosterfontein 210 JR	4	Demolished	3.3	-25.274248	28.557230
B16	Building	Rhenosterfontein 210 JR	4	Demolished	1.8	-25.271154	28.548286
B17	Building	Rhenosterfontein 210 JR	RE, 7	Demolished	3.9	-25.279292	28.526400
B18	Building	Rhenosterfontein 210 JR	8	Demolished	3.1	-25.306148	28.566044
B19	Building	Rhenosterfontein 210 JR	8	Demolished	5.7	-25.309146	28.568519
B20	Kraal	Rhenosterfontein 210 JR	1, 10	Demolished	4.4	-25.300739	28.546568
B21	Building	Rhenosterfontein 210 JR	10	Demolished	3.0	-25.306488	28.540919
B22	Kraal	Naauwpoort 208 JR	RE	Demolished	6.6	-25.326188	28.596792
B23	Building	Rhenosterfontein 210 JR	4	Demolished	2.1	-25.268011	28.555717
B24	Building	Rhenosterfontein 210 JR	4, 7	Demolished	27.4	-25.280237	28.554312
B25	Building	Naauwpoort 208 JR	RE	Demolished	2.0	-25.302137	28.594046
B26	Building	Rhenosterfontein 210 JR	4	Demolished	33.0	-25.274196	28.564547

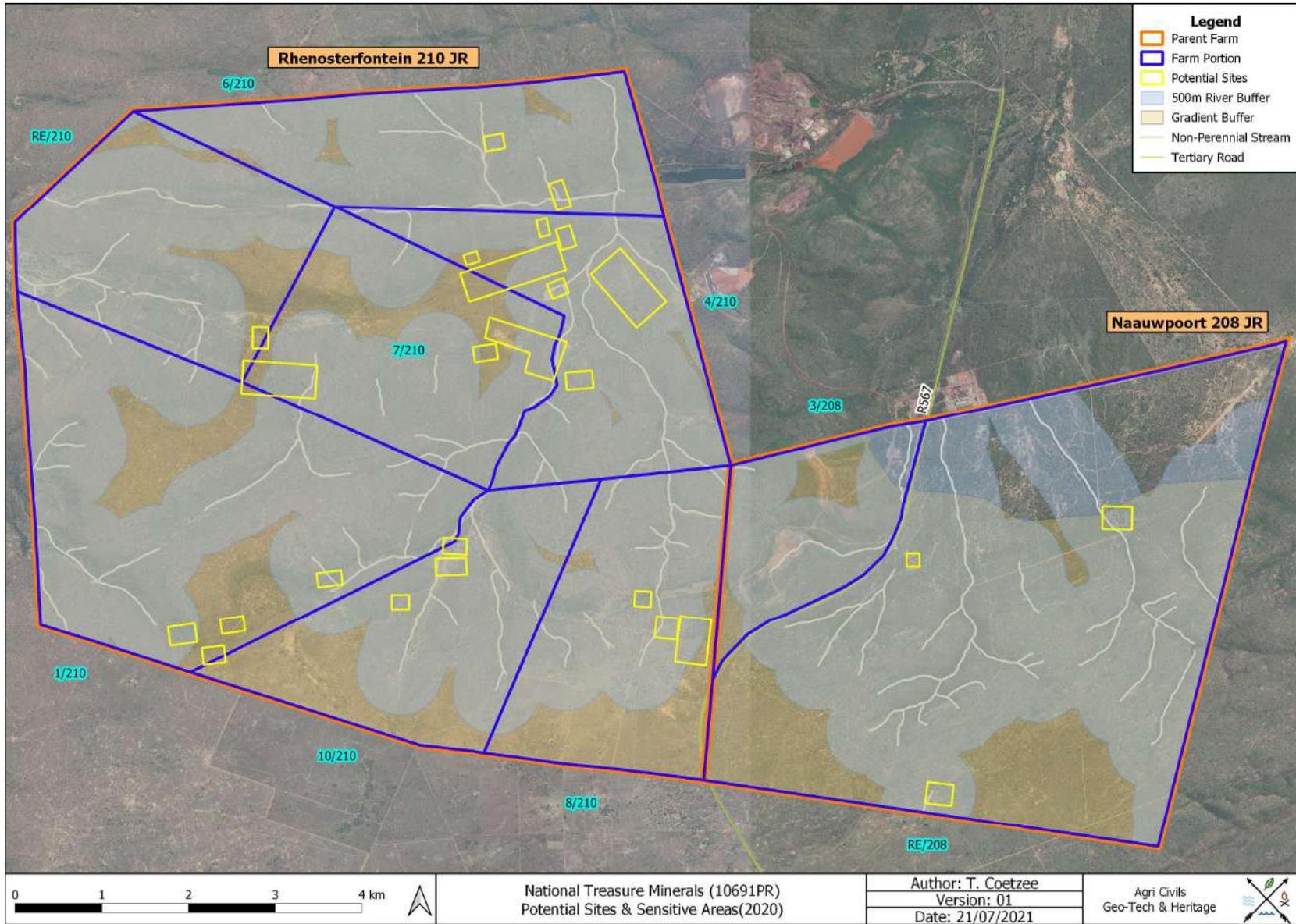


Figure 16: Potential Sites & Sensitive Areas.

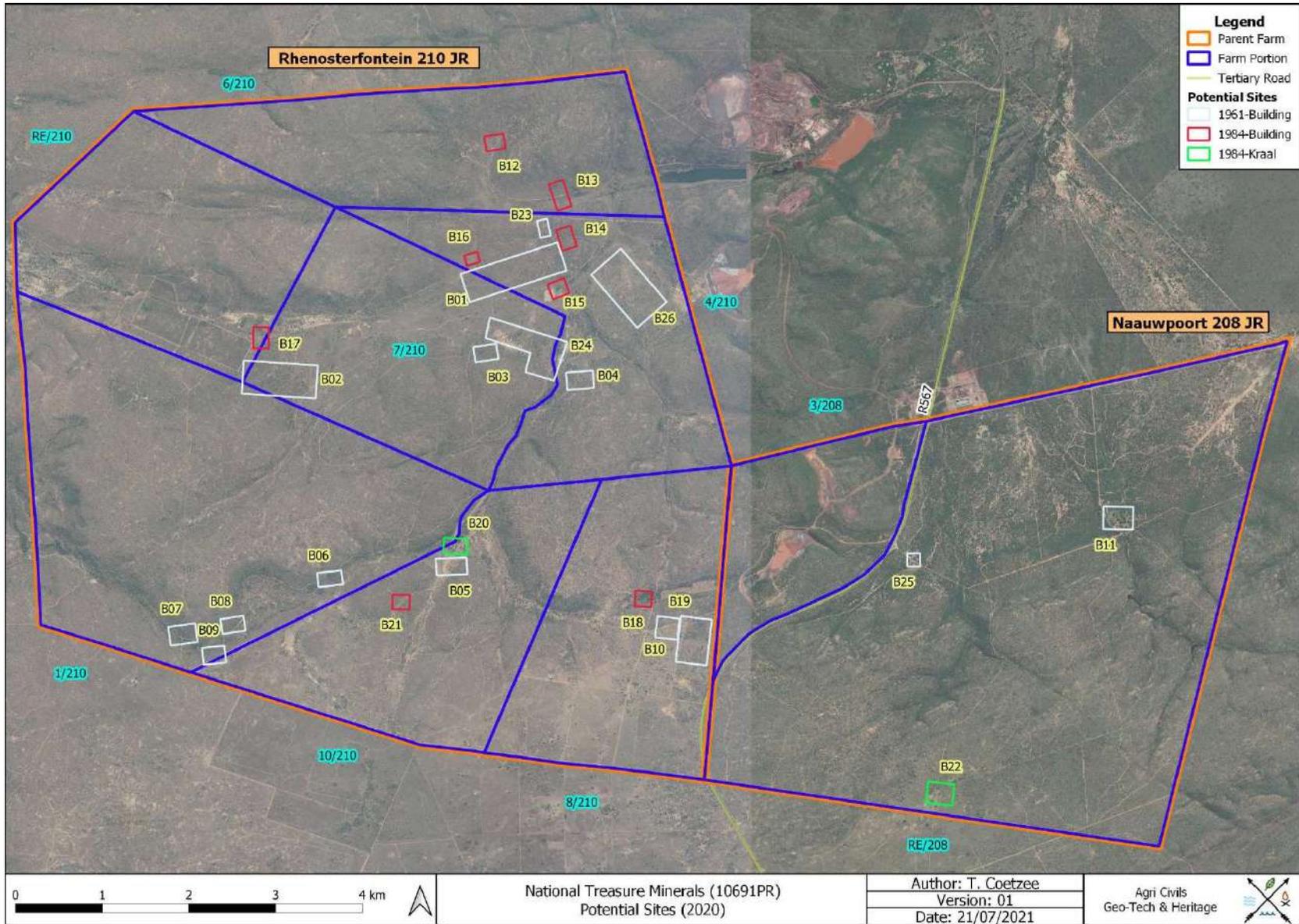


Figure 17: Potential Sites .

5.2 Recommendations

The following recommendations are made in order to avoid the destruction of heritage remains within the area demarcated for prospecting:

- Although the 15 demolished sites dating to 1961 (**Table 2**) appear not to be associated with surface remains, subsurface culturally significant material might be present. Therefore, it is recommended that these sites be avoided by the proposed prospecting activities. Should this not be possible, a qualified archaeologist should be present on-site during prospecting in order to limit potential impact on heritage resources.
- The one intact site dating to 1961 (**Table 2**) might be of cultural significance as the possibility exists that the associated buildings and structures exceed 60 years of age. It is therefore recommended that this area be avoided by the proposed prospecting activities. Should this not be possible, a qualified archaeologist should be present on-site during prospecting in order to limit potential impact on heritage resources.
- The 10 sites dating to 1984 are of contemporary origin and are unlikely to be significant from a heritage perspective.
- The 500 m buffer zone surrounding perennial/non-perennial rivers is potentially sensitive from a heritage perspective. Care should be exercised when prospecting in this vicinity.
- The gradient buffer zone that is associated with steep contours is potentially sensitive from a heritage perspective. Care should be exercised when prospecting in this vicinity.
- It is advised that a qualified archaeologist be contacted whenever uncertainty regarding potential heritage remains exists.
- Prospecting should not take place in the vicinity of stone cairns, potential burial sites, stone-walling, building ruins or any other heritage material or structures.
- Should the prospecting outcome result in further development or construction, a full Phase 1 Archaeological Impact Assessment must be conducted on the affected area if triggered. Also, a full Phase 1 AIA must be done should the cumulative impact of the proposed prospecting exceed 0.5 ha.

- Because archaeological artefacts generally occur below surface, the possibility exists that culturally significant material may be exposed during the prospecting phase, in which case all activities must be suspended pending further archaeological investigations by a qualified archaeologist. Also, should skeletal remains be exposed, all activities must be suspended and the relevant heritage resources authority contacted (See National Heritage Resources Act, 25 of 1999 section 36 (6)).
- From a heritage point of view, prospecting may proceed on the demarcated portions, subject to the abovementioned conditions and recommendations.

6. Addendum: Terminology

Archaeology:

The study of the human past through its material remains.

Artefact:

Any portable object used, modified, or made by humans; e.g. pottery and metal objects.

Assemblage:

A group of artefacts occurring together at a particular time and place, and representing the sum of human activities.

Context:

An artefact's context usually consist of its immediate *matrix* (the material surrounding it e.g. gravel, clay or sand), its *provenience* (horizontal and vertical position within the matrix), and its *association* with other artefacts (occurrence together with other archaeological remains, usually in the same matrix).

Cultural Resource Management (CRM):

The safeguarding of the archaeological heritage through the protection of sites and through salvage archaeology (rescue archaeology), generally within the framework of legislation designed to safeguard the past.

Excavation:

The principal method of data acquisition in archaeology, involving the systematic uncovering of archaeological remains through the removal of the deposits of soil and other material covering and accompanying it.

Feature:

An irremovable artefact; e.g. hearths or architectural elements.

Ground Reconnaissance:

A collective name for a wide variety of methods for identifying individual archaeological sites, including consultation of documentary sources, place-name evidence, local folklore, and legend, but primarily actual fieldwork.

Matrix:

The physical material within which artefacts is embedded or supported, i.e. the material surrounding it e.g. gravel, clay or sand.

Phase 1 Assessments:

Scoping surveys to establish the presence of and to evaluate heritage resources in a given area.

Phase 2 Assessments:

In-depth culture resources management studies which could include major archaeological excavations, detailed site surveys and mapping / plans of sites, including historical / architectural structures and features. Alternatively, the sampling of sites by collecting material, small test pit excavations or auger sampling is required.

Sensitive:

Often refers to graves and burial sites although not necessarily a heritage place, as well as ideologically significant sites such as ritual / religious places. *Sensitive* may also refer to an entire landscape / area known for its significant heritage remains.

Site:

A distinct spatial clustering of artefacts, features, structures, and organic and environmental remains, as the residue of human activity.

Surface survey:

There are two kinds: (1) unsystematic and (2) systematic. The former involves field walking, i.e. scanning the ground along one's path and recording the location of artefacts and surface features. Systematic survey by comparison is less subjective and involves a grid system, such that the survey area is divided into sectors and these are walked all, thus making the recording of finds more accurate.

7. References

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Appendix A: Historical Aerial Imagery & Topographical Maps

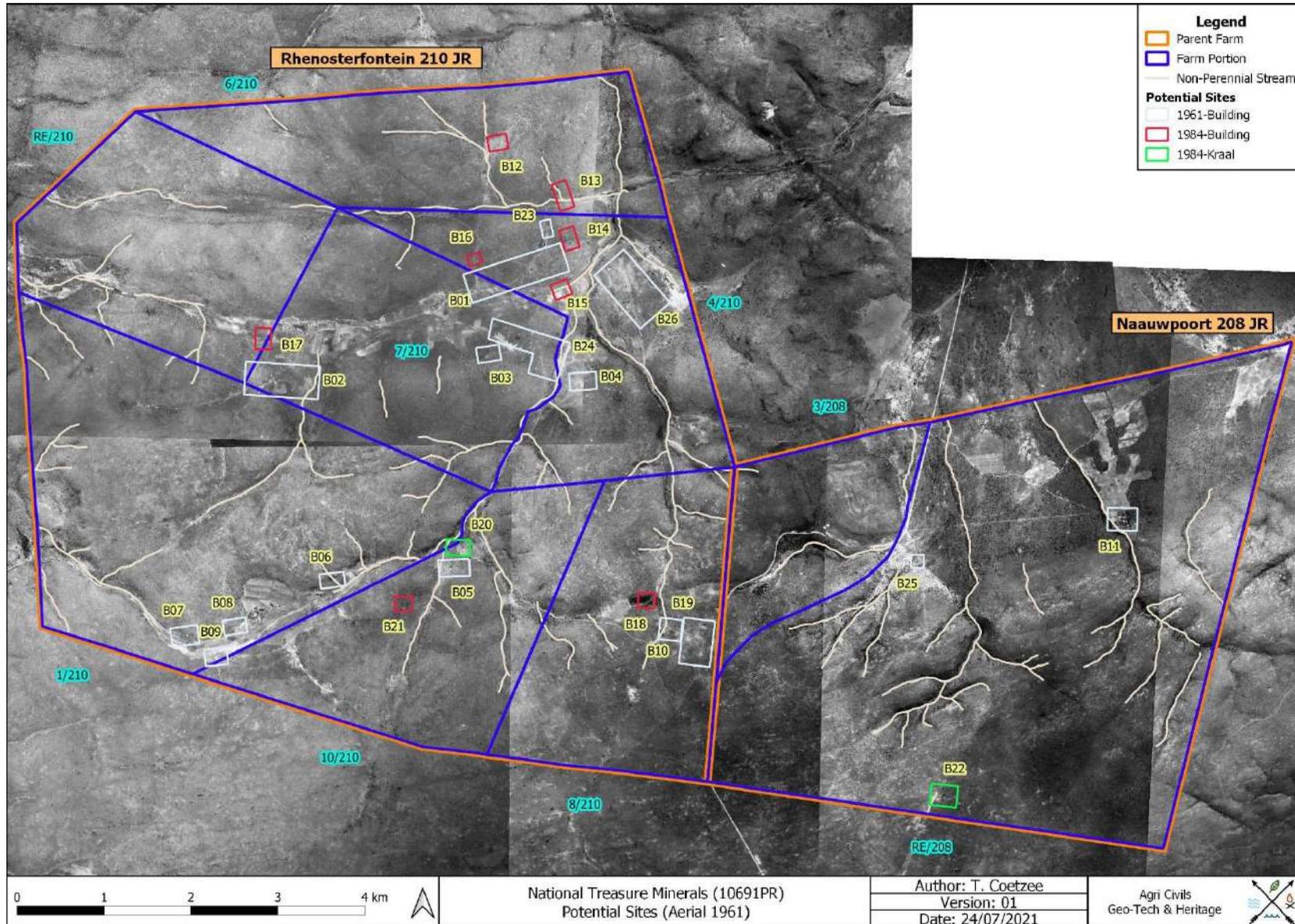


Figure 18: 1961 Aerial image of the study area.

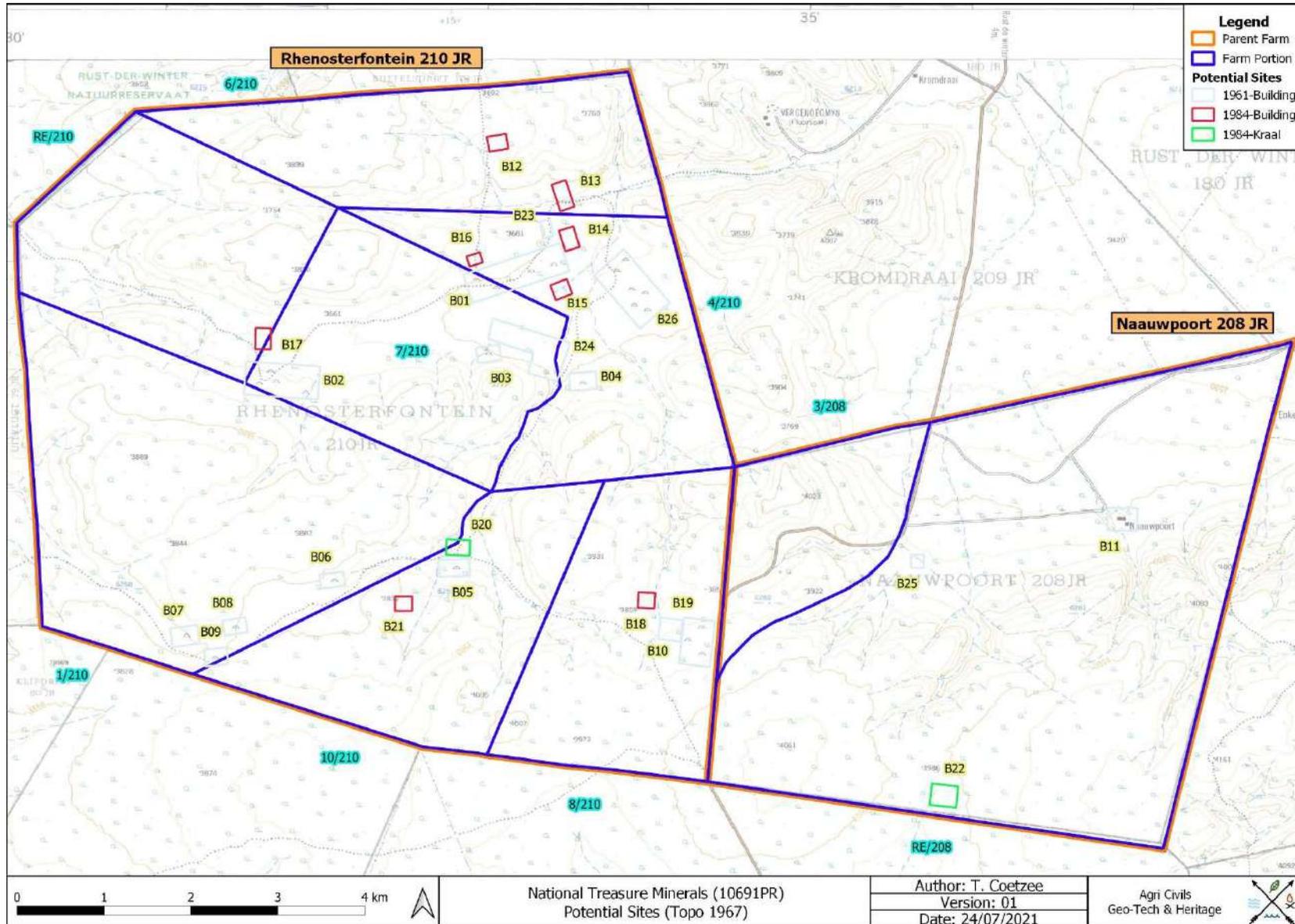


Figure 19: Segment of 1967 1:50 000 2528 BC indicating the study area.

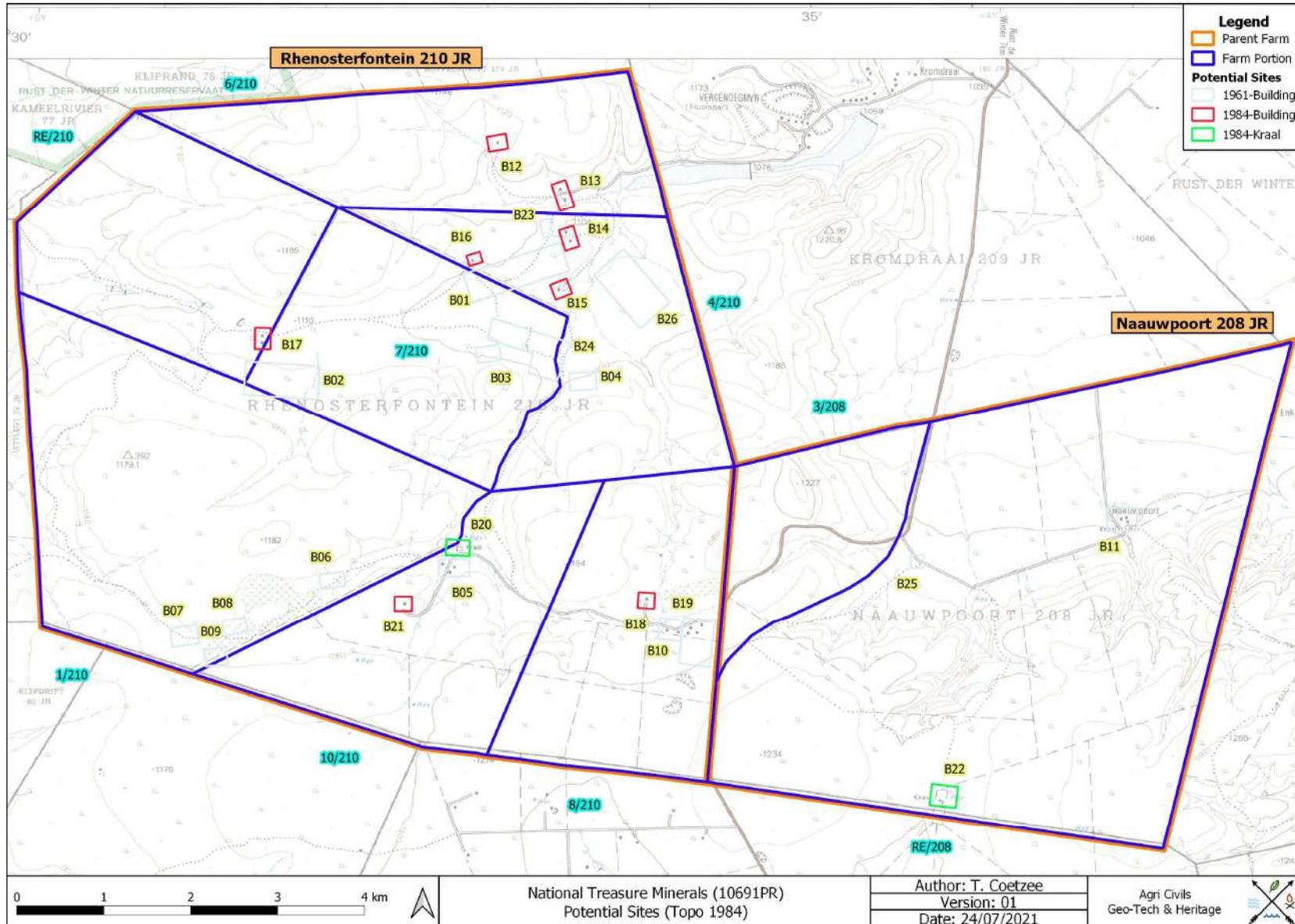


Figure 20: Segment of 1984 1:50 000 2528 BC indicating the study area.

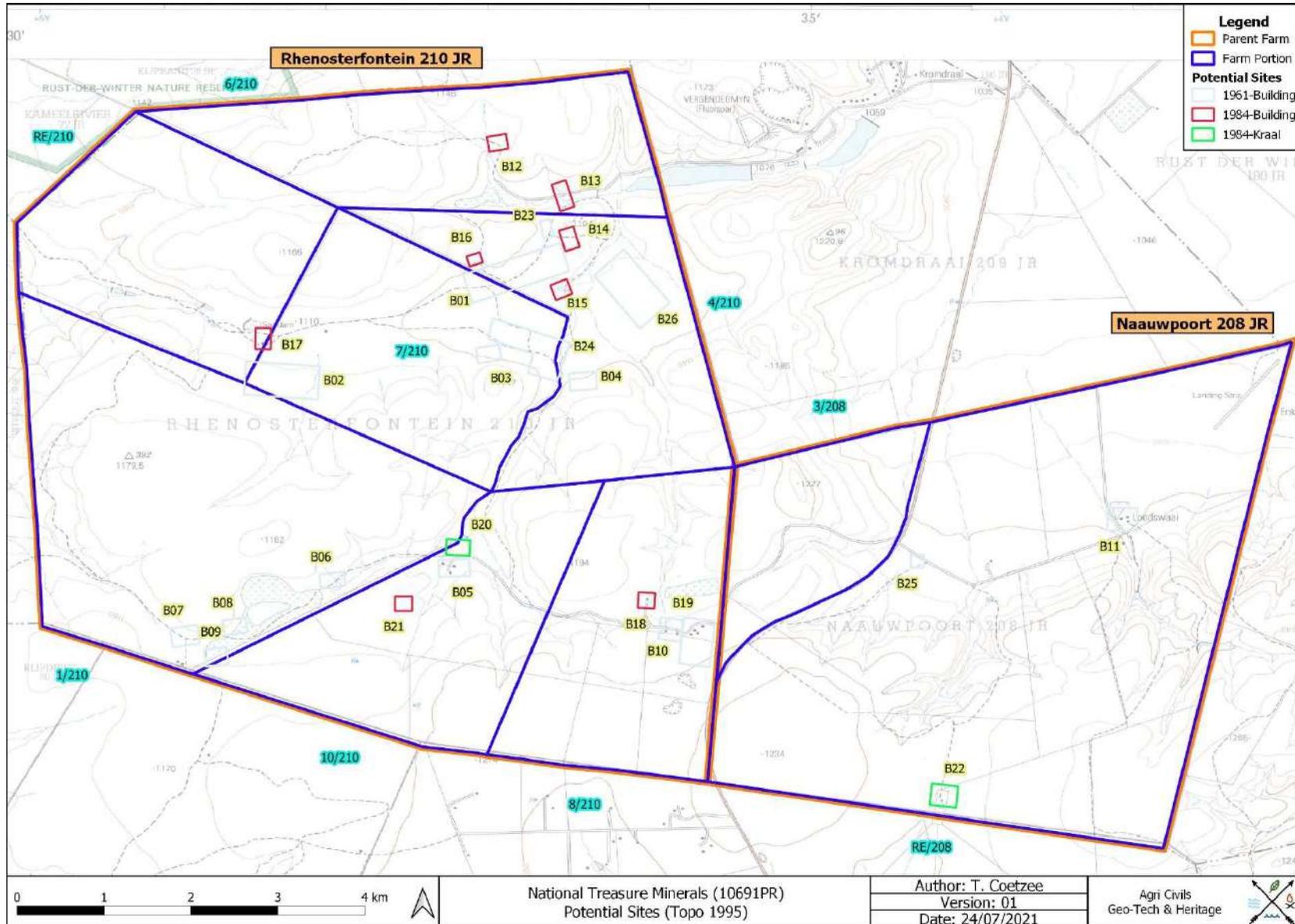


Figure 21: Segment of 1995 1:50 000 2528 BC indicating the study area.

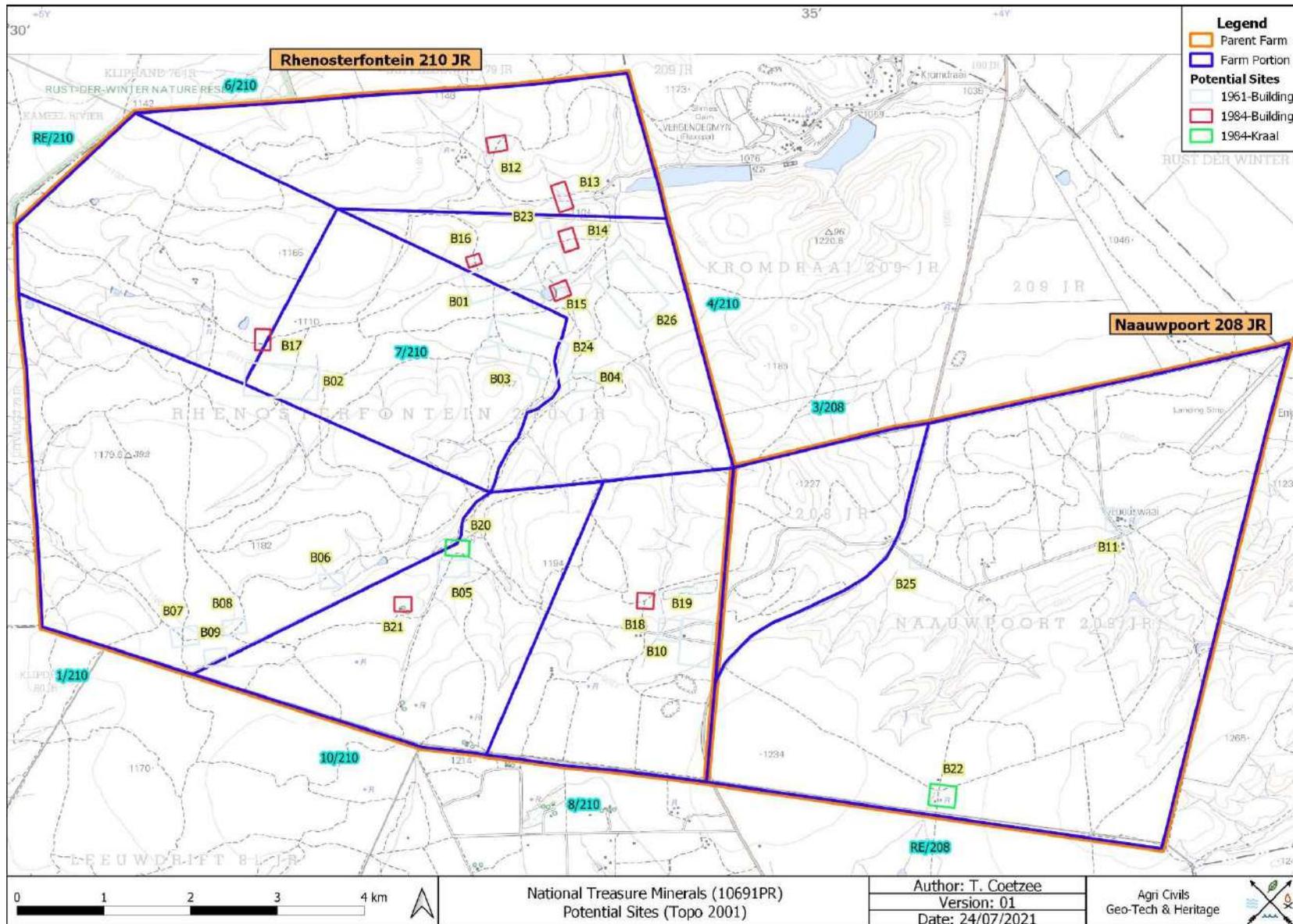
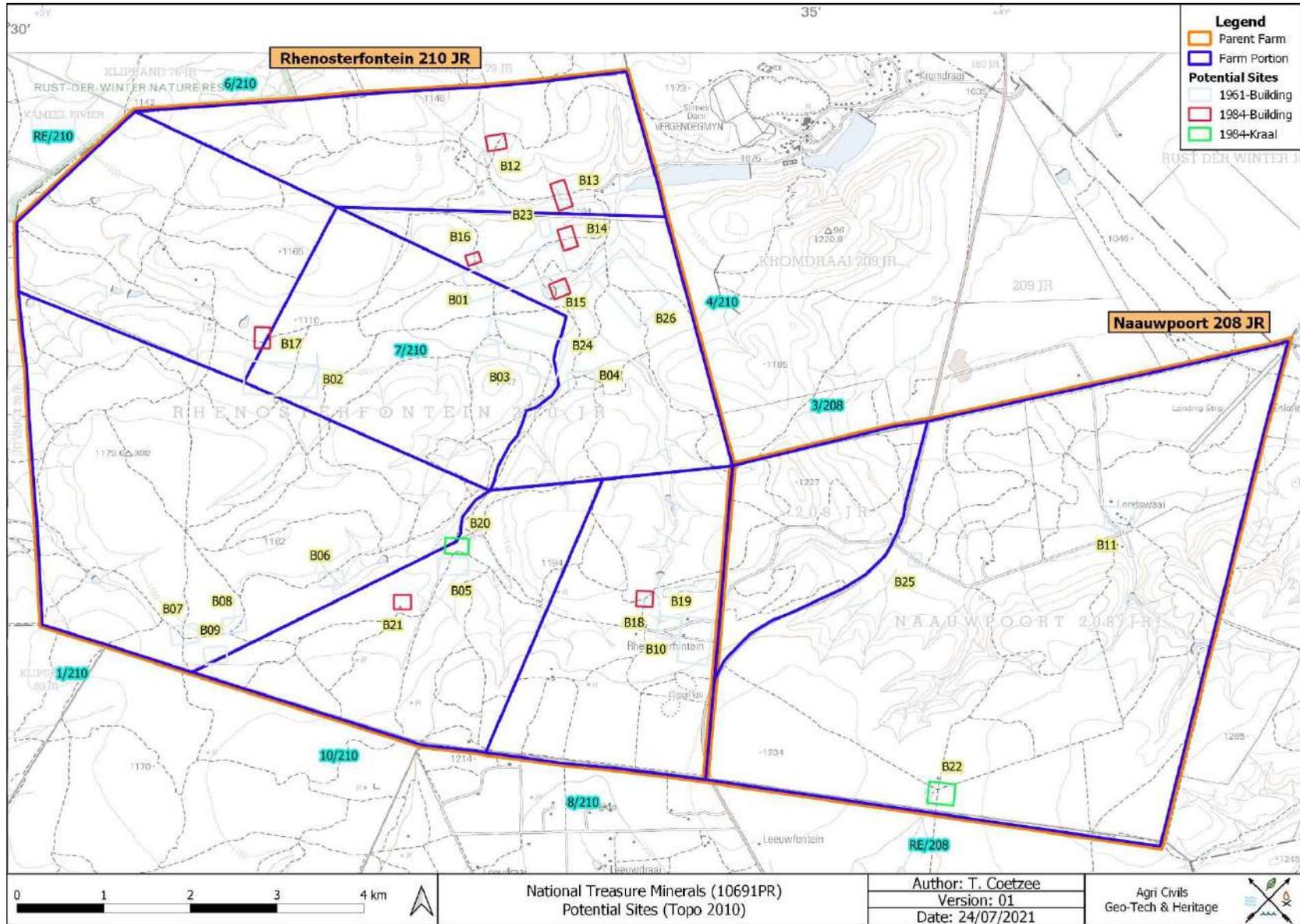


Figure 22: Segment of 2001 1:50 000 2528 BC indicating the study area.



APPENDIX E: SCREENING TOOL REPORT



**SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS
REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE
ENVIRONMENTAL SENSITIVITY**

EIA Reference number: 10691PR

Project name: Rhenosterfontein PR

Project title: .

Date screening report generated: 26/07/2021 18:36:44

Applicant: NTM

Compiler: Eco Elementum

Compiler signature:
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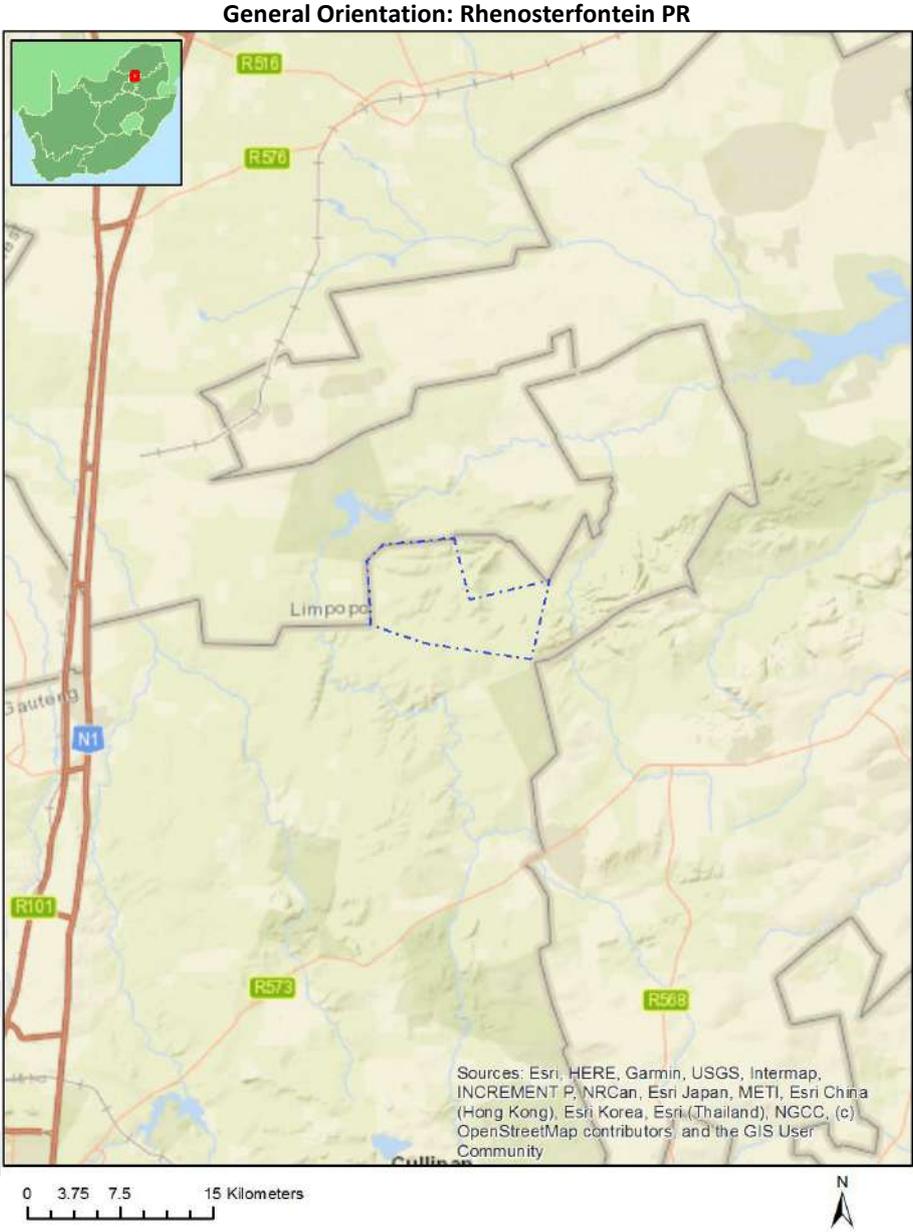
Application Category: Mining|Prospecting rights

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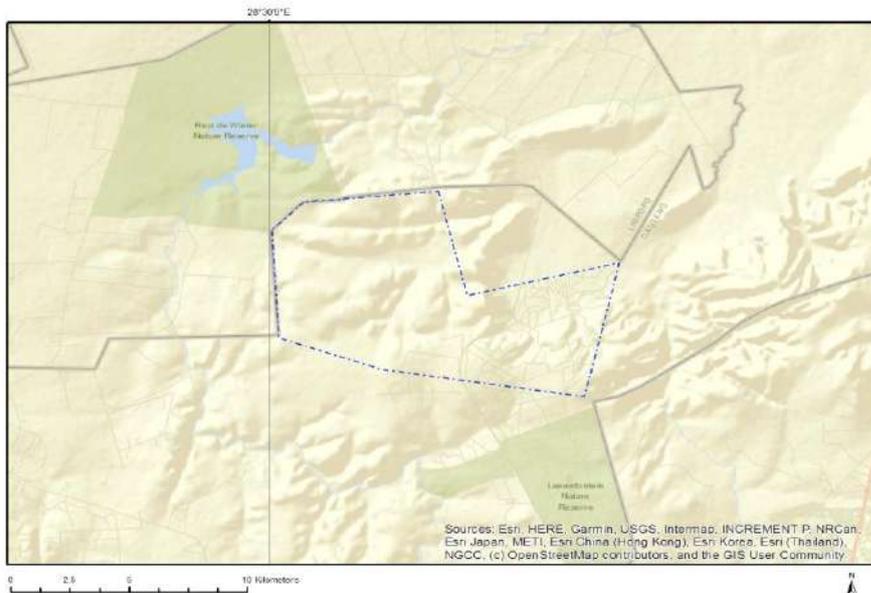
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Proposed Project Location

Orientation map 1: General location



Map of proposed site and relevant area(s)



Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1	WAG'NBIETJIE	209	0	25°16'10.88S	28°35'34.17E	Farm
2	APIESDORING	77	0	25°15'14.5S	28°28'10.69E	Farm
3	WAG'NBIETJIE	210	0	25°17'14.97S	28°32'21.57E	Farm
4	WAG'NBIETJIE	212	0	25°21'51.24S	28°36'49.42E	Farm
5	APIESDORING	76	0	25°13'15.42S	28°29'38.36E	Farm
6	LEEUWDRIFT	81	0	25°20'21.1S	28°30'29.13E	Farm
7	WAG'NBIETJIE	207	0	25°18'19.7S	28°38'48.57E	Farm
8	WAG'NBIETJIE	208	0	25°18'23.55S	28°36'6.98E	Farm
9	BUFFELSDRIFT	80	0	25°19'47.62S	28°28'3.66E	Farm
10	RUST DER WINTER	180	0	25°12'38.44S	28°36'46.08E	Farm
11	WAG'NBIETJIE	211	0	25°21'10.14S	28°33'16.04E	Farm
12	BUFFELSDRIFT	179	0	25°12'52.33S	28°32'0.64E	Farm
13	BUFFELSDRIFT	80	800	25°19'25.78S	28°28'19.38E	Farm Portion
14	LEEUWDRIFT	81	0	25°20'21.95S	28°30'16.73E	Farm Portion
15	BUFFELSDRIFT	179	41	25°14'8.08S	28°32'8.53E	Farm Portion
16	WAG'NBIETJIE	207	1	25°18'36.32S	28°37'59.89E	Farm Portion
17	WAG'NBIETJIE	210	7	25°16'49.97S	28°32'30.41E	Farm Portion
18	BUFFELSDRIFT	179	36	25°14'4.72S	28°33'13.85E	Farm Portion
19	WAG'NBIETJIE	209	4	25°16'36.68S	28°34'45.29E	Farm Portion
20	WAG'NBIETJIE	211	20	25°19'35.65S	28°33'19.15E	Farm Portion
21	WAG'NBIETJIE	211	22	25°19'37.28S	28°33'55.18E	Farm Portion
22	BUFFELSDRIFT	179	7	25°14'1.17S	28°32'40.47E	Farm Portion
23	WAG'NBIETJIE	208	0	25°18'35.78S	28°36'11.08E	Farm Portion
24	WAG'NBIETJIE	209	5	25°16'15.03S	28°37'0.52E	Farm Portion
25	WAG'NBIETJIE	210	8	25°18'34.95S	28°33'52.28E	Farm Portion
26	WAG'NBIETJIE	211	19	25°19'34.61S	28°33'2.86E	Farm Portion
27	WAG'NBIETJIE	211	23	25°19'39.67S	28°34'15.95E	Farm Portion
28	APIESDORING	77	7	25°15'2.05S	28°29'35.44E	Farm Portion

29	RUST DER WINTER	180	206	25°15'28.57S	28°38'11.44E	Farm Portion
30	WAG'NBIETJIE	208	3	25°17'56.65S	28°34'55.19E	Farm Portion
31	WAG'NBIETJIE	209	3	25°16'9.79S	28°36'25.28E	Farm Portion
32	WAG'NBIETJIE	211	18	25°19'30.9S	28°32'46.46E	Farm Portion
33	WAG'NBIETJIE	210	4	25°16'46.18S	28°33'37.74E	Farm Portion
34	BUFFELSDRIFT	179	6	25°14'11.72S	28°31'36.55E	Farm Portion
35	WAG'NBIETJIE	210	6	25°15'34.87S	28°32'44.52E	Farm Portion
36	WAG'NBIETJIE	210	0	25°16'11.22S	28°31'1.23E	Farm Portion
37	WAG'NBIETJIE	212	1	25°20'9.44S	28°35'41.83E	Farm Portion
38	WAG'NBIETJIE	210	10	25°18'32.82S	28°32'37.61E	Farm Portion
39	APIESDORING	76	0	25°14'18.82S	28°30'6.43E	Farm Portion
40	WAG'NBIETJIE	207	4	25°18'5.77S	28°39'27.67E	Farm Portion
41	WAG'NBIETJIE	209	11	25°17'6.47S	28°35'54.89E	Farm Portion
42	WAG'NBIETJIE	210	1	25°17'44.91S	28°31'13.59E	Farm Portion
43	WAG'NBIETJIE	211	21	25°19'36.41S	28°33'36.45E	Farm Portion

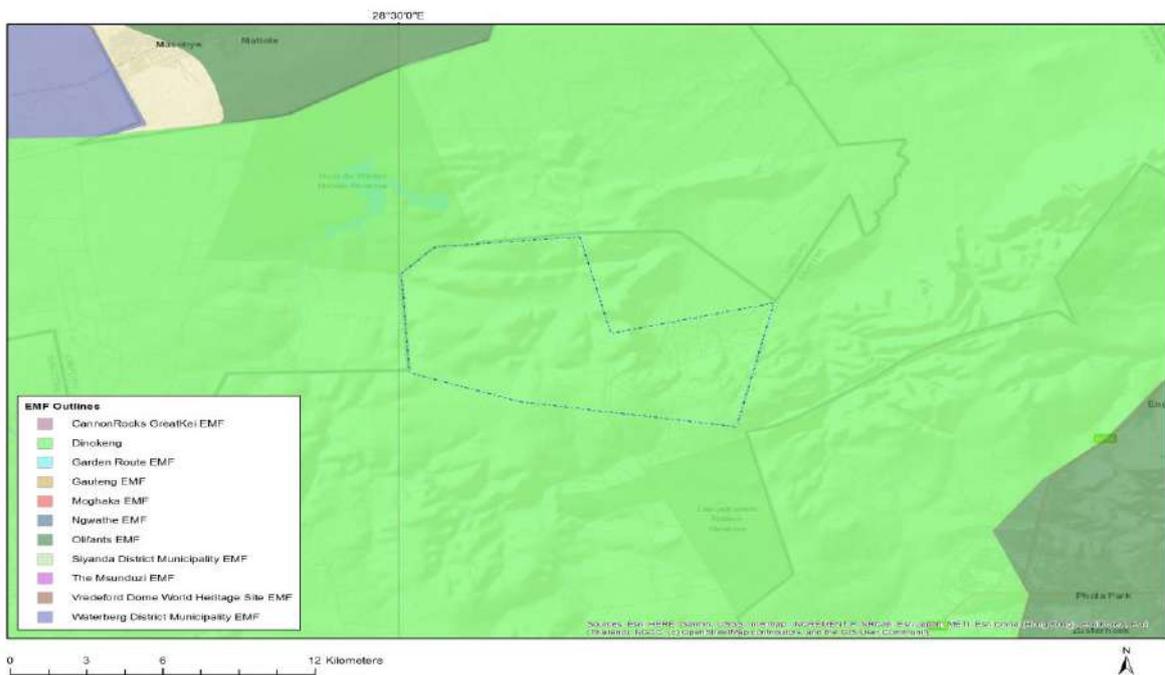
Development footprint¹ vertices:
No development footprint(s) specified.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No	EIA Reference No	Classification	Status of application	Distance from proposed area (km)
1	12/12/20/2576	Solar PV	Approved	24.6

¹ “development footprint”, means the area within the site on which the development will take place and includes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

Environmental Management Frameworks relevant to the application



Environmental Management Framework	LINK
Waterberg District Municipality EMF	https://screening.environment.gov.za/ScreeningDownloads/EMF/WDEM_Final_EMF_Report.pdf
Olifants EMF	https://screening.environment.gov.za/ScreeningDownloads/EMF/Zone_46, 67, 78, 80, 92, 103, 122, 129.pdf
Gauteng EMF	https://screening.environment.gov.za/ScreeningDownloads/EMF/Zone_1, Zone 2, Zone 3, Zone 4, Zone 5.pdf
Dinokeng	https://screening.environment.gov.za/ScreeningDownloads/EMF/Dinokeng_EMF_&_SEMP_final_March_2010.pdf

Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is: **Mining | Prospecting rights.**

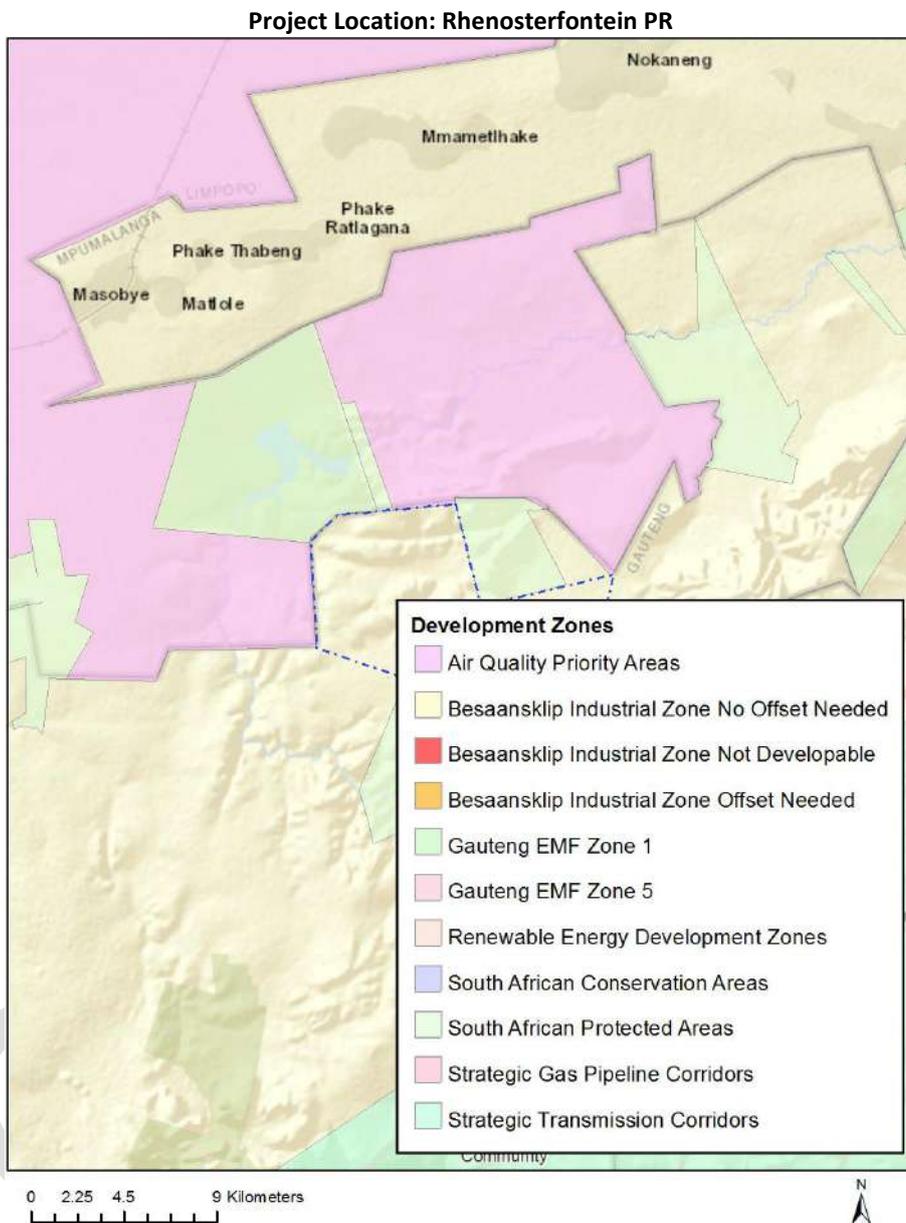
Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

Incentive, restriction or prohibition	Implication
Air Quality-Waterberg-Bojanala Priority Area	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/gg39489_nn1207a.pdf
South African Protected Areas	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/SAPAD_OR_2021_Q1_Metadata.pdf

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Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones



Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme		X		
Animal Species Theme			X	

Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme		X		
Defence Theme				X
Paleontology Theme			X	
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Specialist assessments identified

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

N o	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Agriculture_Assessment_Protocols.pdf
2	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
3	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
4	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf
5	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Aquatic_Biodiversity_Assessment_Protocols.pdf
6	Noise Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Noise_Impacts_Assessment_Protocol.pdf

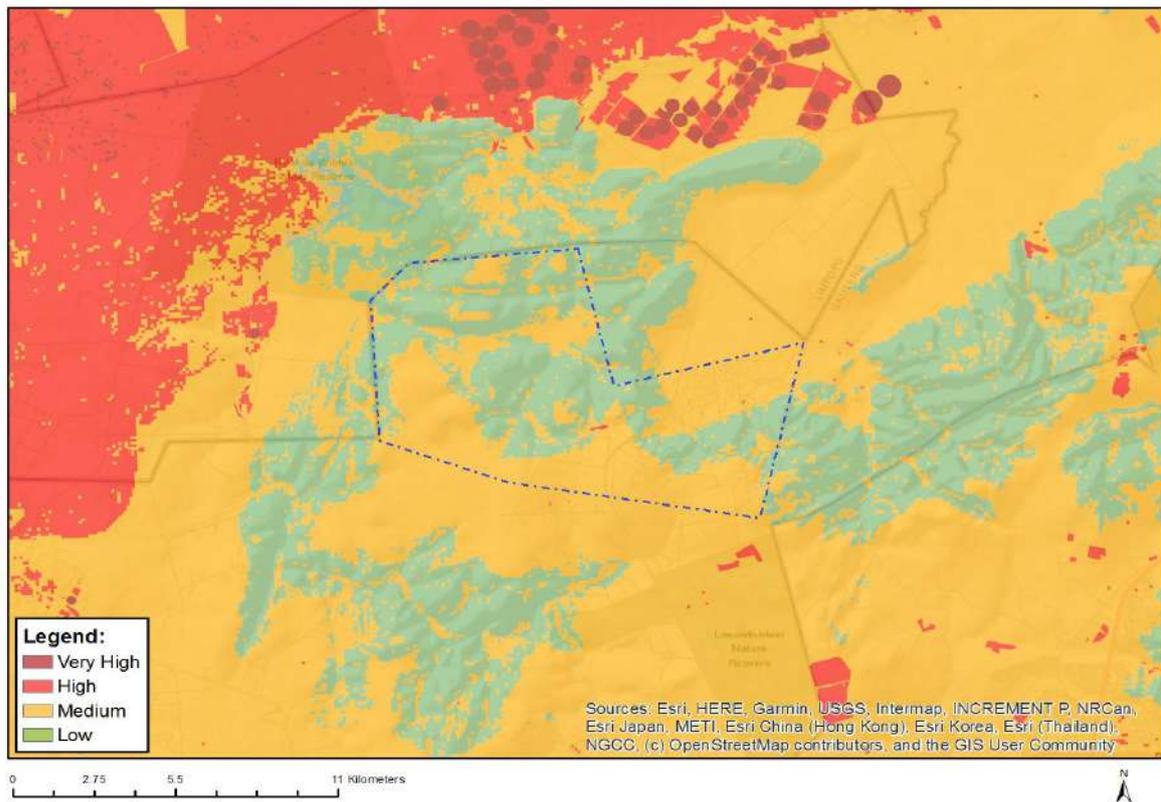
	ment	
7	Radioactivity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
8	Plant Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Plant_Species_Assessment_Protocols.pdf
9	Animal Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Animal_Species_Assessment_Protocols.pdf

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Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

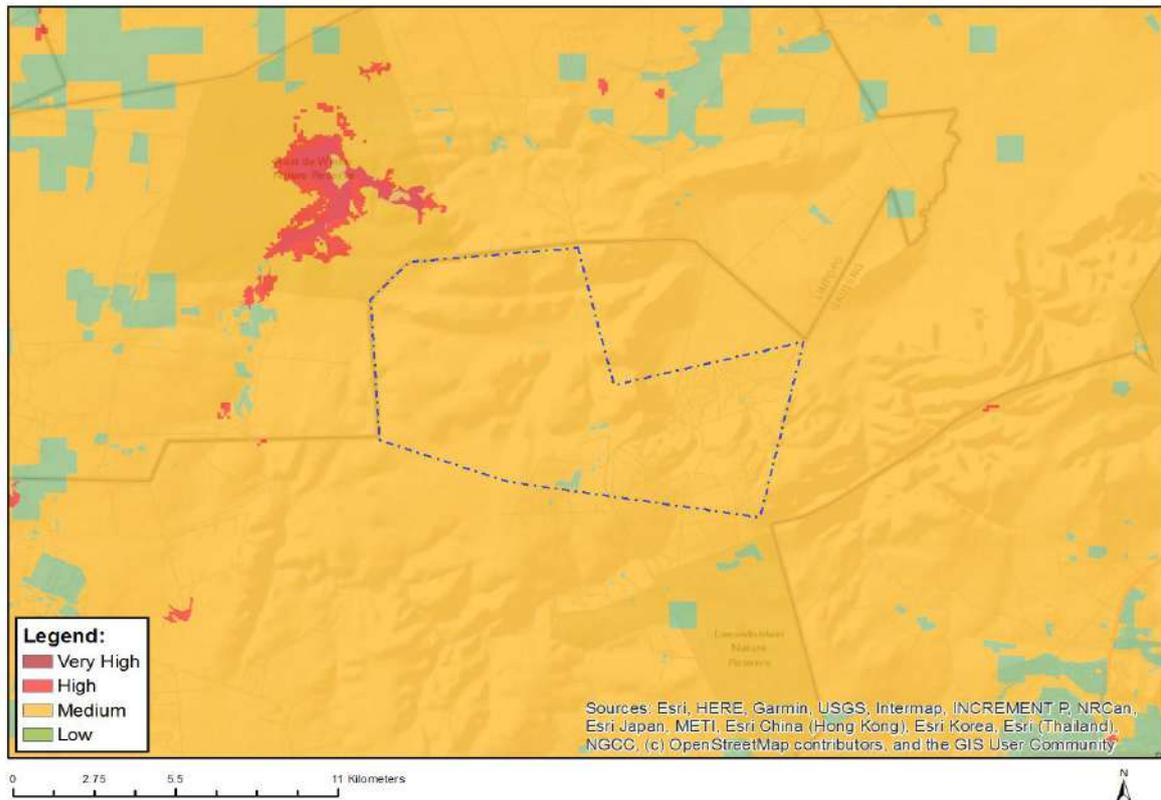


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Land capability;09. Moderate-High/10. Moderate-High
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate
Low	Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
Medium	Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity
Medium	Mammalia-Acinonyx jubatus
Medium	Mammalia-Crocidura maquassiensis
Medium	Mammalia-Dasymys robertsii
Medium	Sensitive species 12

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

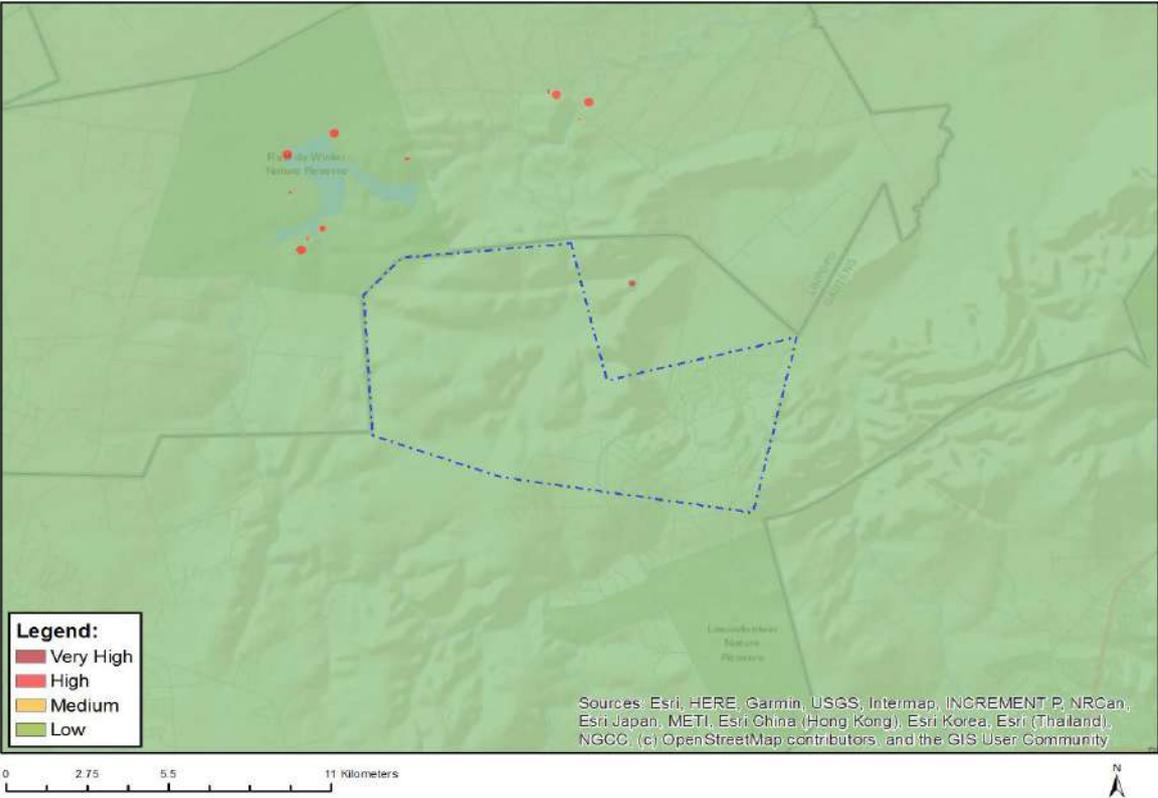


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity
Very High	Wetlands and Estuaries

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

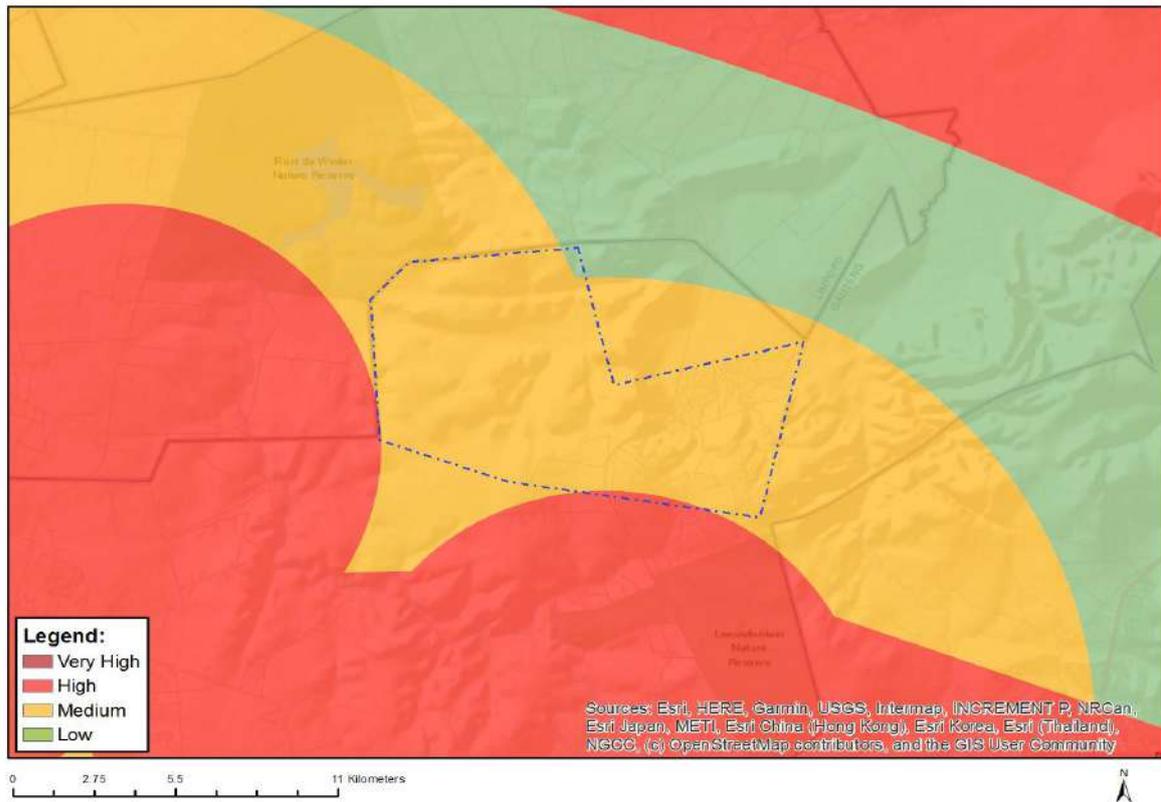


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Within 8 km of other civil aviation aerodrome
Low	Low sensitivity
Medium	Between 8 and 15 km of other civil aviation aerodrome

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

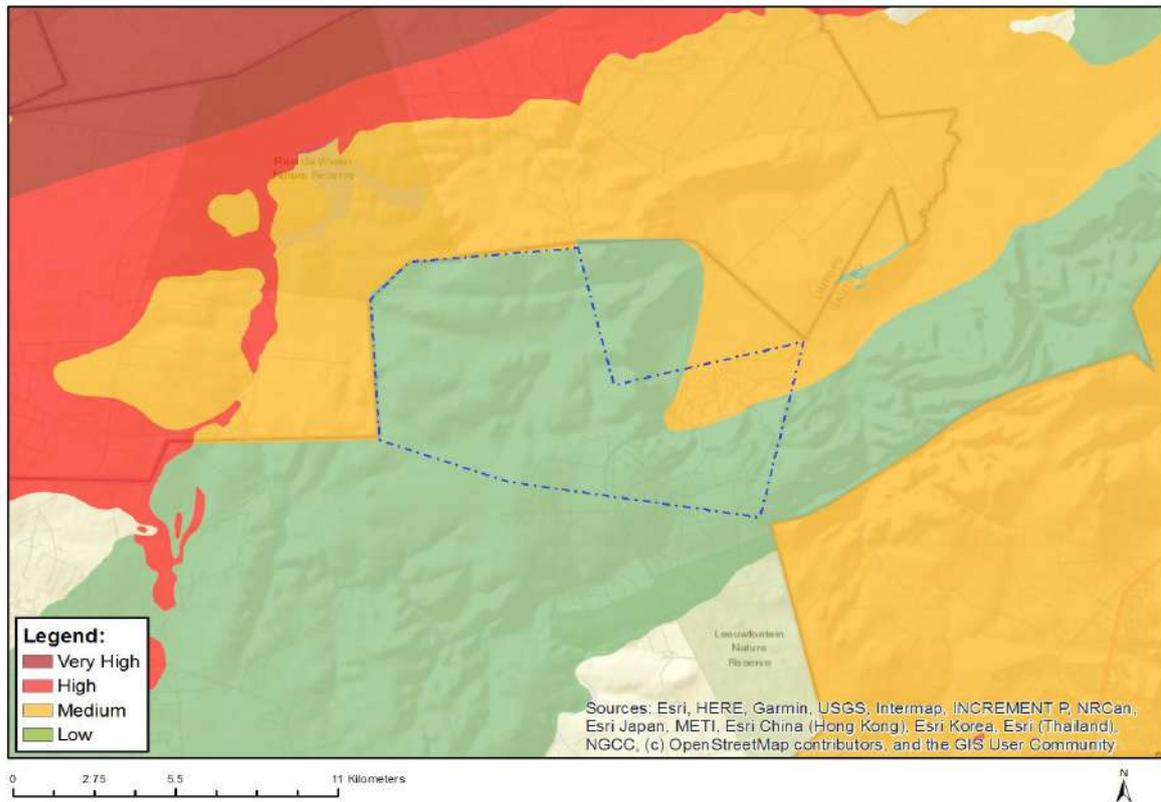


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

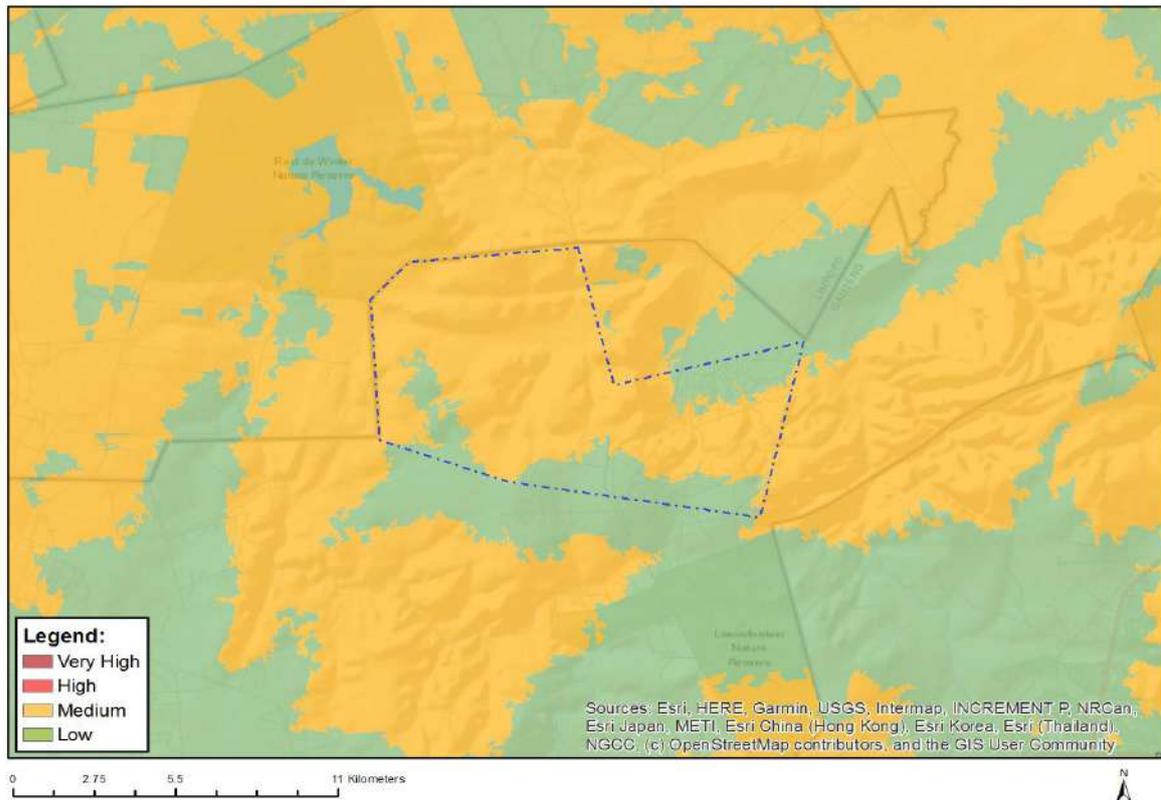


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Features with a Low paleontological sensitivity
Medium	Features with a Medium paleontological sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



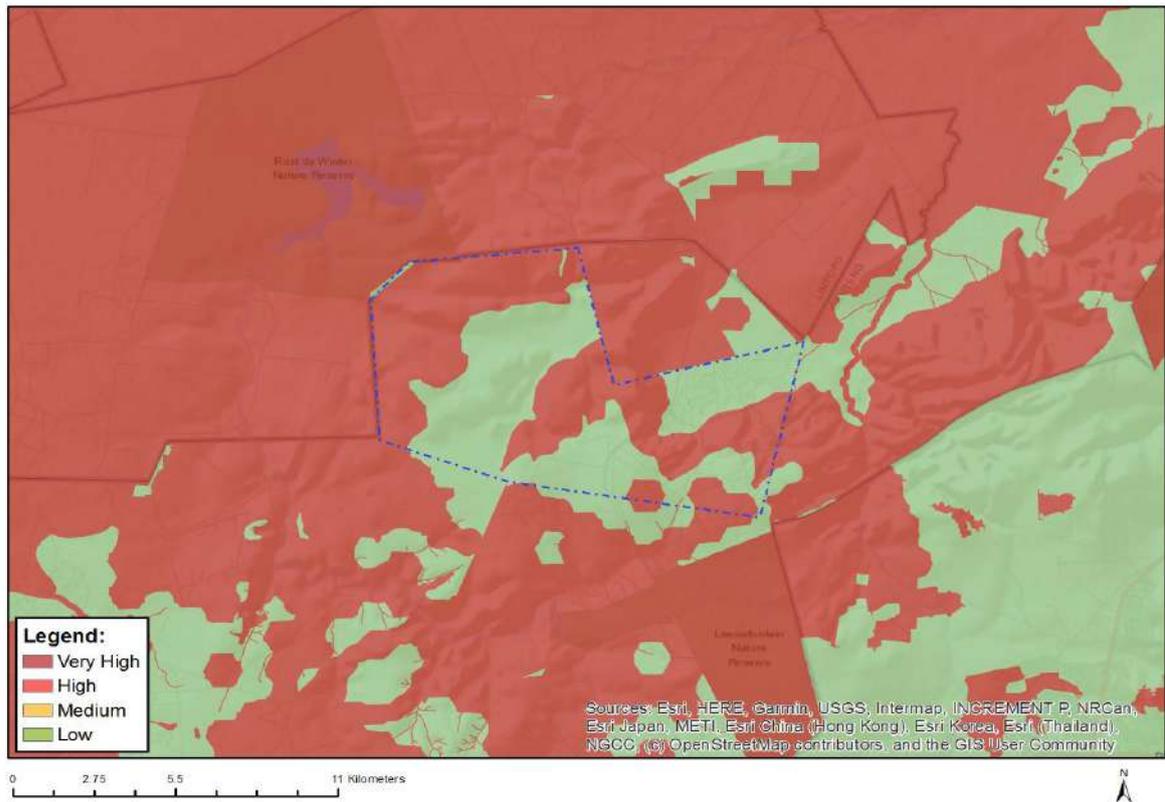
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Brachycorythis conica subsp. transvaalensis
Medium	Sensitive species 1248

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Very High	Critical Biodiversity Area 2
Very High	Ecological Support Area
Very High	Critical Biodiversity Area 1
Very High	Ecological Support Area 1
Very High	Focus Areas for land-based protected areas expansion
Very High	South African Protected Areas