

**NATIONAL TREASURE MINERALS (PTY) LTD**

**Waagkraal Prospecting Project**

**DRAFT**

**Basic Assessment Report (BAR) and Environmental  
Management Programme (EMPR)**

**Compiled in terms of Appendix 1 and Appendix 4 of the amended  
Environmental Impact Assessment Regulations, 2014 (Government Notice No.  
326) (EIA Regulations, 2014) and Submitted as contemplated in Regulation 19  
of Chapter 4 of the EIA Regulations, 2014**

**For**

**The application for an Environmental Authorization in terms of the National  
Environmental Management Act, 1998 (Act No. 107 of 1998), Environmental  
Impact Assessment Regulations 2014, Government Notice No. 327 - Listing  
Notice 1 of 2014**

**DMRE Reference No.: NW 30/5/1/1/2/13044 PR**

**SEPTEMBER 2021**

# **Basic Assessment Report (BAR) and Environmental Management Programme (EMPR)**

**National Treasure Minerals (Pty) Ltd:**

**Waagkraal prospecting project**

## **BAR AND EMPR FOR THE WAAGKRAAL PROSPECTING PROJECT**

**September 2021**

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## APPENDICES

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**Appendix #**

Appendix A – Regulation 2.2 Plan

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## EXECUTIVE SUMMARY

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National Treasure Minerals (Pty) Ltd submitted an application for a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2004 (Act 28 of 2004). National Treasure Minerals (Pty) Ltd proposes to prospect for Iron ore over the farms Waagkraal 374 IO, Murray 377 IO, and Kliprif 376 IO, namely the Waagkraal prospecting project.

Waagkraal prospecting area will be undertaken in different phases i.e., literature review (available data interpretation and deciding whether to commence with drilling), field mapping and geophysical survey, positioning of drilling sites, diamond core drilling, logging/sampling of borehole cores and rehabilitation of the drilling site.

The undertaking of the proposed Waagkraal prospecting project will result in the undertaking of activities that are considered as listed activities in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) as amended (NEMA). In terms of the above-mentioned legislation, an application for an environmental authorisation must be submitted to the competent authority, which application must be granted before the commencement of the proposed listed activities. In addition to the above, an environmental impact assessment must be undertaken in support of the environmental authorisation application for the proposed listed activities. In view of the above, National Treasure Minerals (Pty) Ltd appointed Geovicon Environmental (Pty) Limited, an independent environmental consulting company, to undertake and manage the environmental authorisation application and the environmental impact assessment for the proposed Waagkraal prospecting project. An application for an environmental authorisation for the proposed Waagkraal prospecting project was submitted to the Department of Mineral Resources and Energy, North West Regional Office (Competent Authority) for their consideration.

This document (draft BAR and EMPR), which concerns assessment of environmental impacts and a programme for management of the environmental impacts for the proposed activities at the Waagkraal prospecting project, was compiled in terms of the EIA Regulations, 2014 for review by interested and affected parties including the commenting and competent authority.

Environmental baseline data used in this report has been obtained through desktop assessments for surface water quantities and qualities, geohydrological data, topographical analyses, soil surveys, vegetation surveys, wetland surveys and geological conditions and the socio-economic aspects. Weather data was acquired from the South African Weather Service. The data accumulated and analysed is therefore deemed sufficient to gain a baseline indication of the present state of the environment. The use of this baseline data for impact assessments is thus justified, and reliable conclusions could be made. The impacts that could arise during and after the proposed prospecting activities at the Waagkraal prospecting project were determined and ranked according to their significance. Based on the impact assessment, recommendations were made for the mitigation of significant negative environmental impacts that will result from the proposed Waagkraal prospecting project.

# PART A

SECTION ONE

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## **Introduction**

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# 1. INTRODUCTION

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## 1.1 WHO IS DEVELOPING THE BAR AND EMPR?

### 1.1.1 Name and contact details of the EAP who prepared the BAR and EMPR

**EAP:** Mr. Ornassis Tshepo Shakwane (Pr. Nat. Sc.)

**Professional Body Registration Numbers**

**SACNASP:** 117080

**EAPASA:** 2019/1763

**IAIA Membership No.:** 3847

**Company:** Geovicon Environmental (Pty) Limited

**Postal Address:**

P.O. Box 4050

MIDDELBURG, 1050

**Tel:** (013) 243 5842

**Fax:** (086) 632 4936

**Cell No.:** 0824981847

**Email:** tshepo@geovicon.co.za

### 1.1.2 Expertise of the EAP who prepared the BAR and EMPR

Geovicon Environmental (Pty) Limited is an independent geological and environmental consulting company. The company was formed during 1996, and currently has twenty-five years' experience in the geological and environmental consulting field. Geovicon Environmental (Pty) Limited has successfully completed consulting areas in the Mining sector (coal, gold, base metal and diamond), Quarrying sector (sand, aggregate and dimension stone), Industrial sector and housing sector. Geovicon Environmental (Pty) Limited has undertaken contracts within all the provinces of South Africa, Swaziland, Botswana and Zambia. During 2001 Geovicon Environmental (Pty) Limited entered the field of mine environmental management and water monitoring.

Geovicon Environmental (Pty) Limited is a Black Economically Empowered Company with the BEE component owning 60% of the company. Geovicon Environmental (Pty) Limited has three members i.e., O.T Shakwane, J.M. Bate and T.G Tefu.

Mr. O.T Shakwane obtained his BSc (Microbiology and Biochemistry) from the University of Durban Westville in 1994, and completed his honours degree in Microbiology in 1995. Mr O.T Shakwane has also completed short courses on environmental law and environmental impact assessment with the University of North West's Centre for Environmental Management. He has worked with the three state departments tasked with mining and environmental management i.e., Department of Water and Sanitation (Gauteng and Mpumalanga Region), Department of Mineral Resources (Mpumalanga Region) and Department of Agriculture, Conservation and Environment (Gauteng Region). Mr.

Shakwane has been in the consulting field since 2004 and has completed various areas similar to the proposed Waagkraal prospecting project as an environmental assessment practitioner. Mr Shakwane is the registered environmental assessment practitioner for the environmental impact assessment for the proposed Waagkraal prospecting project. He is registered with the South African Council for Natural Scientific Professions as a Professional Natural Scientist in terms of the section 20(3) of the Natural Scientific Professions Act, 2003 (Act 27 of 2003) and with the Environmental Assessment Practitioner Association of South Africa as an Environmental Assessment Practitioner in terms the National Environmental Management Act, 1998 (Act 107 of 1998). He is also a member of the International Association for Impact Assessment, South Africa.

Over the past years Geovicon Environmental (Pty) Limited has formalised working relationships with companies that offer expertise in the following fields i.e., Geohydrology, Civil and Geotechnical Engineering, Geotechnical Consultancy, Survey and Mine Planning and Soil & Land Use Consultancy. Geovicon Environmental (Pty) Limited is an independent consulting company, which has no interest in the outcome of the decision regarding the Waagkraal prospecting project's basic assessment process.

## **1.2 WHO WILL EVALUATE AND APPROVE THE BAR AND EMPR?**

Before the proposed prospecting project can proceed, an Environmental Assessment Practitioner (EAP) must compile an application for an environmental authorisation for the proposed area. An impact assessment (basic assessment process) must be undertaken in support of the application for an environmental authorisation. The basic assessment process will determine the potential environmental impacts that may result from the proposed area and an environmental management programme will be compiled to provide measures for mitigation against the identified impacts. The above-mentioned application must be made to the competent authority and in terms of section 24D (1) of NEMA, the Minister responsible for mineral resources is the responsible competent authority for this application. In view of the above, an application for an environmental authorisation for the proposed Waagkraal Prospecting area was submitted to the Department of Mineral Resources and Energy, North West Regional Office (Competent Authority) for their consideration. The application has ever since been received by the Department and a Basic Assessment Report (BAR) together with an EMPR must be compiled and submitted in terms of the requirements of the EIA Regulations, 2014 .In the spirit of co-operative governance and in compliance with the requirements of NEMA and the MPRDA, the competent authority may, during the processing for the environmental authorisation application, consult with other organs of state that administers laws that relate to matters affecting the environment relevant to this application. Note that during the public participation process for the proposed area, the EAP will also consult with the below listed state authorities.

The organs of state that are to be consulted may include the following:

Department of Mineral Resource and Energy, North West Tourism and Parks board, Department of Water and Sanitation (DWS) and National Department of Agriculture, Forestry and Fisheries (NDAFF).

Note however that this list is not exhaustive as more organs of state may be identified by the competent authority and EAP during the public participation process.

## 1.3 DETAILS OF THE APPLICANT

### 1.3.1 Name of the Applicant

National Treasure Minerals (Pty) Ltd

### 1.3.2 Name of the Area

Waagkraal prospecting project

### 1.3.3 Postal Address of Applicant

PO BOX 90512

GArfontein

0042

### 1.3.4 Responsible Person

Mr. Mojalefa Douglas Mongwe

### 1.3.5 Contact Person

Cell No. 074 548 9726

## 1.4 DESCRIPTION OF THE PROPERTY (LOCATION OF THE AREA)

### 1.4.1 Regional Setting

Refer to Figure 3 for the locality plan for the Waagkraal prospecting project.

### 1.4.2 Physical Address and Farm Name of the Prospecting Area

Certain portions of the farm Waagkraal 374 IO, Murray 377 IO and Kliprif 376 IO.

### 1.4.3 Magisterial District & Regional Services Council

Magisterial: Ottosdal

District Municipality: Dr Kenneth Kaunda District Municipality

Local Municipality: Maquassi Hills Local Municipality

### 1.4.4 Direction and Distance to Nearest Towns

**Table 1: Direction and Distance to Nearest Towns.**

TOWN	DIRECTION	DISTANCE (KM)
Ottosdal	North	6.5 km
Wolmaransstad	South	25.9 km
Dalareyville	North-West	49.0 km

Klerksdorp	East	62.2 km
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#### 1.4.5 Land Tenure and Use of Immediate and Adjacent Land

Land tenure for the properties within and immediately around the proposed Waagkraal prospecting project is indicated on Figure 2 and described in Table 2. Land use within the proposed areas include rivers, dams, grazing, natural grassland, cultivated commercial annuals non-pivot/non irrigated, cultivated commercial annuals pivot irrigated, farm steads and provincial-, and private gravel-roads.

**Table 2: Schedule of properties listing surface ownership within and surrounding Waagkraal Prospecting Right Area**

FARM NAME AND NUMBER	21 DIGIT SURVEYOR GENERAL CODE	DESCRIPTION OF SUB-DIVISION	SURFACE OWNER
DIRECT SURFACE OWNERS OF THE PROSPECTING RIGHT AREA			
MURRAY 377 IO	T0IO00000000037700000	RE (Portions 1,3 and 4 are consolidated into the RE)	MURASIE BOERDERYE PTY LTD
MURRAY 377 IO	T0IO00000000037700005	Portion 5	SANRAL
WAAGKRAAL 374 IO	T0IO00000000037400001	Portion 1	WESSEL JOHANNES HENDRIK JURIE PIETERS
WAAGKRAAL 374 IO	T0IO00000000037400002	Portion 2	ELIZABETH JOHANNA PIETERSE
WAAGKRAAL 374 IO	T0IO00000000037400003	Portion 3	JOHANNES KRUGER ERASMUS
WAAGKRAAL 374 IO	T0IO00000000037400004	Portion 4	MOLADORA TRUST
WAAGKRAAL 374 IO	T0IO00000000037400005	Portion 5	TRANSNET LTD
WAAGKRAAL 374 IO	T0IO00000000037400007	Portion 7	BASSON FAMILIE TRUST
WAAGKRAAL 374 IO	T0IO00000000037400008	Portion 8	WAAGKRAAL BOERDERY PTY LTD
WAAGKRAAL 374 IO	T0IO00000000037400009	Portion 9	ALETTA MARIA NEL
WAAGKRAAL 374 IO	T0IO00000000037400010	Portion 10	WAAGKRAAL BOERDERY PTY LTD
WAAGKRAAL 374 IO	T0IO00000000037400011	Portion 11	WESSEL JOHANNES HENDRIK JURIE PIETERS
WAAGKRAAL 374 IO	T0IO00000000037400012	Portion 12	J B NEL BOERDERY TRUST
WAAGKRAAL 374 IO	T0IO00000000037400013	Portion 13	MOLADORA TRUST
WAAGKRAAL 374 IO	T0IO00000000037400014	Portion 14	MOLADORA TRUST
WAAGKRAAL 374 IO	T0IO00000000037400015	Portion 15	WILLEM JACOBUS GROBBELAAR
WAAGKRAAL 374 IO	T0IO00000000037400016	Portion 16	WILLEM JACOBUS GROBBELAAR



FARM NAME AND NUMBER	21 DIGIT SURVEYOR GENERAL CODE	DESCRIPTION OF SUB- DIVISION	SURFACE OWNER
WAAGKRAAL 374 IO	T0I00000000037400017	Portion 17	WESSEL JOHANNES HENDRIK JURIE PIETERS
WAAGKRAAL 374 IO	T0I00000000037400018	Portion 18	MOENIMOUNI BOERDERY CC
WAAGKRAAL 374 IO	T0I00000000037400019	Portion 19	MOENIMOUNI BOERDERY CC
WAAGKRAAL 374 IO	T0I00000000037400020	Portion 20	BASSON FAMILIE TRUST
WAAGKRAAL 374 IO	T0I00000000037400021	Portion 21	BASSON FAMILIE TRUST
WAAGKRAAL 374 IO	T0I00000000037400023	Portion 23	ALETTA MARIA NEL
WAAGKRAAL 374 IO	T0I00000000037400026	Portion 26	ALETTA MARIA NEL
WAAGKRAAL 374 IO	T0I00000000037400027	Portion 27	ALETTA MARIA NEL
WAAGKRAAL 374 IO	T0I00000000037400028	Portion 28	SUIDWES LANDBOU PTY LTD
WAAGKRAAL 374 IO	T0I00000000037400029	Portion 29	BASSON FAMILIE TRUST
WAAGKRAAL 374 IO	T0I00000000037400031	Portion 31	SUIDWES LANDBOU PTY LTD
WAAGKRAAL 374 IO	T0I00000000037400033	Portion 33	ELIZABETH JOHANNA PIETERSE
WAAGKRAAL 374 IO	T0I00000000037400034	Portion 34	ELIZABETH JOHANNA PIETERSE
WAAGKRAAL 374 IO	T0I00000000037400036	Portion 36	MOENIMOUNI BOERDERY CC
WAAGKRAAL 374 IO	T0I00000000037400037	Portion 37	ELIZABETH JOHANNA PIETERSE
KLIPRIF 376 IO	T0I00000000037600001	Portion 1	JOHAN NEL
KLIPRIF 376 IO	T0I00000000037600002	Portion 2	NICOLAAS FRANCOIS BOTHA
KLIPRIF 376 IO	T0I00000000037600003	Portion 3	MURASIE BOERDERYE PTY LTD
KLIPRIF 376 IO	T0I00000000037600004	Portion 4	MURASIE BOERDERYE PTY LTD
KLIPRIF 376 IO	T0I00000000037600005	Portion 5	JOHAN NEL
KLIPRIF 376 IO	T0I00000000037600007	Portion 7	JOHAN NEL
KLIPRIF 376 IO	T0I00000000037600009	Portion 9	ALETTA MARIA NEL
KLIPRIF 376 IO	T0I00000000037600010	Portion 10	MURASIE BOERDERYE PTY LTD
KLIPRIF 376 IO	T0I00000000037600011	Portion 11	MURASIE BOERDERYE PTY LTD
KLIPRIF 376 IO	T0I00000000037600012	Portion 12	WILLEM JACOBUS GROBBELAAR
KLIPRIF 376 IO	T0I00000000037600013	Portion 13	ALETTA MARIA NEL

FARM NAME AND NUMBER	21 DIGIT SURVEYOR GENERAL CODE	DESCRIPTION OF SUB- DIVISION	SURFACE OWNER
KLIPRIF 376 IO	T0IO00000000037600014	Portion 14	ALETTA MARIA NEL
ADJACENT SURFACE OWNERS OF THE PROSPECTING RIGHT AREA			
KLIPRIF 376 IO	T0IO00000000037600008	Portion 8	JOHAN NEL
SPRUITPLAATS 401 IO	T0IO00000000040100003	Portion 3	MARIUS NEL
SPRUITPLAATS 401 IO	T0IO00000000040100010	Portion 10	MARIUS NEL
SPRUITPLAATS 401 IO	T0IO00000000040100008	Portion 8	JACOB PETRUS JONKER
SPRUITPLAATS 401 IO	T0IO00000000040100009	Portion 9	MARX DELWERY CC
GOED 402 IO	T0IO00000000040200000	Portion RE	J J BOTHA TRUST
GOED 402 IO	T0IO00000000040200001	Portion 1	MARIUS NEL
SCHAAPPLAATS 378 IO	T0IO00000000037800013	Portion 13	MARIUS NEL
WITKLIP 375 IO	T0IO00000000037500000	RE	MURASIE BOERDERYE PTY LTD
WITKLIP 375 IO	T0IO00000000037500001	Portion 1	WILLEM JACOBUS GROBBELAAR
WITKLIP 375 IO	T0IO00000000037500005	Portion 5	MOLADORA TRUST
WITKLIP 375 IO	T0IO00000000037500008	Portion 8	MOLADORA TRUST
WITKLIP 375 IO	T0IO00000000037500010	Portion 10	MOLADORA TRUST
WITKLIP 375 IO	T0IO00000000037500011	Portion 11	MOLADORA TRUST
KRIGE 373 IO	T0IO00000000037300000	Portion RE	DAVID SCHALK JANSE VAN VUUREN -TRUSTEES
DOORNSPRUIT 353 IO	T0IO00000000035300001	Portion 1	J P OTTO BOERDERY CC
DOORNSPRUIT 353 IO	T0IO00000000035300006	Portion 6	MURASIE FAMILIE TRUST
DOORNSPRUIT 353 IO	T0IO00000000035300009	Portion 9	RESJAM BOERDERY CC
DOORNSPRUIT 353 IO	T0IO00000000035300018	Portion 18	DAVID SCHALK JANSE VAN VUUREN TRUST
DOORNSPRUIT 353 IO	T0IO00000000035300019	Portion 19	RESJAM BOERDERY CC
DOORNSPRUIT 353 IO	T0IO00000000035300020	Portion 20	DAVID SCHALK JANSE VAN VUUREN -TRUSTEES
KREEKUIL 352 IO	T0IO00000000035200001	Portion 1	OSGRAS BOERDERY CC
KREEKUIL 352 IO	T0IO00000000035200009	Portion 9	OSGRAS BOERDERY CC

FARM NAME AND NUMBER	21 DIGIT SURVEYOR GENERAL CODE	DESCRIPTION OF SUB- DIVISION	SURFACE OWNER
THANKERTON 308 IO	T0IP00000000030800001	Portion 1	MOENIMOUNI BOERDERY CC
LAKENVALLEI 310 IP	T0IP00000000031000005	Portion 5	MURASIE BOERDERYE PTY LTD
LAKENVALLEI 310 IP	T0IP00000000031000008	Portion 8	BASSON FAMILIE TRUST
LAKENVALLEI 310 IP	T0IP00000000031000010	Portion 10	MOENIMOUNI BOERDERY CC
LAKENVALLEI 310 IP	T0IP00000000031000017	Portion 17	TRANSNET LTD
LAKENVALLEI 310 IP	T0IP00000000031000019	Portion 19	MOENIMOUNI BOERDERY CC
LAKENVALLEI 310 IP	T0IP00000000031000023	Portion 23	MURASIE BOERDERYE PTY LTD
LAKENVALLEI 310 IP	T0IP00000000031000039	Portion 39	MOENIMOUNI BOERDERY CC
LAKENVALLEI 310 IP	T0IP00000000031000047	Portion 47	LOUWRENS DU PLESSIS TRUST
LAKENVALLEI 310 IP	T0IP00000000031000052	Portion 52	MOENIMOUNI BOERDERY CC
KLIPFONTEIN 311 IP	T0IP00000000031100011	Portion 11	PIETER FRANCOIS KRUGER
STRYDPOORT 403 IO	T0IO00000000040300000	Portion RE	BASSON FAMILIE TRUST
STRYDPOORT 403 IO	T0IO00000000040300001	Portion 1	BASSON FAMILIE TRUST
STRYDPOORT 403 IO	T0IO00000000040300003	Portion 3	GERT PIENAAR TRUST
STRYDPOORT 403 IO	T0IO00000000040300011	Portion 11	GERT JOHANNES MEYER VAN WYK
STRYDPOORT 403 IO	T0IO00000000040300012	Portion 12	HERMANUS HOLTZHAUSEN                      NICOLAAS
STRYDPOORT 403 IO	T0IO00000000040300017	Portion 17	SUIDWES LANDBOU PTY LTD
STRYDPOORT 403 IO	T0IO00000000040300019	Portion 19	GERT JOHANNES MEYER VAN WYK
STRYDPOORT 403 IO	T0IO00000000040300023	Portion 23	GERT PIENAAR TRUST
LUCASKRAAL 154 IO	T0HO00000000015400010	Portion 10	W H J HARTZENBERG WILL TRUST

Refer to Appendix A- Regulation 2 (2) plan

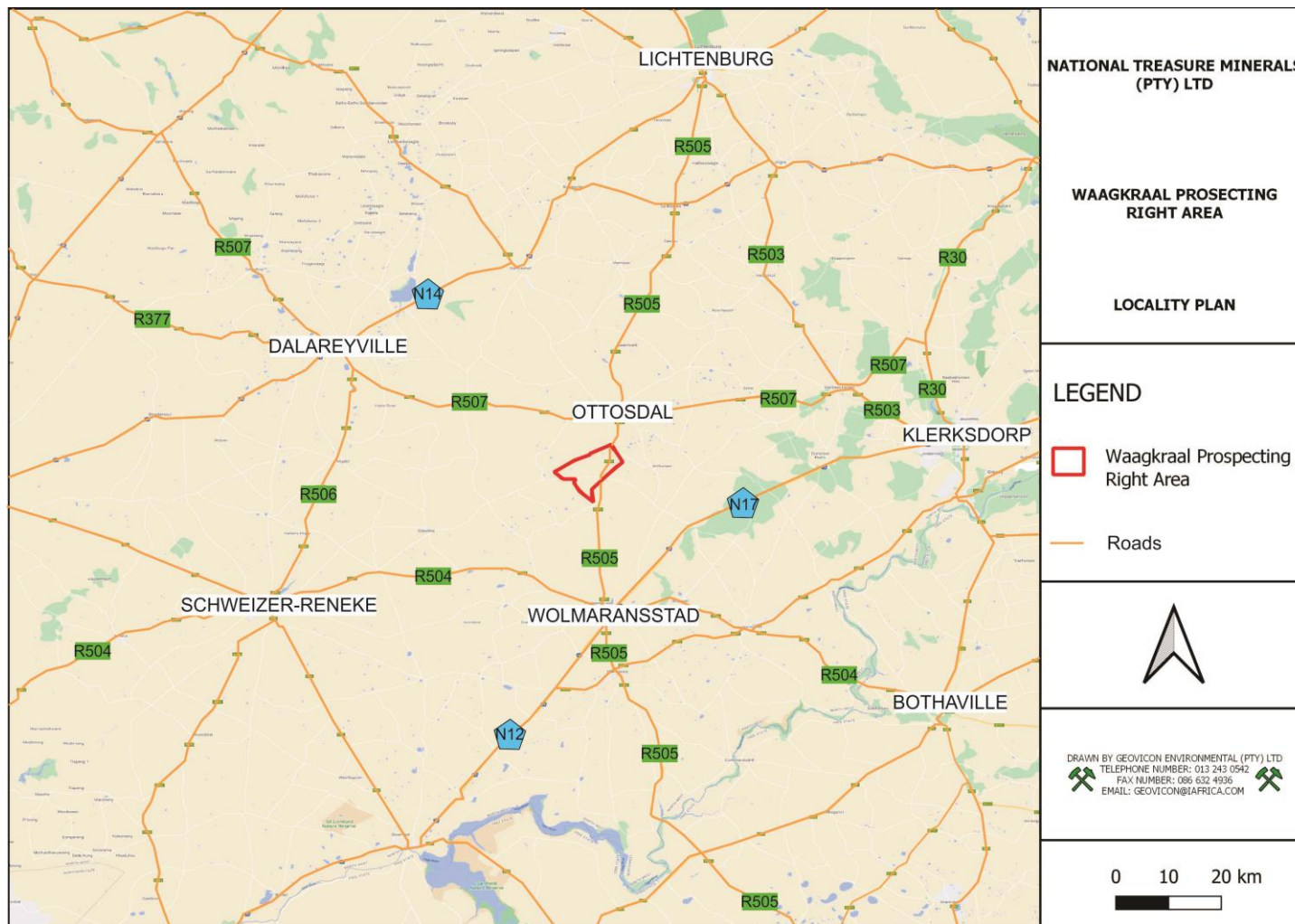


Figure 1: Locality Plan

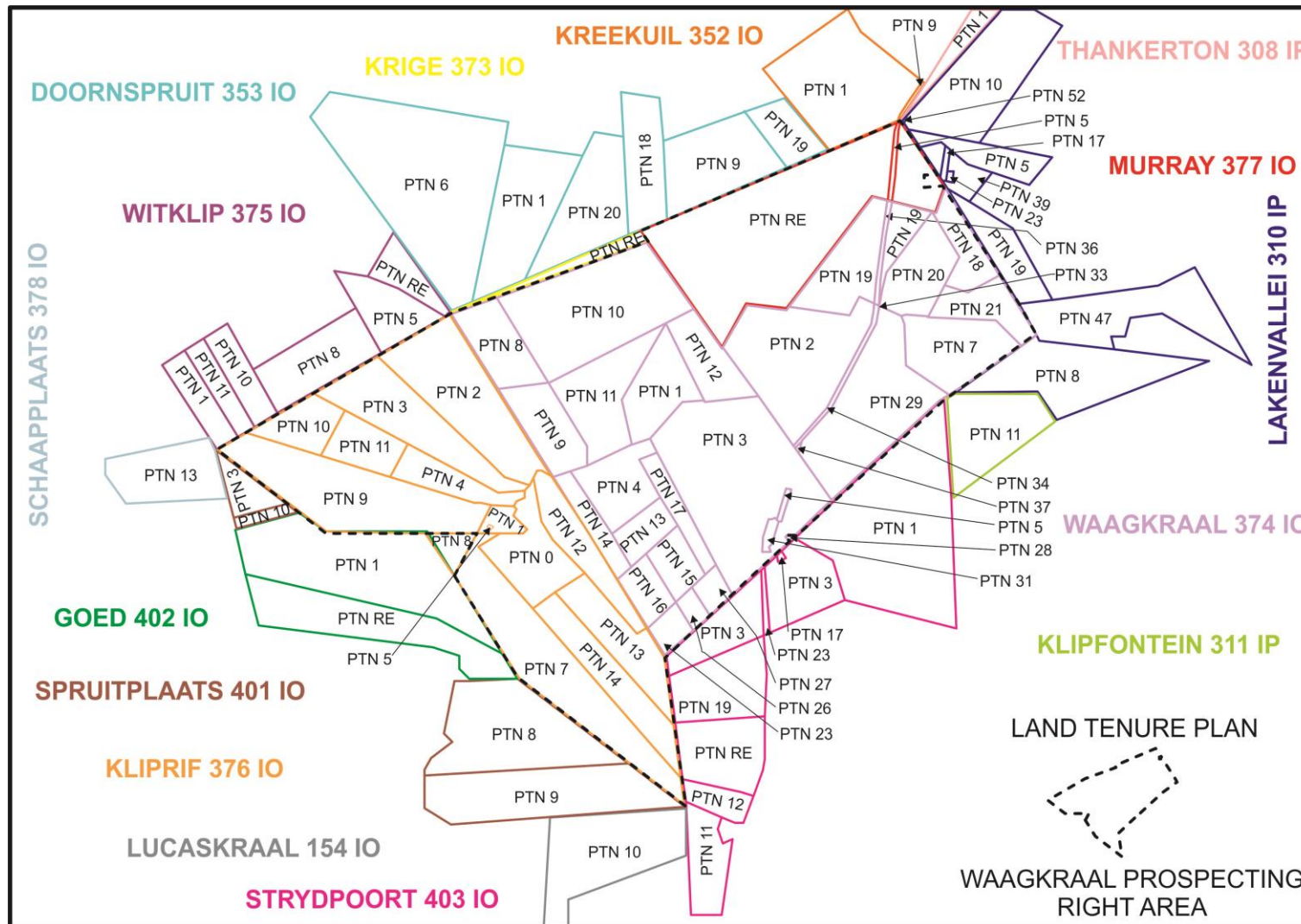


Figure 2: Land Tenure Plan for the Kransfontein prospecting project

SECTION TWO

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## **Description of the Scope of the proposed Area**

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## **2. DESCRIPTION OF THE SCOPE OF THE PROPOSED AREA**

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### **2.1 LISTED ACTIVITIES AND SPECIFIED ACTIVITIES**

Before the proposed Waagkraal prospecting project can be commenced with, an environmental authorisation must be obtained by National Treasure Minerals (Pty) Ltd. In view the above, National Treasure Minerals (Pty) Ltd has applied for an environmental authorisation for listed activities within the proposed area. This section will indicate the activities that were included in this environmental authorisation application. Table 3 reflects all Waagkraal prospecting project listed activities applied for.

### **2.2 DESCRIPTION OF THE PROPOSED WAAGKRAAL PROSPECTING PROJECT**

Waagkraal prospecting area will be undertaken in different phases i.e., literature review (available data interpretation and deciding whether to commence with drilling), field mapping and geophysical survey, positioning of drilling sites, diamond core drilling, logging/sampling of borehole cores and rehabilitation of the drilling site.

**Table 3: Proposed Waagkraal prospecting project listed Activities**

NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
<b>PROPOSED WAAGKRAAL PROSPECTING AREA LISTED AND SPECIFIC ACTIVITIES</b>			
<b>NATIONAL ENVIRONMENTAL MANAGEMENT ACT</b>			
<p>Conducting prospecting activities within the Waagkraal Prospecting area for the exploration of coal using a diamond core drilling prospecting method together with all associated infrastructure and activities. These include site establishment (access to site and a campsite), pegging of drilling sites, drilling of exploration boreholes with associated sumps, logging and sampling of drilled cores and site rehabilitation.</p> <p>Conducting prospecting activities within the Waagkraal Prospecting area for the exploration of coal using a diamond core drilling prospecting method together with all associated infrastructure and activities. These include site establishment (access to site and a campsite), pegging of drilling sites, drilling of exploration boreholes with associated sumps, logging and sampling of drilled cores and site rehabilitation.</p>	<p>6693,13 hectares (prospecting right area)</p>	<p>Activity 20 of Listing Notice 1: 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).</p> <p>Activity 12 of Listing Notice 3: The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p>	<p>NO. 327</p> <p>NO. 324</p>

**2.2.1 Target Mineral**

Iron ore

**2.2.2 Prospecting Method Used at the Waagkraal prospecting project**

The proposed Waagkraal prospecting project area will be explored in three phases i.e., literature review, field mapping and drilling. Drilling phase has a potential for environmental impacts, hence will be described in this section of the report.

Field mapping include the description of the structural geometry of a deformed field area, simultaneously conducting geophysical survey. A geological map will be produced and subsequent to that borehole will be positioned.

Drilling phase will involve the drilling of the positioned boreholes using a diamond core drilling technique. A sump will be constructed at each drilling site for the storage of water used to cool the drill rig. The sump will be constructed to be one square meter in size and have a maximum depth of one metre. Any soils removed from the sump (approximately one cubic meters) will be placed adjacent the drilling site and used for rehabilitation of the site.



Boreholes will be drilled at pre-planned sites. The boreholes will be drilled to intersect all the expected coal seams and will be logged by the geologist. The applied mineral samples will be sent to the laboratory for quality analyses. This data will form the basis for the geological modelling and financial evaluation.

Please note that the borehole layout can only be determined once the Prospecting Right is granted, thereafter it will be sent in to the Department of Mineral Resources and Energy.

### **2.2.3 Planned Life of Area**

The current estimated life of the proposed Waagkraal prospecting project is five years.

## **2.3 WAAGKRAAL PROSPECTING PROJECT SURFACE INFRASTRUCTURE DESCRIPTION**

### **2.3.1 Access Roads**

There are various main & minor roads passing over the proposed area. Some of these roads will be used to access the proposed Waagkraal prospecting area. Where no roads exist, tracks will be used to access the drilling sites.

### **2.3.2 Power line Infrastructure**

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

### **2.3.3 Water Supply Infrastructure**

Water will be supplied from the landowner's borehole or any farm dam that might exist on the property. Water will be trucked with a water cart to all drill sites. Water that will be required is for the operation of machinery and domestic use within the campsite and drilling sites.

### **2.3.4 Workshops and Buildings**

No workshops and office buildings will be required for this area. All machinery will be maintained at an offsite workshop. Should emergency repairs be required the repairs will be conducted on site on areas covered with tarpaulins.

### **2.3.5 Waste Management**

#### **2.3.5.1 Waste Identification and Management**

##### Hazardous Waste

Hazardous waste to be generated includes hydrocarbon wastes (oil and liquid fuel wastes) and sewage waste. Oil waste and liquid fuels waste include used oils from mine machinery and vehicles and diesel/petrol waste.

##### General Waste

General waste to be generated from the proposed area is domestic waste. Domestic waste will include old food, old stationary, discarded PPE and old clothing generated from the drilling and campsites.

### **2.3.5.2 Waste Management Facilities**

#### Hazardous Waste

Hydrocarbon waste will be collected in 210 litre drums for storage. The removal of the drums or any other appropriate receptacle will be undertaken by a waste disposal company, for disposal at a registered licensed waste disposal site. The drums will be placed on protected ground.

Chemical toilets will be used for the management of sewage waste generated on site.

## **2.4 WAAGKRAAL PROSPECTING PROJECT METHOD STATEMENT**

In terms of DMRE BAR and EMPR template, National Treasure Minerals (Pty) Ltd must describe the methods and technology to be employed for the proposed area. In view of the above, a method statement for each phase of the proposed project has been provided. This identifies all actions, activities or processes associated with the proposed prospecting operation.

### **2.4.1 Pre-Construction Phase**

#### **2.4.1.1 Data gathering**

Relevant information regarding the potential of the identified prospecting area will be sourced from institutions like the Council for Geoscience. This information will be analysed and interpreted through computer modelling of existing data.

#### **2.4.1.2 Field Mapping**

The field mapping will include field surveying (to determine sensitive areas), geophysical or geomagnetic surveys and pegging of the drilling sites.

#### **2.4.1.3 Detailed site survey and investigation**

Demarcation of sensitive and protected areas will be conducted by physical survey of the proposed area by a suitability qualified person. This should be done before establishment of access to the site, campsites and drilling of exploration boreholes.

#### **2.4.1.4 Geophysical/Geomagnetic surveys and data interpretation**

Geophysical surveys will be used to perform the survey over the proposed prospecting site.

#### **2.4.1.5 Pegging of drill sites**

All exploration borehole sites will be staked by a suitably qualified person. The sites will thereafter be plotted on a plan drawn to an appropriate scale.

#### **2.4.1.6 Data Interpretation**

The interpretation of the said data will result in compiling a preliminary potential area report. The said report will give indication as to what processes (in order of priority) to follow to complete the prospecting activities.

#### **2.4.1.7 Decision to commence with prospecting activities**

Once all factors are gathered, physical inspection of the terrain conducted to verify certain aspects, such as, type of the terrain involved, type of methods to be used, etc. The important point to note is that a decision on whether or not to proceed with prospecting depends not only on the scientific and reliability of the methods under consideration, but also upon many fewer tangible factors, such as restrictions that might be imposed by the relevant Department when granting a prospecting right.

### **2.4.2 Construction Phase**

Construction phase will involve the establishment of access to the drilling sites (tracks and/or existing roads) and establishment of campsite (a caravan/tents and chemical toilet).

#### **2.4.2.1 Establishment of access**

The R505 Provincial Roads runs through of the proposed area. A national, secondary road and a number of private farm roads and tracks lie in close proximity to the proposed prospecting area, hence access to the site will be through these roads. Were necessity, access to the drilling sites will be via tracks. These tracks will be established to be more than hundred meters away from any sensitive landscapes. The tracks will also be sited away from any protected areas. Vegetation clearance will be avoided during the establishment of the access tracks.

#### **2.4.2.2 Establishment of campsite**

Tents and/or caravans, ablution facilities (chemical toilets) and waste storage facilities will be provided for employees. Clearing of vegetation will be avoided during the establishment of the campsite.

#### **2.4.2.3 Detailed site survey and investigation**

Demarcation of sensitive and protected areas will be conducted by physical survey of the proposed area by a suitability qualified person. This should be done before establishment of access to the site, campsites and drilling of exploration boreholes.

#### **2.4.2.4 Geophysical surveys and data interpretation**

Geophysical survey will be used to perform the survey over the proposed prospecting site.

#### **2.4.2.5 Pegging of drill sites**

All exploration borehole sites will be staked by a suitably qualified person. The sites will thereafter be plotted on a plan drawn to an appropriate scale.

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### **2.4.3 Operational Phase**

#### **2.4.3.1 Diamond drilling for boreholes and sump Construction**

Geological boreholes will be drilled on a predetermined grid. During drilling of each borehole, a sump of approximately 1.0 x 1.0 x 1.0 m will be excavated for collecting of excess muds (water) from the drilling operation and for recycling of the water used for the operation of the drilling machine.

#### **2.4.3.2 Topsoil storage site**

The top and sub soils removed from the sump and drilling boreholes will be stockpiled in close proximity to the sump. The sumps will be backfilled manually by spade, once drilling and sampling of boreholes is completed.

#### **2.4.3.3 Logging and sampling of the Core**

This involves the physical description of the rocks intersected by the drilling process. The interpretation of these rock descriptions will assist in establishing the general stratigraphy of the area. Sampling will be taken at the desired horizons and sent to the laboratory for analyses.

#### **2.4.3.4 Site Rehabilitation**

Concurrent rehabilitation (Plugging and reseeded) of disturbed areas will be undertaken as drilling continues.

### **2.4.4 Decommissioning phase**

#### **2.4.4.1 Final Rehabilitation**

Except for farm roads, no tracks and infrastructure related to the prospecting operation will remain in place after the decommissioning phase. Where tracks have resulted in more damage, such tracks will be ripped at 90° to the inherent slope, and seeded with the recommended seed mix. The sumps will be rehabilitated in such a manner to return the area to as close as possible to its pre-drilling environment.

Post closure, the prospecting area will consist of re-vegetated areas with vegetation cover comparable to the surrounding areas. No prospecting related infrastructure will remain on the prospecting site. The area will conform to the pre-prospecting topography. The areas affected by prospecting will be stable and erosion free.

#### **2.4.4.2 Pre-feasibility study**

This involves the compilation of a final geological report, reserve determination and pre-feasibility studies.

#### **2.4.4.3 Mining feasibility study**

This involves the conducting of a mining feasibility study, market research, sales agreements etc.

#### **2.4.5 After Closure Phase**

The rehabilitated area will be monitored on a quarterly basis to ensure that the site returns to an acceptable state. In the event that such an acceptable state is not achieved, the area will be seeded. After the decommissioning of the site and if it can be determined that the site is stable, an environmental authorisation for the decommissioning of the site and a closure certificate will be applied for in terms of the relevant laws.

SECTION THREE

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## **Policy and legislative context**

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## **3. POLICY AND LEGISLATIVE CONTEXT**

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### **3.1 CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA, 1996 (ACT NO. 108 OF 1996)**

Section 24 of the Constitution of the Republic of South Africa (Act No. 108 of 1996) states that everyone has the right:

- a) to an environment that is not harmful to their health or well-being; and
- b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:
  - (i) prevent pollution and ecological degradation;
  - (ii) promote conservation; and
  - (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

In terms of Section 24 of the Constitution of the Republic of South Africa (Act No. 108 of 1996), everyone has the right to an environment that is not harmful to their health or well-being. In addition, people have the right to have the environment protected, for the benefit of present and future generations, through applicable legislations and other measures that prevent pollution, ecological degradation and promote conservation and secure ecological sustainable development through the use of natural resources while prompting justifiable economic and social development. The needs of the environment, as well as affected parties, should thus be integrated into the overall area in order to fulfil the requirements of Section 24 of the Constitution. In view of the above, a number of laws pertaining to environmental management were promulgated to give guidance on how the principles set out in section 24 of the Constitution of the Republic of South Africa (Act No. 108 of 1996) would be met. Below are laws applicable to the proposed area that was promulgated to ensure that section 24 of the Constitution of the Republic of South Africa (Act No. 108 of 1996) is complied with.

### **3.2 NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998)**

Section 24(1) of the NEMA states:

“In order to give effect to the general objectives of integrated environmental management laid down in this Chapter [Chapter 5], the potential consequences for or impacts on the environment of listed activities or specified activities must be considered, investigated, assessed and reported on to the competent authority or the Minister of the Department of Mineral Resources, as the case may be, except in respect of those activities that may commence without having to obtain an environmental authorisation in terms of this Act.”

In order to regulate the procedure and criteria as contemplated in Chapter 5 of NEMA relating to the preparation, evaluation, submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to environmental impact assessment, in order to avoid or mitigate detrimental impacts on the environment, and to

optimise positive environmental impacts, and for matters pertaining thereto, Regulations (EIA Regulations, 2014) were promulgated. These Regulations took effect from the 4<sup>th</sup> of December 2014.

In addition to the above, Section 28 of the NEMA includes a general “Duty of Care” whereby care must be taken to prevent, control and remedy the effect of significant pollution environmental degradation. This section stipulates the importance to protect the environment from degradation and pollution irrespective of the operations taking places or activities triggered / not triggered under NO. 327, NO. 325 and NO.324.

In view of the above, an environmental impact assessment is being undertaken to comply with the requirements of the NEMA and the NEMA EIA Regulations, 2014. The NEMA EIA Regulations of December 2014 determines requirements to be met in order to obtain an environmental authorisation. This report has therefore been compiled in compliance with the above regulations.

### **3.3 NATIONAL ENVIRONMENTAL MANAGEMENT AIR QUALITY ACT, 2004 (ACT NO. 39 2004)**

The National Environmental Management: Air Quality Act (Act No. 39 of 2004) (NEM: AQA) focuses on reforming the law regulating air quality in South Africa in order to protect the environment through the provision of reasonable measures protecting the environment against air pollution and ecological degradation and securing ecological sustainable development while promoting justifiable economic and social developments. This Act provides national norms and standards regulating air quality management and control by all spheres of government. These include the National Ambient Air Quality Standards (NAAQS) and the National Dust Control Regulations (NDCR). The standards are defined for different air pollutants with different limits based on the toxicity of the pollutants to the environment and humans, number of allowable exceedances and the date of compliance of the specific standard.

On 22 November 2013 the list of activities which result in atmospheric emissions which have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage was published under GN R893 in Governmental Gazette No 37054, in terms of Section 21(1)(b) of the NEM: AQA.

The proposed will not trigger any of the activities listed under the above-mentioned Regulations, however National Treasure Minerals (Pty) Ltd must ensure that emissions from their activities complies with the standards as set in the above-mentioned regulations.

### **3.4 THE NATIONAL HERITAGE RESOURCES ACT, 1999 (ACT NO. 25 OF 1999)**

The National Heritage Resources Act (Act No. 25 of 1999) (NHRA) focuses on the protection and management of South Africa’s heritage resources. The governing authority for this act is the South African Heritage Resources Agency (SAHRA). In terms of the NHRA, historically important features such as graves, trees, archaeology and fossil beds are protected as well as culturally significant symbols, spaces and landscapes. Section 38 of the NHRA stipulates the requirements a developer must undertake prior to development. In terms of Section 38 of the NHRA, SAHRA can call for a Heritage Impact Assessment (HIA) where certain categories of development are proposed.



A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon.

The Act also makes provision for the assessment of heritage impacts as part of an EIA process and indicates that if such an assessment is deemed adequate, a separate HIA is not required. An assessment of the proposed area will be done during the drilling programme to determine if there are any sites that require protection. Any sites identified will be marked and no drilling will be undertaken in close proximity of such a site.

### **3.5 NATIONAL ENVIRONMENTAL MANAGEMENT BIODIVERSITY ACT, 2004 (ACT NO. 10 OF 2004) (NEMBA)**

The National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEMBA) provides for the management and protection of South Africa's biodiversity within the framework established by NEMA. The Act aims to legally provide for biodiversity conservation, sustainable, equitable access and benefit sharing and provides for the management and control of alien and invasive species to prevent or minimize harm to the environment and indigenous biodiversity. The Act imposes obligations on landowners (state or private) governing alien invasive species as well as regulates the introduction of genetically modified organisms. The Act encourages the eradication of alien species that may harm indigenous ecosystems or habitats. The NEMBA ensures that provision is made by the site developer to remove any aliens which have been introduced to the site or are present on the site.

The NEMBA also provides for listing of threatened or protected ecosystems, in one of four categories: critically endangered, endangered, vulnerable or protected. The purpose of listing protected ecosystems is primarily to conserve sites of exceptionally high conservation value.

The Act supports South Africa's obligations under sanctioned international agreements regulating international trade in specimens of endangered species, and ensures that the utilization of biodiversity is managed in an ecological sustainable way.

The BAR and EMPR has been complied to ensure that all applicable requirements prescribed in the NEMBA are complied with.

### **3.4 NORTH WEST BIODIVERSITY MANAGEMENT ACT (ACT 4 OF 2016)**

To provide for the management and conservation of the North West's biophysical environment and protected areas within the framework of the National Environment Management Act, 1998 (Act No 107 of 1998); to provide for the protection; to provide for the sustainable use of indigenous biological resources; and to provide for matters connected therewith.

### **3.5 MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (ACT 28 OF 2002 MPRDA)**

The Department of Mineral Resources (DMR) is responsible for regulating the mining and minerals industry to achieve equitable access to the country's resources and contribute to sustainable development. The Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) requires that an EIA be conducted and that the EMP be drafted for the mitigation of impacts identified during the environmental impact assessment for a mining area. During December 2014, the "One Environmental System" was implemented by Government which initiated the streamlining of the licensing processes for mining, environmental authorisations and water use. Under the One

Environmental System, The Minister of Mineral Resources, will issue environmental authorisations and waste management licences in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), and the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEMWA), respectively, for mining and related activities. The Minister of Environmental Affairs will be the appeal authority for these authorisations. In view of the above the application for the environmental authorisation for the proposed area was submitted to the Department of Mineral Resources as the competent authority.

### **3.6 NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998 NWA)**

The National Water Act (Act No. 36 of 1998) (NWA) is the primary regulatory legislation, controlling and managing the use of water resources as well as the pollution thereof in South Africa. The NWA recognises that the ultimate aim of water resource management is to achieve sustainable use of water for the benefit of all users and that the protection of the quality of water resources is necessary to ensure sustainability of the nation's water resources in the interests of all water users. The NWA presents strategies to facilitate sound management of water resources, provides for the protection of water resources, and regulates use of water by means of Catchment Management Agencies, Water User Associations, Advisory Committees and International Water Management. The National Government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest. Further, an industry can only be entitled to use water if the use is permissible under the NWA. The enforcing authority on water users is the Department of Water and Sanitation (DWS).

Further, Regulation 704 of the NWA deals with the control and use of water for mining and related activities aimed at the protection of water resources.

No water use licence application will be submitted to the Department of Water and Sanitation for their consideration. However, measures will be undertaken to ensure that requirements in terms of the NWA and the GN 704 are complied with where necessary. Should a requirement for the drilling and any activity be undertaken within 100 meters from the watercourses an exemption for compliance with requirements of the regulations under GN 704 will be applied for.

### **3.7 NATIONAL ENVIRONMENTAL MANAGEMENT, 2008 (ACT NO. 59 OF 2008 WASTE ACT)**

The National Environmental Management: Waste Act (NEMWA) requires that all waste management activities must be licensed. According to Section 44 of the NEMWA, the licensing procedure must be integrated with an EIA process in terms of the NEMA.

The objectives of NEMWA involve the protection of health, wellbeing and the environment. The NEMWA provides measures for the minimisation of natural resource consumption, avoiding and minimising the generation of waste, reducing, recycling and recovering waste, and treating and safely disposing of waste.

No waste management activities are triggered by the proposed area, hence no application in terms of the NEMWA was submitted to the Department of Mineral Resources.

### **3.8 EIA GUIDELINES**

A number of national and provincial EIA guidelines were published by different departments. These guidelines are mainly aimed at assisting relevant stakeholders by providing information and guidance

and giving recommendations on a number of aspects relating to the environmental impact assessment process. The guidelines can be used by the competent authority, applicant and the EAP during the EIA process. It is therefore important that the EAP and the person compiling a specialist report must have relevant expertise when conducting the environmental impact assessments.

A number of guidelines were consulted during the compilation of this report and these include amongst them the following i.e., Guidelines on the Need and Desirability, Department of Environmental Affairs and Tourism Integrated Environmental Management Guidelines, Department of Water and Sanitation's Best Practice Guidelines and the Western Cape Provincial Department of Environmental Affairs and Development Planning Guidelines on Public Participation.

## SECTION FOUR

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# **Need and desirability of the proposed activities**

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## 4. NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

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In terms of the EIA Regulations the need and desirability of any development must be considered by the relevant competent authority when reviewing an application. The need and desirability must be included in the reports to be submitted during the environmental authorisation application processes.

This section of the BAR and EMPr will indicate the need and desirability for the proposed Waagkraal Prospecting Area.

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

The information that will be obtained from the prospecting to be done will be necessary to determine how and where the coal will be extracted and how much economically viable minerals applied for reserves are available within the proposed prospecting area.

National Treasure Minerals (Pty) Limited expects that substantial benefits from the project (should minerals applied for be found) will accrue to the immediate project area, the sub-region and the Province of North West. These benefits must be offset against the costs of the project, including the impacts to land owners.

The potential benefits of the proposed project are:

Potential reduction in crime because of short-term job creation during construction (providing farm safety and security measures are implemented), but also in the long-term in the region, as a result of job creation.

Local growth in the economy of the towns of Ottosdal and surrounding areas, and for local businesses including those that supply accommodation, transport etc.

Economic benefits for contractors and other suppliers of goods and services.

Economic opportunities and other potential benefits for land owners from compensation for impacts.

Based on the environmental assessment conducted as described in this Report, there are no environmental impacts associated with the proposed project that cannot be mitigated.

All issues raised by the interested and affected parties will be recorded and addressed in the BAR and EMPr.

SECTION FIVE

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## **Motivation for the preferred development footprint**

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## **5. MOTIVATION FOR THE PREFERRED DEVELOPMENT FOOTPRINT**

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### **5.1 CONSIDERATION OF ALTERNATIVES**

The National Environmental Management Act 107 of 1998, Environmental Impact Assessment Regulations, 2014 requires a BAR and EMPR to identify alternatives for areas applied for. In terms of the above-mentioned regulations an alternative in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to the (a) the property on which or location where it is proposed to undertake the activity; (b) the type of activity to be undertaken; (c) the design or layout of the activity;(d) the technology to be used in the activity;(e) the operational aspects of the activity; and (f) the option of not implementing the activity.

National Treasure Minerals (Pty) Ltd intends on undertaking exploration for minerals applied for to determine whether or not the area consist of these commodities and if they are available whether the ore reserves are found quantities that have economic value. The proposed activity will include the drilling of exploration boreholes. The associated activities/infrastructure will include, an access to the site and a campsite.

#### **5.1.1 Location Alternatives**

The location alternative considered for the proposed project includes the prospecting sites, associated campsite location and access routes. The location alternatives were selected based on a number of criteria, which include the environmental considerations (how sensitive is the area in terms of soil, wetlands, groundwater etc.) and sensitive receptors (proximity to communities and farmsteads).

##### **5.1.1.1 Prospecting Sites and Access Routes**

No alternatives were considered for the prospecting area and the access routes, since the area where prospecting will be conducted was selected based on sound geological information.

##### **5.1.1.2 Campsite Location**

Regarding the location of the campsite, three alternatives were considered. These locations included a static location closer to the main access point i.e., R505 Provincial Road, static location closer to the farm dwellings and a mobile campsite (caravans/tents).

Since the site closer to the farm dwellings may result in undesirable impacts on the residents and a static location to the main access point, i.e., R505 Provincial Road may result in unforeseen impacts due to the unavailability of other necessary services next to the road. These two alternatives were discarded.

Regarding the other alternative (mobile campsite), would be suitable for the project, since the mobile campsite will move with the drilling team from site to site during the execution of the drilling programme.

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### **5.1.2 Design/Layout Alternatives**

Since no complicated surface infrastructure will be required for this project no design and layout alternatives for the proposed project were determined. The plan depicting all possible drilling sites will be compiled in consultation with the landowner and submitted with the progress to the DMRE.

### **5.1.3 Technology Alternatives**

The minerals applied for exploration is less cumbersome; hence the normal minerals applied for exploration technologies will be used. In view of the above, no technology alternatives were considered for this project.

### **5.1.4 Input Material Alternatives**

As mentioned above, current water sources used by the landowners and currently available energy will be used for the operation. In view of the above, no in-put material alternatives were considered for this project. Note that no new building facilities will be constructed at the project site since movable facilities will be used for the proposed project.

### **5.1.5 Operational Alternatives**

#### **5.1.5.1 Exploration Drilling Methods**

Drilling of minerals applied for is used to determine the depth, thickness and quality of the minerals applied for at any point across a prospecting area. Drilling is also used to determine the strata with which the minerals applied for are associated. Drilling can either be done by non-core drilling or core drilling techniques.

#### Non-Core Drilling Methods

Non-core drilling techniques mostly uses the rotary drilling methods. In this technique, a string of metal rods is rotated axially and a bit at the base of the string is forced downward, under controlled pressure, breaking up the ground and advancing the depth of the hole. Cuttings are swept away from the bit and lifted to the surface either by means of pumped circulating water or by jets of compressed air.

Logging of the hole drilled by non-core drilling methods is mainly based on the cuttings obtained as the drill progresses. In view for the difficulty and error bound logging, this method of drilling was discarded and may be used only for infill drilling wherever necessary.

#### Core-Drilling Methods

Core drilling techniques uses diamond drilling methods. In this technique, a hollow cylindrical drill bit impregnated with industrial diamonds is attached to a series of metal drill rods and rotated under controlled downward pressure. A circle of rock is ground away, the cutting removed by water flushing and a cylindrical core remains in the hollow centre of the drill string.

Core drilling is the only satisfactory means of obtaining representative samples of ores at depth for analysis.

### **5.1.6 Transportation**

No transportation of material will take place during prospecting activities.



### **5.1.7 No Go Option**

National Treasure Minerals (Pty) Limited intends on exploring the proposed area in order to determine availability of minerals applied for. If it can be determined that the area economic value, potential mining operations will contribute to job creation within the Maquassi Hills Local Municipality. Potential mining operations will also assist with the establishment of small/medium businesses, infrastructure development, community development and poverty eradication in the surrounding previously disadvantaged communities. Since the proposed prospecting process itself will have very low environmental impacts, as detailed in the EMPr, investigating the feasibility of future mining operations should be considered.

## **5.2 DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED AND RESULTS THEREOF**

Public participation is the cornerstone of any EIA process. The principles of the NEMA govern many aspects of EIA's, including public participation. The general objectives of integrated environmental management laid down in the NEMA include to "ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment". The National Environmental Management Principles include the principle that "The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary to achieve equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured", which basically means that the person responsible for the application (EAP) must ensure that provision of sufficient and transparent information on an ongoing basis to stakeholders are made to allow them to comment, and to ensure that the participation of previously disadvantaged people like women and the youth are undertaken.

In terms of the amended NEMA EIA Regulations, 2014, when applying for environmental authorisation, the Environmental Assessment Practitioner managing the application must conduct at least a public participation process where all potential or registered interested and affected parties, including the competent authority, are given a period of at least 30 days to submit comments on the basic assessment report and EMPr.

This section of the BAR and EMPr will give an explanation of the public participation process to be taken in order to comply with the above-mentioned requirements. A number of public participation guidelines were published in a bid to assist persons responsible for the environmental authorisation applications. As much of the available guidelines were used in determining the public participation process, in guiding the public participation process of the proposed area.

National Treasure Minerals (Pty) Ltd is applying for an environmental authorisation for the proposed Waagkraal prospecting project. The application for the environmental authorisation is undertaken in terms of the process as laid out in part 2 of Chapter 4 under the NEMA EIA Regulations, 2014. The above-mentioned regulations requires that an applicant for an environmental authorisation submit a BAR and EMPr to the competent authority after having subjected the reports to a public participation process.

In view of the above, a public participation process was initiated for the proposed Waagkraal Prospecting area. The public participation process for the proposed area is designed to provide sufficient and accessible information to interested and affected parties (I&APs) in an objective manner to assist them to:

- raise issues of concern and make suggestions for enhanced benefits;
- contribute local knowledge and experience;
- verify that their issues have been captured;
- verify that their issues have been considered in the technical investigations; and
- comments on the findings of the EIA.

The following are and will be conducted in undertaking of the public participation process for the proposed area.

### **5.2.1 Registration and BAR Phase**

The public participation process has commenced by providing potential interested and affected parties (I&AP's) 30 days to register as interested and affected parties and to comment on the draft BAR and EMPR. The registration and commenting process started on the 3 September 2021. Note that all parties are provided enough time (at least 30 days) to comment on the report.

#### **5.2.1.1 Notification of potential interested and affected parties**

The following methods of notification were used to notify the potential interested and affected parties of the opportunity to register during the public participation process for the proposed area:

- Notices inviting potential interested and affected parties to register and comment on the draft BAR and EMPr for the proposed Waagkraal prospecting project were fixed at two sites. The notices were compiled to comply with the requirements of Regulation 41(3) of the amended NEMA EIA Regulations, 2014.
- Written notices were sent to all surface owners and lawful occupiers of the land on which the proposed area will be undertaken, owners/lawful occupiers of land immediately adjacent to the proposed project area.
- The draft BAR and EMPr was submitted to all the commenting authorities for their comments.
- A copy of the draft BAR and EMPr was placed in the Ottosdal public library for the public to peruse and make comments on the report.
- On the 3 of September 2021, notices were posted at Platinum weekly newspaper which is also distributed in which is distributed in host and surrounding town of the proposed prospecting area, informing the public that the BAR and EMPr is available for comments at the Ottosdal public library. The notices were compiled in compliance with the requirements of Regulation 41(3) of the EIA Regulations, 2014.

#### **5.2.1.2 Registered Interested and Affected Parties**

The following are currently registered as interested and affected parties for the Waagkraal prospecting project:

- Department of Mineral Resources and Energy, North West Regional Office (Competent Authority),
- Department of Water and Sanitation, North West Regional Office (Commenting Authority)

- 
- National Department of Agriculture, Forestry and Fisheries, North West Regional Office (Commenting Authority)
  - North West Tourism and Parks board (Commenting Authority)
  - South African Heritage Resources Agency (Commenting Authority)
  - SANRAL
  - Maquassi Hills Local Municipality
  - Ward 8 Councillor (Maquassi Hills Local Municipality)
  - Waagkraal Prospecting Area land owners and lawful occupiers

#### **5.2.1.3 Finalisation of Interested and Affected Party Database**

On expiry of registration period, the database of interested and affected parties was finalised. All parties who indicated the interest of being registered as interested and affected parties were added to the list of interested and affected parties.

Note: All organs of state, which have jurisdiction in respect of any aspect of the proposed area and the competent authority are automatically registered interested and affected parties.

#### **5.2.2 Draft Basic Assessment Report**

The draft BAR and EMPR was made available for comment to all relevant stakeholders during the above-mentioned registration phase of the proposed area public participation process.

##### **5.2.2.4 Proof of Consultation**

Proof of all the above-mentioned consultation and results thereof were provided after the consultation process was complete.

##### **5.2.2.5 Comments, Issues and Responses on the Draft Scoping Report**

On lapsing of the commenting period, all comments and issues received from the interested and affected parties were addressed in the final BAR and EMPR.

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## 5.3 ENVIRONMENTAL ATTRIBUTES (BASELINE INFORMATION)

### 5.3.1 Climate

The proposed Waagkraal prospecting project has been described based on the climate via desktop assessment as follows:

Waagkraal Prospecting area falls within the summer rainfall region of South Africa, in which more than 80% of the annual rainfall occurs from October to March. Eighty five percent of the rain falls during summer thunderstorms occurring every 3 - 4 days in summer. They occur in the form of conventional thunderstorms, are usually of short duration and high intensity and accompanied by lightning, strong winds, and sometimes hail.

In the North West area, the temperatures range from 17° to 31 °C (62° to 88 °F) in the summer and from 3° to 21 °C (37° to 70 °F) in the winter. Annual rainfall totals about 360 mm (about 14 in), with almost all of it falling during the summer months, between October and April.

### 5.3.2 Extreme Weather Conditions

The area is prone to host extreme events on a regular basis. These events include the following:

- The area is prone to drought conditions.
- Regular frost occurs during the winter months.
- Rainfall occurs as scattered thunderstorms.
- Strong gusty winds prior to and during thunderstorms.

### 5.3.3 Regional Geological Setting

The area falls within the Gh 13 Kelrksdorp Thornveld consist of Shale, slate and quartzite of the Pretoria Group with interlaid diabase sills and Hekpoort lava supporting relatively shallow and rocky soils (Glenrosa and Mispah forms), typical of the Fb land type. Equally represented are eutrophic red plinthic soils (Hutton form), derived mainly from a thick succes-sion of volcanics and sediments of the Ventersdorp Supergroup (Bc land type). Bd and Ae of minor occurrence.

The area falls within the Gh 14 Western Highveld Sandy Grassland consists of Basaltic lavas of the Klipriviersberg Group and andesitic lavas of the Allanridge Formation (both Ventersdorp Supergroup) covered by aeolian sand (western part of the area) or calcrete, with the eutrophic plinthic soils, which are mainly yellow apedals (Avalon and Pinedene) and rarely red apedals (Hutton) or Clovelly in bottomlands. Bd land type dominant.

The Ventersdorp Supergroup is one of the least deformed late Archaean-early Proterozoic lowgrade metamorphosed supracrustal sequences in the world and can serve as a model for tectonic, geochemical and volcanological evolution. The development of the Ventersdorp Supergroup on the Kaapvaal Craton was initiated by the outflow of lava of kmatiitic affinity during an epoch of crustal extension. The Ventersdorp sequence comprises three groups namely the Klipriviersberg Group at the base followed by the Platberg Group and Pniel Sequence. The Klipriviersberg Group consists of mafic volcanics whilst the Platberg Group is composed of sediments deposited in grabens followed by a bimodal volcanic suite with intermixed sediments and tuff towards the top. The presence of stromatolitic cherty limestone and mature sedimentary material indicates an abatement in tectonic activity towards the end of Platberg times. The uppermost Pniel Sequence overlies the Platberg Group with a marked unconformity and consists of an arenaceous unit, followed by a mafic to intermediate volcanic sequence. Geochemistry and isotopes indicate a mantle origin for some of the volcanics, whilst crustal contamination probably also contributed to the evolution of the Ventersdorp

volcanics. A full account of the literature pertaining to this important supergroup and the specific area of impact is also given (Van der Westhuizen *et al.*, 1991).

#### **5.3.4 Topography**

The proposed Waagkraal prospecting project has been described based on the topography identified via desktop assessment as follows. The elevation of the surrounding area ranges from 1458 m above sea level to 1520 m above sea level.

#### **5.3.5 Soils**

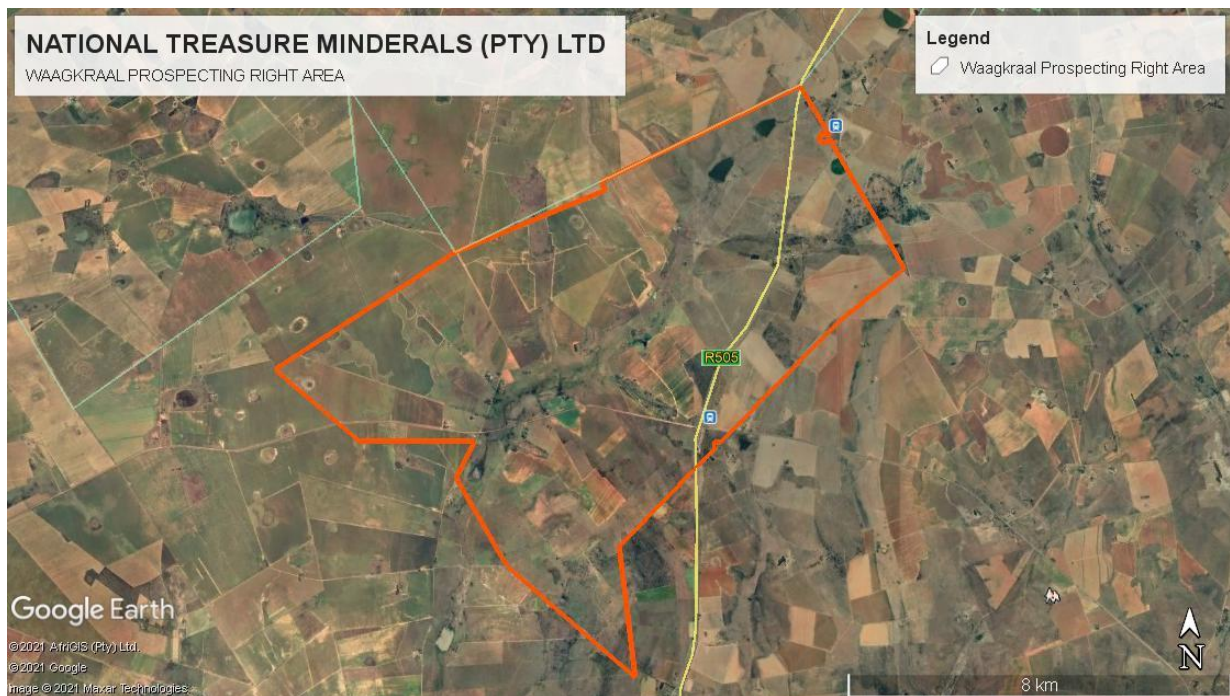
The proposed Waagkraal prospecting project has been described based on the vegetation types identified over the project via desktop assessment. One land type with associated soil forms were identified over the project area i.e.:

The area falls within the Gh 13 Kelrksdorp Thornveld consist of Shale, slate and quartzite of the Pretoria Group with interlaid diabase sills and Hekpoort lava supporting relatively shallow and rocky soils (Glenrosa and Mispah forms), typical of the Fb land type. Equally represented are eutrophic red plinthic soils (Hutton form), derived mainly from a thick succes-sion of volcanics and sediments of the Ventersdorp Supergroup (Bc land type). Bd and Ae of minor occurrence.

The area falls within the Gh 14 Western Highveld Sandy Grassland consists of Basaltic lavas of the Klipriviersberg Group and andesitic lavas of the Allanridge Formation (both Ventersdorp Supergroup) covered by aeolian sand (western part of the area) or calcrete, with the eutrophic plinthic soils, which are mainly yellow apedals (Avalon and Pinedene) and rarely red apedals (Hutton) or Clovelly in bottomlands. Bd land type dominant.

#### **5.3.6 Current Land Use**

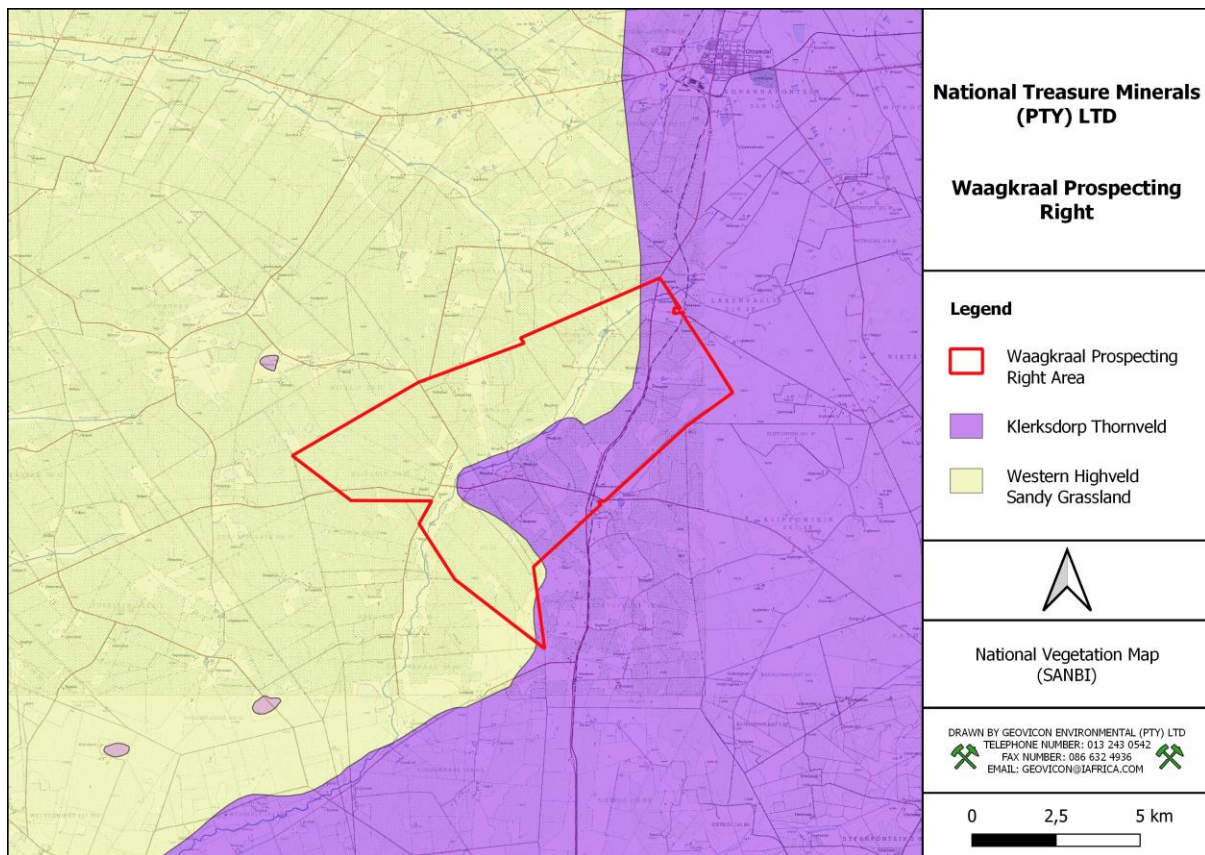
Within the prospecting right area, the land use includes rivers, dams, grazing, natural grasssland, cultivated commercial annuals non-pivot/non irrigated, cultivated commercial annuals pivot irrigated, farm steads and provincial-, and private gravel-roads which include the Provincial Road (R505), and private gravel roads (Figure 3).



**Figure 3: land use map for Waagkraal Prospecting Right Area**

### 5.3.7 Natural Vegetation/Plant Life

The proposed Waagkraal prospecting right area is situated in the Klerksdorp Thornveld (Gh 13) and the Western Highveld Sandy Grassland (Gh 14) vegetation type / ecosystem within the Dry highveld Grassland Bioregion. See Figure 4 for a visual indication (South African National Biodiversity Institute – SANBI; VEGMAP 2018)



**Figure 4: National vegetation units / ecosystems over the proposed Waagkraal prospecting project**

#### Gh 13 Klerksdorp Thornveld

**Vegetation:** Plains or slightly irregular undulating plains with open to dense *Acacia karroo* bush clumps in dry grassland. **Error! Reference source not found.** represents the vegetations found in the Klerksdorp Thornveld.

#### Gh 14 Western Highveld Sandy Grassland

Flat to gently undulating plains with short, dry grassland, with some woody species occurring in bush clumps.

#### **List of the dominant taxa in the Klerksdorp Thornveld vegetation unit / ecosystem:**

Small Trees: *Acacia karroo* (d), *A. caffra*, *Celtis africana*, *Rhus lancea*, *Ziziphus mucronata*.

Tall Shrubs: *Acacia hebeclada*, *Diospyros lycioides subsp. lycioides*, *Ehretia rigida*, *Grewia flava*, *Gymnosporia buxifolia*, *Rhus pyroides*, *Tarchonanthus camphoratus*.

Woody Climber: *Asparagus africanus*.

Low Shrubs: *Asparagus laricus* (d), *A. suaveolens* (d), *Felicia muricata* (d), *Anthospermum hispidulum*, *A. rigidum subsp. pumilum*, *Aptosimum elongatum*, *Gnidia capitata*, *Gomphocarpus fruticosus subsp. fruticosus*, *Helichrysum dregeanum*, *Leucas capensis*, *Pavonia burchellii*, *Pentzia globosa*, *Solanum supinum var. supinum*, *Triumfetta sonderi*, *Ziziphus zeyheriana*. Graminoids: *Aristida congesta* (d), *Cynodon dactylon* (d), *Eragrostis lehmanniana* (d), *E. trichophora* (d), *Microchloa caffra* (d), *Panicum coloratum* (d), *Sporobolus fimbriatus* (d), *Themeda triandra* (d), *Andropogon schirensis*, *Antheophora pubescens*, *Aristida junciformis subsp. galpinii*, *A. stipitata subsp. graciliflora*, *Brachiaria nigropedata*, *B.*

*serrata*, *Bulbostylis burchellii*, *Cymbopogon pospischilii*, *Digitaria eriantha*, *Diheteropogon amplexans*, *Elionurus muticus*, *Eragrostis curvula*, *E. obtusa*, *E. racemosa*, *E. superba*, *Eustachys paspaloides*, *Heteropogon contortus*, *Setaria sphacelata*, *Sporobolus africanus*, *Tragus berteronianus*, *Trichoneura grandiglumis*, *Triraphis andropogonoides*.

Herbs: *Acalypha angustata*, *Acanthospermum australe*, *Berkheya onopordifolia* var. *onopordifolia*, *B. setifera*, *Blepharis integrifolia* var. *clarkei*, *Chamaesyce inaequilatera*, *Chascanum adenostachyum*, *Dicoma macrocephala*, *Helichrysum nudifolium* var. *nudifolium*, *Hermannia lancifolia*, *Hibiscus pusillus*, *Justicia anagalloides*, *Lippia scaber-rima*, *Nidorella microcephala*, *Nolletia ciliaris*, *Pollichia campestris*, *Rhynchosia adenodes*, *Salvia radula*, *Selago densiflora*, *Teucrium trifidum*, *Tolpis capensis*.

Geophytic Herbs: *Bulbine narcissifolia*, *Ledebouria marginata*, *Ornithogalum tenuifolium* subsp. *tenuifolium*, *Raphionacme hirsuta*.

Herbaceous Climber: *Rhynchosia venulosa*.

### List of the dominant taxa in the Western Highveld Sandy Grassland vegetation unit / ecosystem:

Graminoids: *Antheophora pubescens* (d), *Aristida congesta* (d), *A. diffusa* (d), *Cymbopogon pospischilii* (d), *Cynodon dactylon* (d), *Eragrostis lehmanniana* (d), *E. trichophora* (d), *Panicum coloratum* (d), *Pogonarthria squarrosa* (d), *Setaria sphacelata* (d), *Sporobolus africanus* (d), *Themeda triandra* (d), *Aristida adscensionis*, *A. canescens*, *A. stipitata* subsp. *gracilliora*, *Brachiaria ser-rata*, *Digitaria argyrograpta*, *D. eriantha*, *Diheteropogon amplexans*, *Elionurus muticus*, *Eragrostis chloromelas*, *E. curvula*, *E. gummiflua*, *E. racemosa*, *Eustachys paspaloides*, *Heteropogon contortus*, *Melinis nerviglumis*, *Sporobolus discosporus*, *S. fimbriatus*, *Trichoneura grandiglumis*, *Triraphis andropogonoides*.

Herbs: *Gazania krebsiana* subsp. *krebsiana* (d), *Stachys spathulata* (d), *Barleria macrostegia*, *Berkheya onopordifolia* var. *onopordifolia*, *Chamaecrista mimosoides*, *Chamaesyce inaequilatera*, *Dicoma anomala*, *D. macrocephala*, *Helichrysum callicomum*, *Hermannia depressa*, *H. tomentosa*, *Kyphocarpa angustifolia*, *Lippia scaberrima*, *Monsonia burkeana*, *Nolletia ciliaris*, *Osteospermum muricatum* subsp. *longiradiatum*, *Pollichia campestris*, *Rhynchosia adenodes*, *Sebaea grandis*, *Trichodesma angustifolium* subsp. *angustifolium*, *Vernonia oligocephala*.

Geophytic Herb: *Boophone disticha*.

Low Shrubs: *Anthospermum rigidum* subsp. *pumilum* (d), *Aptosimum elongatum*, *Felicia muricata*, *Gnidia capitata*, *Helichrysum paronychioides*, *Indigofera comosa*, *Leucas capensis*, *Polygala hottentotta*, *Sida dregei*, *Solanum panduriforme*, *Stoebe plumosa*.

Tall Shrubs: *Acacia hebeclada*, *Diospyros lycioides* subsp. *lycioides*.

### Klerksdorp Thornveld Grassland vegetation unit

Conservation Vulnerable. Target 24%. Only about 2.5% conserved in the statutory Mafikeng Game Reserve, private Botsolano Game Park and Faan Meintjes Nature Reserve. Almost a third already transformed for cultivation and by urban sprawl. This vegetation unit has a high grazing capacity and this leads to overutilisation and degradation, and subsequent invasion of *Acacia karroo* into adjacent dry grassland. Due to the great habitat and floristic diversity and for aesthetical reasons, the landscape deserves to be conserved.

### Western Highveld Sandy Grassland vegetation unit

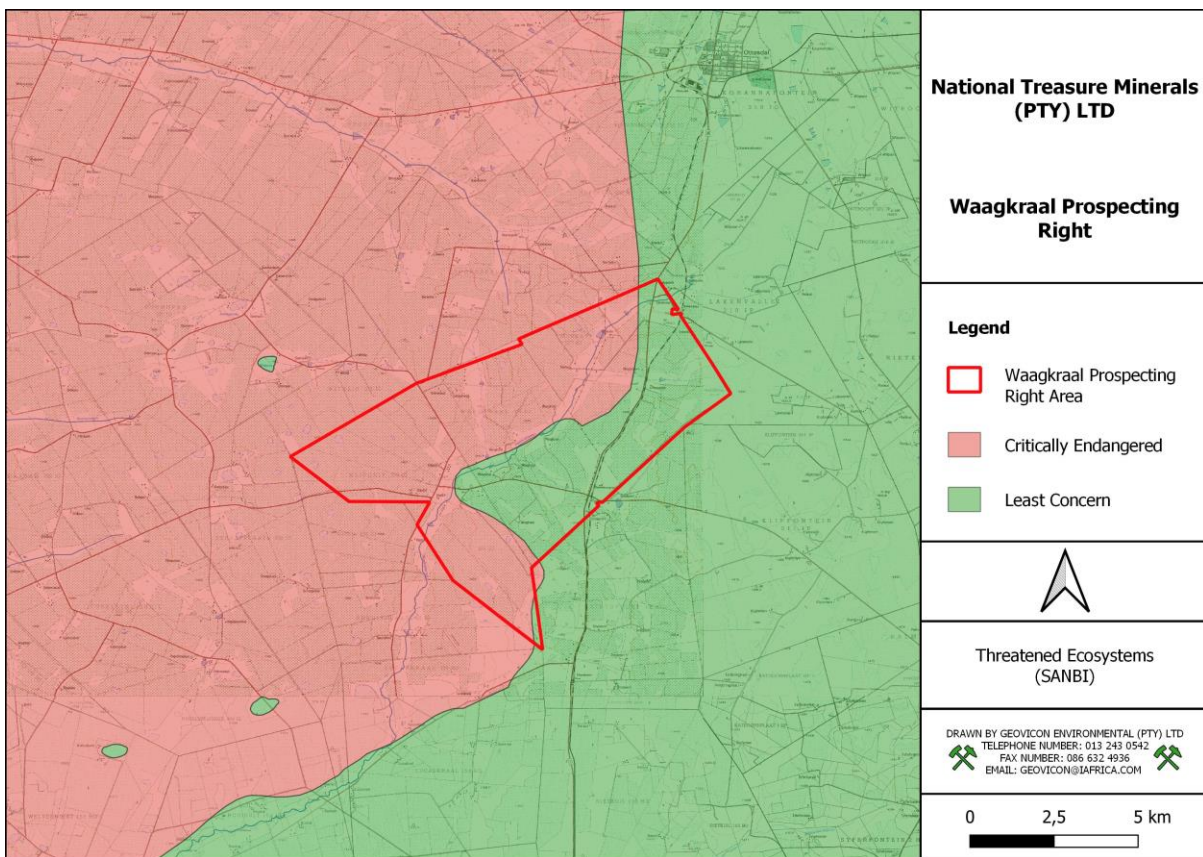
Endangered. Target 24%. Only a very small portion statutorily conserved (Barberspan Nature Reserve). More than 60% has been ploughed. Nonarable parts are on shallow aeolian soils which become easily over utilised through grazing. Erosion is very low. About 95% of this land is suitable for



cultivation, but the low rainfall makes it a high-risk area for agriculture. Therefore, the natural vegetation is often restricted to nonarable bush clumps, shallow soils, aeolian sands and pans. The ecosystem threat status of the proposed prospecting area is in certain parts critically endangered and in other areas the threat status is least concern (Figure 5).

**5.3.1 Animal Life**

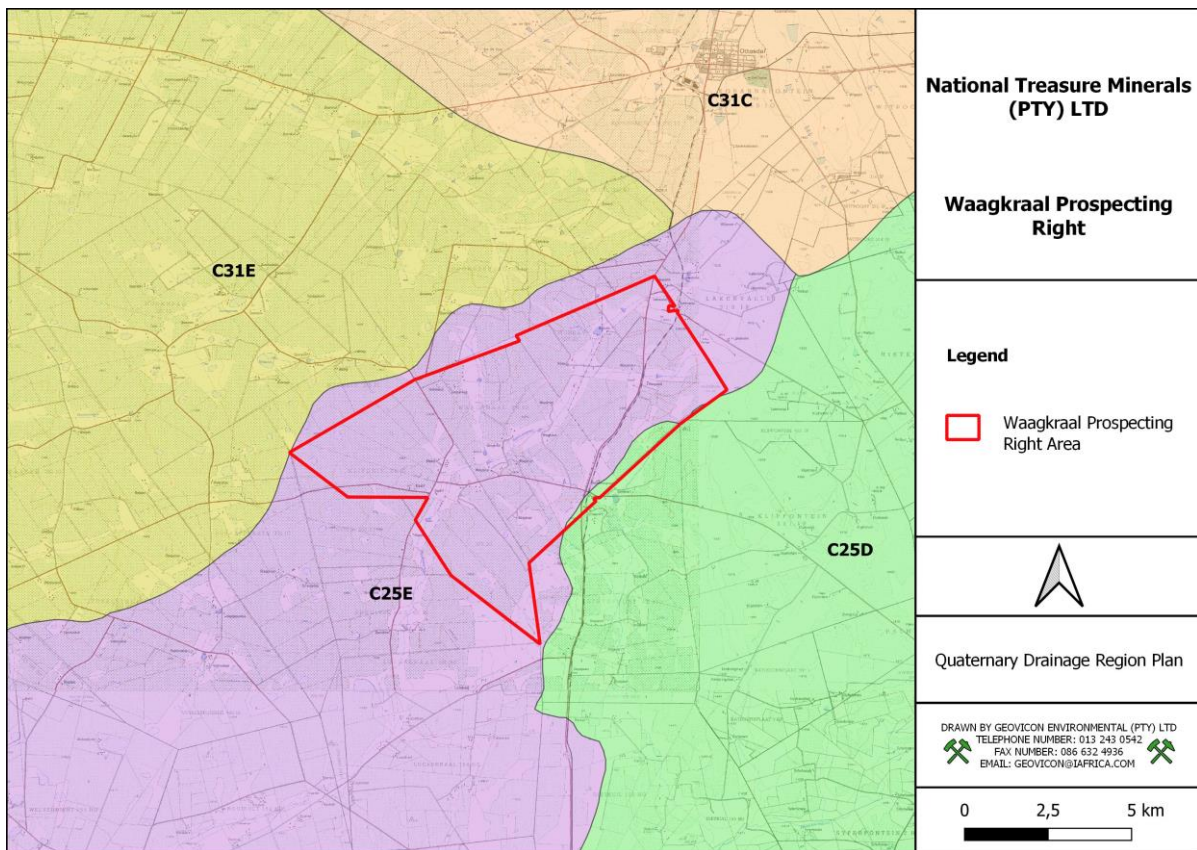
The North West Province has wide array of species, ecosystem and habitats. This is largely due to the diverse nature of the Province’s landscapes and variation in climate. The Province has several endemic species (such as the Aloe peglerae in the Magaliesberg), as well as rare and threatened species (e.g. wild dog). The indigenous fauna and flora inhabiting the numerous dolomitic eyes (particularly the aquatic invertebrates and fish) are also considered to be unique.



**Figure 5: Threatened ecosystem status over the proposed Waagkraal prospecting project**

**5.3.2 Surface Water**

For the purpose of the National Water Resource Strategy, a requirement of the National Water Act (Act 36 of 1998), Department of Water Affairs and Forestry has delineated the entire country into representative water management areas with respective drainage regions i.e., primary, secondary, tertiary and quaternary drainage regions. The proposed Waagkraal prospecting right area is situated over two quaternary catchment areas viz. C25E and C25D (Figure 6).

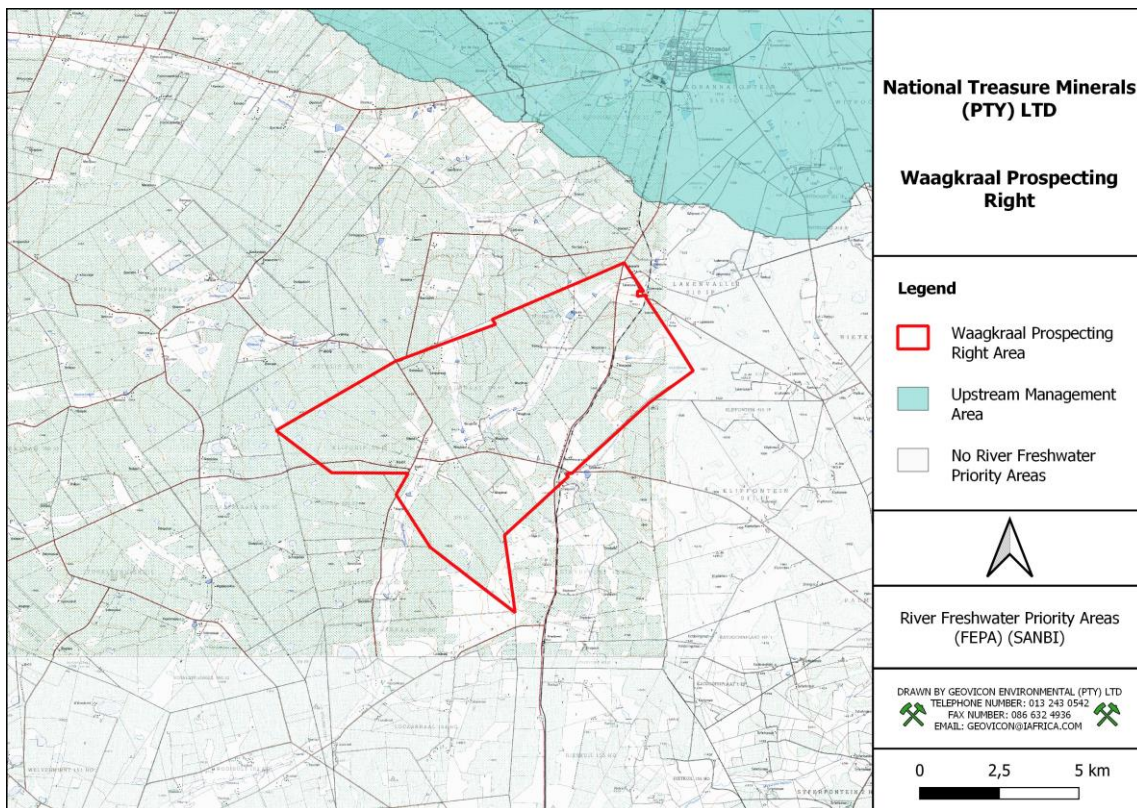


**Figure 6: DWS quaternary drainage regions in the vicinity of the Waagkraal prospecting project**

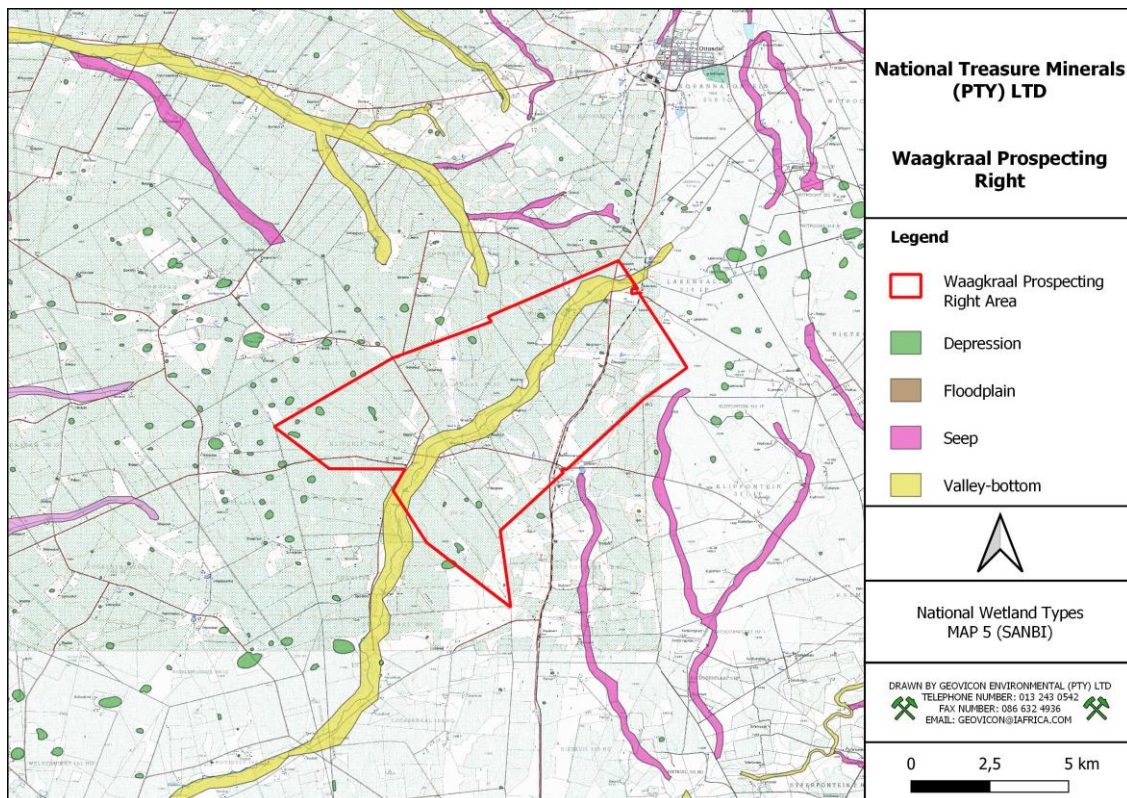
### 5.3.3 Sensitive Landscapes

National Treasure Minerals (Pty) Ltd recognises that all streams, rivers and wetlands should be treated as sensitive landscapes. To this extent, Geovicon Environmental (Pty) Limited, an independent consultant, undertook a desktop study over the prospecting right area to determine the presence of sensitive landscape.

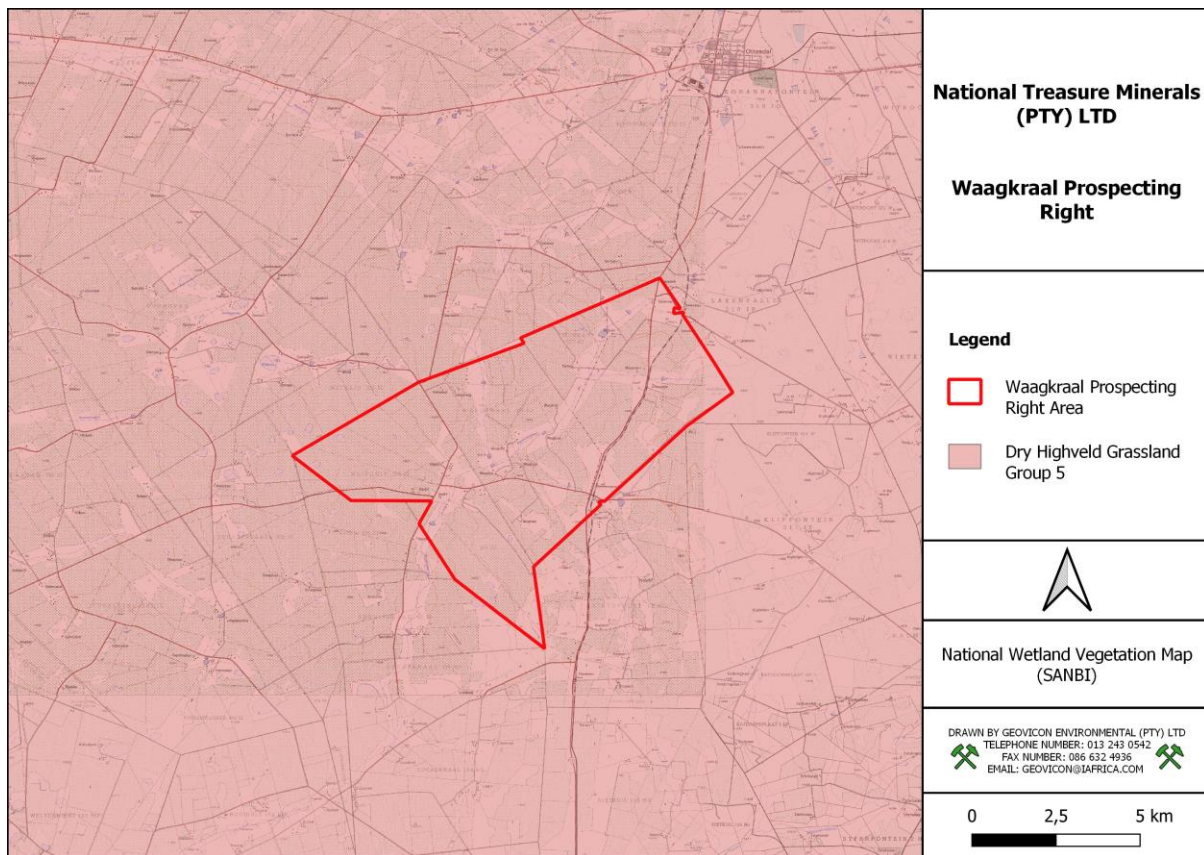
The proposed Waagkraal Prospecting right area is not situated in a River, Freshwater Ecosystem Priority Area as illustrated in Figure 7. The proposed Waagkraal Prospecting right area is situated in a National Wetland area, which forms part of the Dry highveld Grassland Group 5 wetland ecosystem types (SANBI) (Figure 9). Valley- Bottoms, and Depressions are present in the area of the proposed Waagkraal prospecting right area (National Wetland Areas MAP 5 (SANBI) (Figure 8).



**Figure 7: National Freshwater Ecosystem Priority Areas (NFEPA's) – Rivers, in the vicinity of the Waagkraal prospecting project**



**Figure 8: National wetland areas in the vicinity of the Waagkraal prospecting project (SANBI, National Wetlands Map 5)**



**Figure 9: National wetland vegetation types in the vicinity of the Waagkraal prospecting project**

**Critical Biodiversity areas (CBA) – Optimal**”, are areas that are optimally located to meet the various biodiversity conservation targets while avoiding high-cost areas as much as possible. Ecological support areas (ESAs) are not required to meet freshwater biodiversity targets, but they do play a crucial role in supporting the ecological function of freshwater CBAs. The proposed Waagkraal prospecting right area is situated in the terrestrial categories of Aquatic and Terrestrial CBA Areas. Figure 10 indicates Aquatic CBAs and ESAs in the vicinity of the proposed Waagkraal Prospecting right area. Figure 11 indicates terrestrial CBAs and ESAs in the vicinity of the proposed Waagkraal Prospecting right area.

CBA 1 describes ecosystems and species that are fully or largely intact and undisturbed, these are also areas with high irreplaceability or low flexibility in terms of meeting biodiversity pattern targets. If the biodiversity features targeted in these areas are lost then targets will not be met, these are biodiversity features that are at, or beyond, their limits of acceptable change.

CBA 2 are Ecosystems and species that are fully or largely intact and undisturbed, this includes areas with intermediate irreplaceability or some flexibility in terms of meeting biodiversity targets. There are options for loss of some components of biodiversity in these landscapes without compromising the ability to achieve biodiversity targets, although loss of these sites would require alternative sites to be added to the portfolio of CBAs.

ESA 1 are an ecosystem that are still in a natural, near-natural state or semi-natural state, and has not been previously developed. The ecosystems are moderately to significantly disturbed but still able to maintain basic functionality. The individual species or other biodiversity indicators may be severely disturbed or reduced.

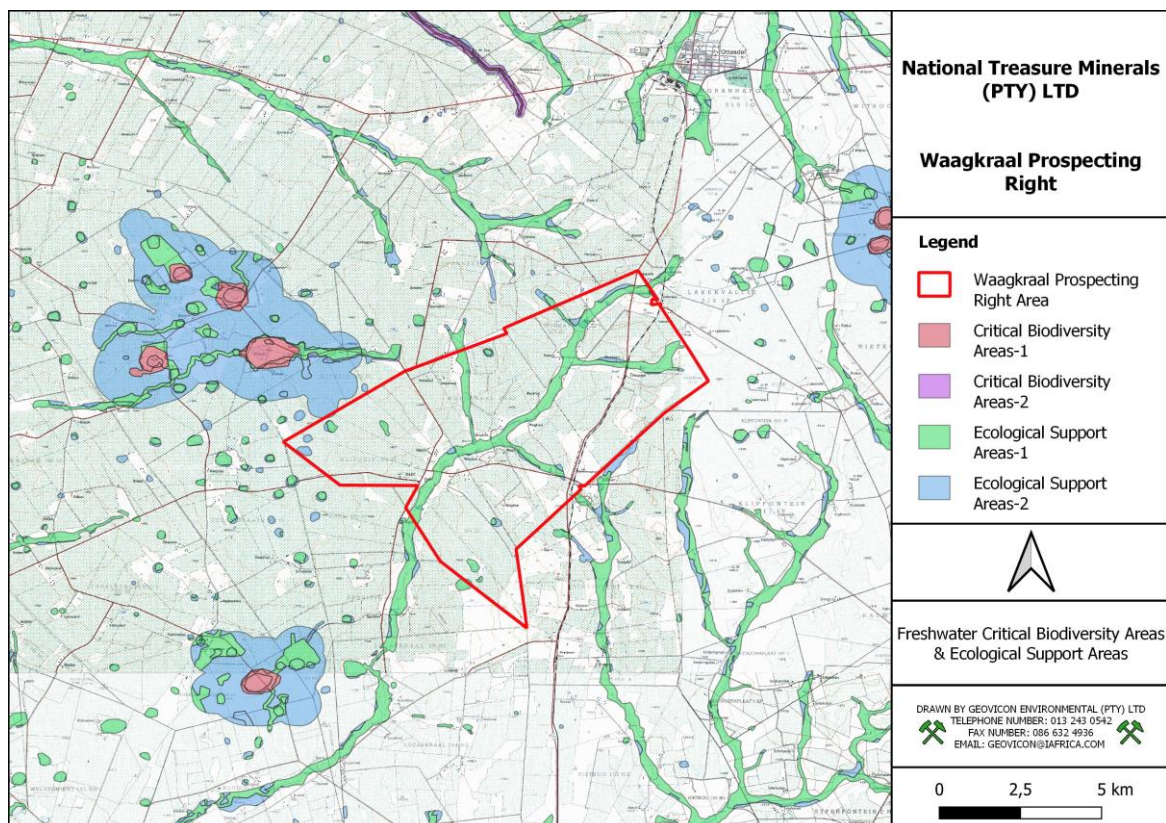
ESA 2 current land use or restore area are maintained in a natural state. Ecosystem NOT in a natural or near-natural state, and has been previously developed (e.g., ploughed). The ecosystems significantly disturbed but still able to maintain some ecological functionality. The individual species or other biodiversity indicators are severely disturbed or reduced and these are areas that have low irreplaceability with respect to biodiversity pattern targets only. These are areas with low irreplaceability with respect to biodiversity pattern targets only. These areas are required to maintain ecological processes especially landscape connectivity.

**Table 4: Description of biodiversity features used to define CBA map category**

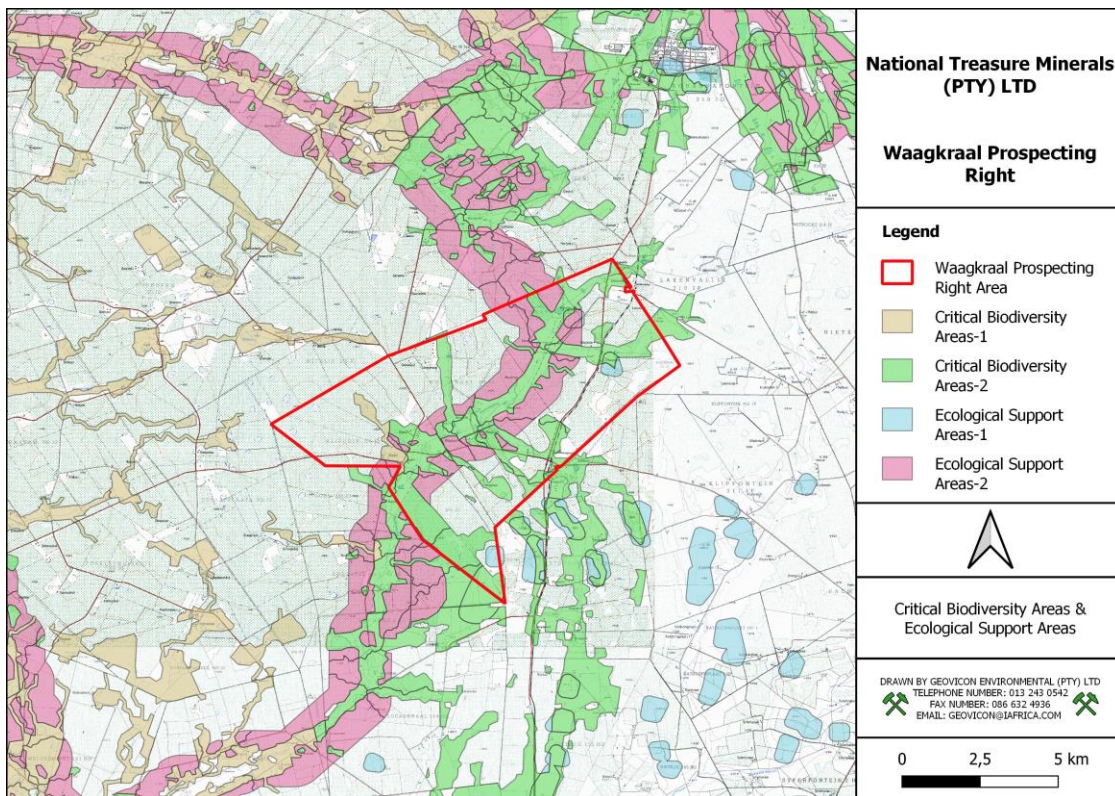
<b>CBA CATEGORY AND CRITERION NAME</b>	<b>DESCRIPTION OF BIODIVERSITY FEATURES USED TO DEFINE CBA MAP CATEGORY</b>
<b>Aquatic Ecological Support Areas Level 1 and Level 2 (ESA 1 and ESA 2)</b>	
FEPA Fish Catchments	Catchments supporting FEPA fish rivers.
Wetland Clusters	Clusters of larger wetlands and pans and their collective buffer (500 m)
Peat Wetland Buffers	500 m buffer around peat wetlands.
Dolomite Recharge Area	The karst landscape of central North West around which all major eyes emerge and based on topography is the most likely area for the dolomitic aquifer recharge zone.
<b>Terrestrial Critical Biodiversity Area Level 1 (CBA 1)</b>	
Critical Patches: Ecosystem Status – Critically Endangered Ecosystems	Remaining patches larger than 3 ha of provincially Critically Endangered ecosystems (vegetation types), i.e., the amount of vegetation remaining intact (of these ecosystems) is less than the representation/biodiversity target, therefore all remaining patches of these vegetation units are of the highest conservation priority and further impacts on natural habitat should be avoided.
Irreplaceable Sites	Planning units with high irreplaceability values based on the provincial MARXAN analysis, i.e., areas or sites that are mandatory if biodiversity targets are to be achieved.
Critical Biodiversity Corridors Linkages	Critical linkages in the provincial biodiversity corridor network where existing conversion of natural landscapes to other land uses has severely restricted options for maintaining connectivity in the natural landscape. Critical linkages that are not in a natural state are categorised as ESA 2
Important Terrestrial Habitats: Expert Areas	Areas in the terrestrial environments less than 10 000 ha in extent identified by experts as being important for biodiversity conservation.
Important Terrestrial Habitats: Kloofs	All medium to large kloofs identified as an important habitat for climate change adaptation.

<b>Terrestrial Critical Biodiversity Areas Level 2 (CBA 2)</b>	
Critical Patches: Ecosystem Status – Endangered and Vulnerable Ecosystems	Remaining patches larger than 5 ha of provincially Endangered and Vulnerable ecosystems (vegetation types), i.e., the amount vegetation remaining intact (of these ecosystems) is less than 60%. Any further modification of these vegetation types should be limited to existing irreversibly modified or heavily degraded areas.
Critical Patches: Endemic Vegetation Types	Remaining patches larger than 10 ha of endemic vegetation types to the province. These are vegetation types whose biodiversity target can only be achieved in the NW Province.
Important Habitats: Features	Important natural features (habitats, springs, scenic landscapes) used in the 2008 biodiversity conservation assessment.
Important Habitats: Focus Wildlife Areas	Areas identified as being important for maintaining species of conservation concern (free-ranging red hartebeest ( <i>Alcelaphus buselaphus</i> ), black-footed cat ( <i>Felis nigripes</i> ), vulture nesting areas, Important Bird Areas).
<b>Terrestrial Ecological Support Areas Level 1 and Level 2 (ESA 1 and ESA 2)</b>	
Important Habitats: Hills and Ridges	Hills and ridges identified as sensitive habitats in the existing provincial SDF dataset. The hill and ridges layer were developed to address the special biodiversity significance of these topographic features in the province. The layer was re-developed from scratch using the GIS modelling approach used in Gauteng Province and modified for the North West.
Biodiversity Corridors	<p>Provincial-level biodiversity corridor network aimed at retaining connectivity between all geographic areas in the province. The corridor network was identified following a least cost path analysis.</p> <p>The corridor network was designed as a product of the systematic biodiversity assessment and was based on the following set of design criteria or principles agreed to by the stakeholders and experts involved in the assessment:</p> <p>The corridor network needs to incorporate all existing identified landscape or biodiversity corridors. These include:</p> <p>Madikwe-Pilanesberg-Borakalalo Heritage Park.</p> <p>Magaliesberg Protected Environment (and Biosphere Reserve).</p> <p>The corridor network needs to link core conservation landscapes through a province-wide network that covers the complete range of altitudinal and latitudinal zones, and thus favouring effective beta-diversity (i.e., ratio between gamma (regional) and alpha (local) diversities) incorporation.</p> <p>The corridor network should, where possible, incorporate most terrestrial and freshwater priority areas.</p> <p>The corridor network should not focus on one component of biodiversity (e.g., grassland) in the design but rather consider all components of</p>

	<p>biodiversity pattern and ecological process.</p> <p>Give effect to the principles and axes of landscape corridor design embodied in the National Spatial Biodiversity Assessment.</p> <p>Align with the corridor network of bordering provinces (i.e., edge-matching).</p>
<p>Existing or Proposed Protected Area Development Corridors</p>	<p>Existing protected area development corridors identified in previous studies and the provincial protected area expansion strategy. Expansion of land uses not compatible with protected areas/beneficial green economy activities can severely degrade the economic potential of this valuable resource if allowed to expand into these zones.</p> <ol style="list-style-type: none"> <li>1. Pilanesberg-Madikwe Heritage Park</li> <li>2. Highveld Grassland corridor</li> <li>3. Krefort Dome World Heritage Site</li> <li>4. Kgalagadi</li> <li>5. Magaliesberg Protected Environment</li> <li>6. SA Lombard/Bloemhof Lower Vaal node</li> </ol>
<p>Protected Area Buffers</p>	<p>The 1 km radius buffer around all formal protected areas.</p>



**Figure 10: Aquatic Critical Biodiversity Areas and Ecological Support Areas in the vicinity of the Waagkraal prospecting project.**



**Figure 11: Terrestrial Critical Biodiversity Areas and Ecological Support Areas in the vicinity of the Waagkraal prospecting project.**

**5.3.4 Air Quality**

Potentially air pollution from human activities may arise as a result of particulates entering the atmosphere. The sources of air pollution from human activities comprise of three broad categories i.e., stationary sources (agriculture, mining, quarrying, manufacturing, mineral products and industries), community sources (homes or buildings, municipal waste and sewage sludge incinerators, fireplaces, cooking facilities, laundry services and cleaning plants) and mobile sources combustion-engine vehicles and fugitive emissions from vehicle traffic). Air pollutants are generally classified into suspended particulate matter (dust, fumes, mists and smokes), gaseous pollutants (gases and vapours) and odours.

Assessment of the proposed prospecting right area has determined that all three categories of air pollution sources are found at the proposed area.

**5.3.5 Noise**

The proposed area is predominantly a grazing area. Potential noise sources from the area may therefore be emanating from the following sources i.e.: roads and surrounding land use activities.

**5.3.6 Socio-Economic Status**

The Maquassi Hills Local Municipality is a Category B municipality situated within the Dr Kenneth Kaunda District in the North West Province. It is bordered by Tswaing in the north, the Free State Province in the south, City of Matlosana and the Free State in the east, and Dr Ruth Segomotsi Mompoti District in the west. It is one of the three municipalities that make up the district, accounting



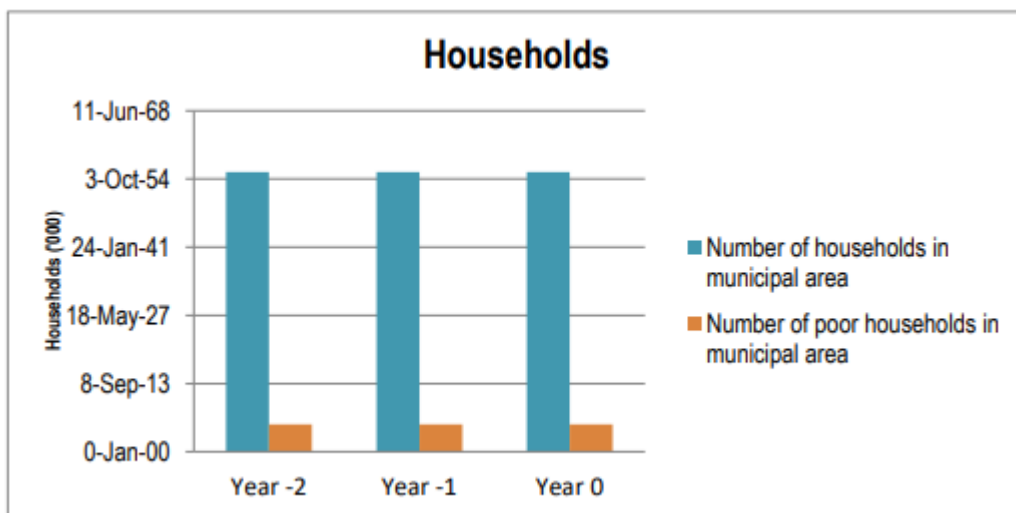
for a third of its geographical area. It has an area of 4 671km<sup>2</sup> and the cities/towns known in the municipality are Leeudoringstad, Makwassie, Witpoort and Wolmaransstad.

The main economic sectors are agriculture (49%), domestic (17%), community services (15%), and manufacturing (14%).

**5.3.6.1 Population density, growth and race**

Population Details									
Age	Population '000								
	Year 2014/15			Year 2015/16			Year 2016/17		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Age: 0 – 4	4949	4794	9743	4949	4794	9743	4949	4794	9743
Age: 5 – 9	4407	4297	8704	4407	4297	8704	4407	4297	8704
Age: 10 – 19	7114	7005	14119	7114	7005	14119	7114	7005	14119
Age: 20 – 29	12844	7146	19990	12844	7146	19990	12844	7146	19990
Age: 30 – 39	5180	5091	10271	5180	5091	10271	5180	5091	10271
Age: 40 – 49	4005	4175	8180	4005	4175	8180	4005	4175	8180
Age: 50 – 59	3155	3138	6293	3155	3138	6293	3155	3138	6293
Age: 60 – 69	1716	1915	3631	1716	1915	3631	1716	1915	3631
Age: 70+	1009	1503	2512	1009	1503	2512	1009	1503	2512

**Figure 12: Population Details of the Maquassi Hills Local Municipality**



**Figure 13: Households details of the Maquassi Hills Local Municipality**

Overview of Neighbourhoods within Maquassi-Hills Local Municipality		
Settlement Type	Households	Population
<b>Towns</b>		
Wolmaransstad	860	2944
Makwassie	445	1988
Witpoort	91	1551
Leeudoringstad	573	319
Sub-Total	1969	6802
<b>Townships</b>		
Tswelelang	7665	26828
Kgakala	3142	9590
Lebaleng	2740	10998
Rulaganyang	348	1218
Sub-Total	13895	48634
<b>Rural settlements</b>		
Boskuil	312	1092
Oersonskraal	133	466
Klip-kuil	7	25
Kareepan	52	182
Sub-total	504	1765
<b>Informal settlements</b>		
Tswelelang	1800	6300
Lebaleng	150	525
Rulaganyang	70	245
Kgakala	120	420
Total	18508	57201

**Figure 14: Overview of households in the Maquassi Hills Local Municipality**

### 5.3.6.2 Major economic activities and sources of employment

The Dr KKD (Kenneth Kaunda District) Local Economic Development policy identified three priority sectors earmarked for growth and development viz: Tourism, Agriculture and Manufacturing. The District is confronted by a number of socio-economic and economic challenges. The region is characterised by high levels of poverty and unemployment, and low education and skills levels. The district is also faced with the challenge of an underdeveloped tourism sector.

These below are the economic drivers:

#### Informal sector

An informal economy is the part of any economy that is neither taxed nor monitored by any form of government and the informal sector makes up a significant portion of the economy.

#### Primary sector

Mining has historically been the main economic activity within the district, and with the industry in steady decline the district is seeking to diversify the economy from its over-reliance on the mining industry

#### Secondary sector

Agriculture is the economic base of Ventersdorp and Maquassi Hills regions, while there is a strong agri-processing base in Potchefstroom and Klerksdorp.

#### Tertiary sector

The Dr KKD has a high potential for tourism growth as it sets itself apart with a number of its unique spatial landscape; attractions and rich heritage sites.

## SECTION SIX

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# **Environmental impact assessment**

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## 6. ENVIRONMENTAL IMPACT ASSESSMENT

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### 6.1 ENVIRONMENTAL IMPACT ASSESSMENT PROCESS FOLLOWED

#### 6.1.1 Approach to Environmental Impact Assessment

**The term 'environment' is used in the broadest sense in an EIA. It covers the physical, biological, social, economic, cultural, historical, institutional and political environments.**

An Environmental Impact Assessment is a good planning tool. It identifies the environmental consequences of a proposed area from the beginning and helps to ensure that the area, over its life cycle, will be environmentally acceptable and integrated into the surrounding environment in a sustainable way.

#### 6.1.2 Environmental Impact Assessment Process Followed

Under Section 24 of the National Environmental Management Act (NEMA), the Minister promulgated the regulations pertaining to environmental impact assessments (EIA Regulations, 2014) under Government Notice NO. 326 in Government Gazette 38282 of 4 December 2014. These EIA regulations repealed the 2010 EIA regulations and therefore any process relating to environmental authorisations must be undertaken under the EIA Regulations, 2014.

Chapter 4 of the EIA Regulations, 2014 deals with the provisions for application for environmental authorisation. In view of the above, National Treasure Minerals (Pty) Ltd is obliged to comply with provisions of Chapter 4 for the intended environmental authorisation application for the activities (listed activities) within the proposed area.

Part 2 of chapter 4 of the EIA Regulations, 2014 contemplate process to be undertaken for the application for environmental authorisation for the proposed area, which is the BAR process. The process to be followed is describe below.

#### 6.1.3 Pre-application consultation with the Competent Authority

In terms of section 24D (1) of the National Environmental Management Act, 1998 (Act 107 of 1998), the Minister responsible for mineral resources is the competent authority for environmental matters relating to mining and associated activities. In view of the above, the application for the environmental authorisation for the proposed area was submitted to the Department of Mineral Resources (DMR), Northern Cape Regional Office for their consideration and decision making.

#### 6.1.4 BAR Phase

In compliance with Regulation 19 of the EIA Regulations, 2014, the BAR and EMPR will be submitted to the competent authority within 90 days after the acknowledgement of the environmental authorisation application.

As part of the public participation, the draft BAR and EMPR is made available to the competent authority, potential and registered interested and affected parties for their comment for a period of 30 days during the EIA phase.

### 6.1.5 Information Gathering

Environmental baseline data has been obtained, pertaining to surface water, geohydrological data, topographical analyses, soil surveys, vegetation surveys, wetland surveys and geological conditions. Weather data was acquired from the South African Weather Service. Historic land use was determined through available data and by visual observations made during various field studies. The data accumulated and analysed is sufficient to gain a baseline indication of the present state of the environment. The use of this baseline study for impact assessments is thus justified and reliable conclusions could be made.

### 6.1.6 Decision on the BAR & EMPR application

In compliance with Regulation 20 of the EIA Regulations, 2014, the competent authority will within 107 days of receipt of the BAR and EMPR grant or refuse the environmental authorisation.

## 6.2 ENVIRONMENTAL IMPACT ASSESSMENT METHODOLOGY

The following prediction and evaluation of impacts is based on the proposed Waagkraal prospecting project and associated activities.

The evaluation distinguishes between significantly adverse and beneficial impacts and allocates significance against national regulations, standards and quality objectives governing:

- Health & Safety;
- Protection of Environmentally Sensitive Areas;
- Land use; and
- Pollution levels.

Irreversible impacts are also identified.

The significance of the impacts is determined through the consideration of the following criteria:

Probability	: likelihood of the impact occurring
Area (Extent)	: the extent over which the impact will be experienced.
Duration	: the period over which the impact will be experienced.
Intensity	: the degree to which the impact affects the health and welfare of humans and the environment (includes the consideration of unknown risks, reversibility of the impact, violation of laws, precedents for future actions and cumulative effects).

The above criteria are expressed for each impact in tabular form according to the following definitions:

Probability	Definition
Low	There is a slight possibility (0 – 30%) that the impact will occur.
Medium	There is a 30 –70% possibility that the impact will occur.
High	The impact is definitely expected to occur (70% +) or is already occurring.
Area (Extent)	Definition
Small	0 – 40 ha
Medium	40 – 200 ha
Large	200 + ha

Duration	Definition
Short	0 – 5 years
Medium	5 – 50 years
Long	51 – 200 years
Permanent	200 + years
Intensity	Definition
Low	Does not contravene any laws. Is within environmental standards or objectives. Will not constitute a precedent for future actions. Is reversible. Will have a slight impact on the health and welfare of humans or the environment.
Medium	Does not contravene any laws. Will not constitute a precedent for future actions. Is not within environmental standards or objectives. Is not irreversible. Will have a moderate impact on the health and welfare of humans or the environment.
High	Contravene laws. May constitute a precedent for future actions. Is not within environmental standards or objectives. Is irreversible. Will have a significant impact on the health and welfare of humans or the environment.

Significance and Risk Category	Definition
Negligible	The impact/risk is insubstantial and does not require management
Low	The impact/risk is of little importance, but requires management
Medium	The impact/risk is important; management is required to reduce negative impacts to acceptable levels
High	The impact/risk is of great importance, negative impacts could render options or the entire area unacceptable if they cannot be reduced or counteracted by significantly positive impacts, and management of these impacts is essential
Positive (No risk identified)	The impact, although having no significant negative impacts, may in fact contribute to environmental or economical health

### 6.3 RESULTS OF THE ENVIRONMENTAL IMPACT ASSESSMENT

#### 6.3.1 Assessment of the National Treasure Minerals prospecting project impacts/risks

##### 6.3.1.1 Construction Phase

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
<b>PRE-CONSTRUCTION AND CONSTRUCTION PHASES</b>							
<b>Site Establishment: Establishment of the access (tracks) to the prospecting site, Establishment of the campsite, Site physical surveying and Pegging of drilling sites</b>							
<p>The establishment of access routes, campsites and the surveying with pegging of the drilling sites may result in the stripping of soils during site establishment. Should the above not be properly conducted, the activities will result in the loss of soils and can cause erosion that may render the area unusable.</p> <p>During site establishment, machinery and vehicles used for the prospecting operation may result in hydrocarbon leakages, which may result in the contamination of the soils within the access routes (roads and tracks), campsite and drilling sites.</p>	Soil/Land capability	Without mitigation					<p>Establishment of the site will be undertaken according to the approved prospecting method statement.</p> <p>No soil stripping will be allowed during site establishment.</p> <p>Ensure minimal disturbance of soil when conducting geophysical surveys and geological mapping (if necessary).</p> <p>Any area that may result into the disturbance of the soils must be rehabilitated immediately on discovery.</p> <p>Machinery to be used for the operation will be of good working conditions. Any hydrocarbon spill from the site establishment will be remediated as soon as possible.</p>
		S	L	S	M	M	
		With mitigation					
		S	L	S	L	L	



NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
<b>PRE-CONSTRUCTION AND CONSTRUCTION PHASES</b>							
<p>Current land use over the area to be used for site establishment will cease completely. This may have an impact on the land owners' livelihood should they not be able to use the land.</p> <p>Drilling activities may infringe the livelihood and operations of activities occurring within and immediately adjacent the prospecting right area.</p>	Land use	Without mitigation					<p>Use sites that are unused and that are in the degraded state for the proposed development. This will be done in agreement with the land owners. The siting of the boreholes will be conducted to ensure that rocky ridges, sensitive grass lands, indigenous trees and shrubs, sites of geological importance and farmlands actively used for farming are avoided.</p>
		S	M	S	M	M	
With mitigation							
S	L	S	L	L			
<p>The establishment of the site (access, campsite and drilling sites) may result in the removal of vegetation cover if the establishment is not done correctly.</p> <p>This may render the land unusable to the land owners after completion of the area.</p>	Natural vegetation	Without mitigation					<p>Use sites with most disturbed vegetation cover for the development.</p> <p>No strip of topsoil and vegetation will be allowed during site establishment.</p>
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	<p>Ensure minimal disturbance of vegetation when conducting geophysical surveys and geological mapping.</p> <p>Any area that may result into the disturbance of the vegetation cover must be rehabilitated immediately on discovery.</p> <p>Pictures of possible plant species that may be present in the prospecting right area will be made available to the drilling crew for easy identification and avoidance. A species survey during the siting of drilling boreholes will be undertaken.</p>

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
<b>PRE-CONSTRUCTION AND CONSTRUCTION PHASES</b>							
<p>Animal burrows and habitats remaining within the proposed development site may be destroyed during construction. This may result in the migration of remaining animal life away from the affected areas.</p> <p>Poaching of wild animals and livestock by the labourers will result in the loss of wild live and loss of livestock to the land owner.</p>	Animal Life	Without mitigation					<p>Establishment of the site will be undertaken according to the prospecting method statement.</p> <p>No soil stripping will be allowed during site establishment.</p> <p>Any area that may result into the disturbance of the soils must be rehabilitated immediately on discovery.</p> <p>Use sites with most degraded environment for the site development.</p> <p>Poaching will be prohibited at the prospecting site.</p>
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	
<p>Exposure of soils during construction by the stripping of vegetation and soils may cause erosion, which may lead to increased silt loads in surface water runoff. This may result in the contamination of the clean water environment.</p> <p>Waste generated from the site may result in the contamination of surface and ground water should management of such waste not be undertaken.</p>	Surface and Ground Water	Without mitigation					<p>Site establishment will not be undertaken within sensitive landscapes, which sites will be avoided. A distance of 100 meters will be created between the sites and the sensitive landscapes.</p> <p>Avoid stripping of areas within the construction sites.</p> <p>Rehabilitate areas that may have been mistakenly stripped.</p> <p>Storm water upslope of the campsite and drill sites should be diverted around these areas.</p> <p>Proper waste management facilities will be put in place at the campsite and drilling site.</p> <p>Any hydrocarbon spill from the site establishment will be</p>
		S	L	S	M	M	
		With mitigation					
		S	L	S	L	L	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
<b>PRE-CONSTRUCTION AND CONSTRUCTION PHASES</b>							
							remediated as soon as possible.
Construction activities during the establishment of the site will include material loading and hauling. These activities will result in the mobilisation of particulates that will migrate away from the site to the nearby local residents. This may be a nuisance to the communities and will result in aesthetic impacts associated with fugitive dust emissions. On-site dust fall may have health and nuisance implications to employees at the existing offices.	Air Quality	Without mitigation					Ensure that source specific management measures for Waagkraal prospecting project are complied with.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	
The noise level generated from the construction activities may exceed the SANS 10103 Levels for Residential areas and may exceed the maximum rating levels for ambient noise indoors. This may have an impact in the surrounding residents and employees using/delivering the machinery.	Noise	Without mitigation					Ensure that proper management measures as well as technical changes are undertaken to reduce the impacts on surrounding residents and employees. This include ensuring that less noisy equipment are used, that equipment is kept in good working order and that the equipment must be fitted with correct and appropriate noise abatement measures and where possible use white-noise generators instead of tonal reverse alarms on heavy vehicles operating on roads.
		S	L	S	L	L	
		Without mitigation					
		S	L	S	L	N	
The activities undertaken during construction and associated infrastructure will be visible from the nearby roads and properties. However, due to the undulating	Visual Aspects	Without mitigation					Inform the land owner on the type of machinery and equipment to be used at the prospecting site.
		S	L	S	L	L	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
<b>PRE-CONSTRUCTION AND CONSTRUCTION PHASES</b>							
topography, visibility for the most part will most probably be restricted to short distances.		With mitigation					Ensure that lighting is conducted in manner that will reduce the impacts on visual aspects at night times.
		S	L	S	L	N	
The site may be located in close proximity to a heritage site and may result in the destruction of the identified heritage site.	Sites of Archaeological and Cultural Importance	Without mitigation					The establishment of the construction activities will be such that the development is always away from the any heritage sites.
		S	M	S	H	H	
		With mitigation					A buffer of more than fifty meters will be created between the grave yards and the proposed site development.  A management plan will be drafted for the sustainable preservation of the grave yard should graveyards be identified on site.  Any grave site must have access for descendants.
		S	L	S	L	L	
The commencement of the proposed area may result in an influx of 'outsiders' seeking jobs, which may be caused by increase in local unemployment levels. This may result in the have potential increase in crime. It must however be noted that prospecting activities would unlikely attract job seeker due to its small nature of its scale.	Socio economic aspects	Without mitigation					Recruitment will not be undertaken on site.  Farm labourers will not be employed unless agreed to with the farm owners.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	

**6.3.1.2 Operational Phase**

NATURE OF THE IMPACT	ENVIRONMENTAL COMPONENT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
<b>OPERATIONAL PHASE</b>							
<b>Drilling and rehabilitation of the exploration boreholes</b>							
Topsoil removal, storage and replacement during the excavation of the sumps will result. This will result in the disruption of the soils profile.	Soils	Without mitigation					Ensure that topsoil is properly stored, away from the streams and drainage areas. The soils must be used for the backfilling and rehabilitation of the sumps. The rehabilitated sump must be seeded with recommended seed mix.
		S	M	S	L	L	
		With mitigation					
		S	L	S	L	N	
		S	L	S	L	L	
The use of vehicles during the siting, pegging and drilling of the exploration boreholes may result in the spillages of hydrocarbon liquids from the vehicles and machinery. This will result in the contamination of the vegetation cover and soils.	Natural Vegetation and Soils	Without mitigation					Ensure that the drilling of the exploration boreholes are done in such a manner that the environment is protected from probable spillages. All boreholes and sumps will be rehabilitated to pre-drilling conditions. Tarpaulins will be placed on the ground to prevent oil, grease, hydraulic fluid and diesel spills during emergency repairs. All oil spills will be remedied using approved methodologies. The contaminated soils will be removed and disposed of at a
		S	M	S	M	M	
		With mitigation					
		S	L	S	L	L	

NATURE OF THE IMPACT	ENVIRONMENTAL COMPONENT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
<b>OPERATIONAL PHASE</b>							
							<p>licensed waste disposal facility.</p> <p>Pictures of possible plant species that may be present in the prospecting right area will be made available to the drilling crew for easy identification and avoidance. Plant species identification will be undertaken during the sitting of the exploration boreholes.</p> <p>All waste generated from the drilling sites and the campsite will be collected in proper receptacles and removed to a registered disposal facility e.g., sewage treatment plant, solid waste disposal site or hydrocarbon recycling or treatment facilities.</p>
Animal burrows and habitats will be destroyed by the preparation of the backfilling sites. This will further result in the migration of animals away from these areas of disturbance.	Animal Life	Without mitigation					<p>The rehabilitation of the disturbed areas must be conducted such that the rehabilitated areas will encourage the migration of animals back into the rehabilitated areas.</p> <p>Poaching of wild animals and livestock will be prohibited.</p>
		S	L	S	L	L	
		Without mitigation					
		S	L	S	L	N	
The drilling operations may result in the generation of surface water runoff contaminated with drilling muds and cuttings should spillages	Surface Water	Without mitigation					<p>No prospecting operations will be undertaken within 100 metres from the nearby steams and wetland areas. The sumps will be excavated for the collection mud and excess</p>
		S	L	S	M	L	

NATURE OF THE IMPACT	ENVIRONMENTAL COMPONENT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
<b>OPERATIONAL PHASE</b>							
occur. The sedimentation will have negative impacts on the surrounding clean water environment. This will cause an increase in the turbidity of the water in the streams, which will affect the aquatic habitat of the wetland, hence important habitats may be lost.		With mitigation					water from the drilling sites. The sump will be sized such that it will be able to contain the water and mud that will be generated during the prospecting operation. Storm water generated around the drilling site will be diverted away to the clean water environment. No concrete mixing and vehicle maintenance will be allowed on site. All hydrocarbons will be stored on protected storage areas away from the streams.
		S	L	S	L	L	
The prospecting operations will require the drilling of boreholes. The boreholes may result in the drawdown, which may affect the yield to the surrounding groundwater users. Material used for backfilling may leach pollutants that will result in the pollution of the surrounding groundwater regime. This may even spread beyond the backfilling site via plume migration.	Groundwater	Without mitigation					Ensure that the land owners' borehole yield is observed during the drilling operation. Should it be proven that the operation is indeed affecting the quantity and quality of groundwater available to users and surrounding water resources, the affected parties must be compensated.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	
The prospecting operation will require vehicular movement. This will result in the generation of dust by movement of vehicles and due to blowing winds. Vehicles and machinery will also generate diesel or petrol fumes. Generated dust will migrate	Air Quality	Without mitigation					Dust suppression must be conducted during the operational phase of the area should excessive dust be generated.
		S	L	S	L	L	
		With mitigation					Vehicle maintenance must be conducted regularly to avoid

NATURE OF THE IMPACT	ENVIRONMENTAL COMPONENT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
<b>OPERATIONAL PHASE</b>							
towards the predominant wind direction and may settle on surrounding properties including nearby vegetation.		S	L	S	L	N	excessive diesel fumes.
Noise generated from prospecting operations activities may add to the current noise levels. This may have impacts on surrounding property owners and occupiers.	Noise	Without mitigation					Ensure that proper management measures as well as technical changes are undertaken to reduce the impacts on surrounding residents and employees. This include ensuring that less noisy equipment is use, that equipment is kept in good working order and that the equipment must be fitted with correct and appropriate noise abatement measures and where possible use white-noise generators instead of tonal reverse alarms on heavy vehicles operating on roads. Correct speed will be maintained at the proposed area site. Limit operation of machinery and vehicle movement between sunrise and sunset.
		S	L	S	M	L	
		With mitigation					
		S	L	S	L	L	
The drill rigs and towers used during the drilling operations will be visible from the nearby residents and properties.	Visual Aspects	Without mitigation					Ensure that the period used for the drill rigs is optimised to ensure that the drill rigs are moved from one site to another over short periods.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	



NATURE OF THE IMPACT	ENVIRONMENTAL COMPONENT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
<b>OPERATIONAL PHASE</b>							
Operation may affect the day to day operation of the land owners hence result in direct impact on their livelihood.	Socio economic aspects	Without Mitigation					Ensure that all safety measures (EMPR) are implemented to prevent the impacts on the property owners. Ensure that negotiations on compensation are undertaken before the drilling programme can commence. This will include any other conditions that the landowner may deem necessary for the prospecting operation.
		S	L	S	L	L	
		With Mitigation					
		S	L	S	L	N	
Operation will result in the employment of locals and support on local businesses.	Socio economic aspects	Positive					The applicant will ensure that as far as possible locals will be used during the operation of the prospecting area.
The drilling operation may result in the destruction of graves and any other heritage sites during operational phase of the area.	Sites of archaeological and cultural importance	Without Mitigation					Locate exploration borehole more than one hundred meters from the identified heritage sites.  Should any cultural or heritage materials be identified, these areas will be demarcated and treated as no-go areas during the prospecting activities. Detailed heritage studies would then be undertaken if it is deemed that these sites would be affected by the prospecting activities. Any finds will be reported to the nearest National Monuments office to comply with the National Heritage Resources Act (Act No 25 of 1999) and to DEA. Local museums as well as the South African Heritage Resource Agency (SAHRA) will be informed if any artefacts are uncovered in the affected area.
		S	M	S	H	H	
		With Mitigation					
		S	S	S	L	L	

NATURE OF THE IMPACT	ENVIRONMENTAL COMPONENT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
<b>OPERATIONAL PHASE</b>							
							The prospecting workforce will be made aware of the necessity of reporting any possible historical or archaeological finds to the ECO so that appropriate action can be taken. Any discovered artefacts shall not be removed under any circumstances. Any destruction of a site can only be allowed once a permit is obtained and the site has been mapped and noted. Permits shall be obtained from the South African Heritage Resources Association (SAHRA) should the proposed site affect any world heritage sites or if any heritage sites are to be destroyed or altered.

**6.3.1.3 Decommissioning and Closure Phases**

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
<b>DECOMMISSIONING AND CLOSURE PHASES</b>							
<b>Decommissioning of prospecting site (Site Rehabilitation)</b>							
The removal of the campsite equipment and the rehabilitation of the drilling sites and associated access infrastructure will result in the affected soil and land use being restored. This will also result in the resumption of the use of the land since the infrastructure would have been removed.	Soils, Land Capability and Land Use	Positive impact					Ensure that rehabilitation is conducted in accordance with a rehabilitation method statements approved by the mine management. See description of the rehabilitation plan and management actions in the EMPR.  Ensure that contamination of the rehabilitate area by carbonaceous material and hydrocarbon liquids are prevented.
Positive impacts will result due to the reduction in areas of disturbance and the return of land use of the affected areas and making available an area that was covered by the campsite and drilling sites.	Land Use	Positive impact					

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
<b>DECOMMISSIONING AND CLOSURE PHASES</b>							
<p>The use of vehicles/machinery during the rehabilitation of the exploration sites may result in compaction of soils and in the spillages of hydrocarbon liquids from the vehicles and machinery. This will result in the contamination and destruction of the vegetation cover and soils.</p>	<p>Soils and Natural Vegetation</p>	Without mitigation					<p>Ensure that the rehabilitation work is done in such a manner that the environment is protected from probable spillages. All boreholes and sumps will be rehabilitated to pre-drilling conditions.</p> <p>Tarpaulins will be placed on the ground to prevent oil, grease, hydraulic fluid and diesel spills during emergency repairs. All oil spills will be remedied using approved methodologies. The contaminated soils will be removed and disposed of at a licensed waste disposal facility.</p> <p>All waste generated from the rehabilitation sites will be collected in proper receptacles and removed to registered disposal facilities e.g., sewage treatment plant, solid waste disposal site or hydrocarbon recycling or treatment facilities.</p>
		S	M	S	M	M	
		With mitigation					
		S	L	S	L	L	
<p>During the decommissioning and closure phases equipment will be removed, stockpiled soils will be used for rehabilitation, remaining sumps will be backfilled, levelled, topsoiled and the area re-seeded. During the process of rehabilitation surface water runoff from the rehabilitation site may have elevated silt load, which may cause pollution of the nearby water</p>	<p>Surface Water</p>	Without mitigation					<p>Ensure that water leaving the site do not have elevated silt load.</p> <p>Ensure that the rehabilitated areas are free draining and that water from these areas is clean.</p>
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
<b>DECOMMISSIONING AND CLOSURE PHASES</b>							
environment.							
Rehabilitation and removal of the prospecting sites and equipment will require vehicular movement. This will result in the generation of dust by movement of vehicles and due to blowing winds. Vehicles and machinery will also generate diesel or petrol fumes. Generated dust will migrate towards the predominant wind direction and may settle on surrounding properties including nearby vegetation.	Air Quality	Without mitigation					Dust suppression must be conducted during the decommissioning phase of the area whenever excessive dust is generated.  Correct speed will be maintained at the proposed area rehabilitation sites.  Vehicle maintenance must be conducted regularly to avoid excessive diesel fumes.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	
Noise will be generated during the removal of equipment and rehabilitation of the sites. This noise is not expected to exceed occupational noise limits and will be short lived.	Noise	Without mitigation					Where necessary, provide employees with ear plugs and employees must be instructed to use the ear plugs.  Ensure that equipment is well maintained and fitted with the correct and appropriate noise abatement measures.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	

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## **6.4 SUMMARY OF SPECIALIST REPORTS**

Since desktop information was used, no specialist studies were conducted for the proposed area.

## **6.5 ENVIRONMENTAL IMPACT STATEMENT**

National Treasure Minerals (Pty) Ltd has applied for a prospecting right over the Waagkraal prospecting project. The prospecting operation will involve the exploration for minerals applied for within the prospecting right area. Diamond core drilling will be used for the exploration and a campsite will be established on site. Each drilling site will have an access route in the form of a track or existing road and a sump for the collection of waste water generated during the drilling operation.

### **6.5.1 Description of affected environment**

The proposed project is situated within the Wolmaransstad region situated in an area characterised by elevated undulating plateau with rivers such as the Vaal River. A variety of soil types were identified within the project area, which include recharge, interflow and responsive soils. The land uses over the project area correspond to the soils found in the area and include mainly agriculture (grazing) and wilderness with limited industrial and residential stands. Due to the above land uses significant change has occurred on the natural vegetation within the proposed Waagkraal Prospecting area, with most of the area being grazing land.

### **6.5.2 Summary of key findings of the environmental impact assessment**

During the proposed prospecting operation significant impacts may occur on soils, natural vegetation, surface water, groundwater, sensitive landscapes, air quality, noise, visual aspects, and sites of archaeological and cultural importance. Alternatives considered for the location campsite and drilling sites has shown that the selected locations would be the most favourable. National Treasure Minerals (Pty) Ltd will undertake measures to ensure that the identified impacts are minimised. Assessment of the impacts with the proposed mitigation measures has shown the significance of the impacts on all affected environmental aspects to be reduced from to low and negligible significance.

Land use will not change. Several landowners and land occupiers within the proposed area may be affected although on a temporary basis due to the need to access the sites and establishment and use of the campsite. Measures such as safety along the roads and dust suppression will be undertaken to ensure that the impacts on the land owners and land occupiers are minimised.

Storm water runoff from the drilling sites, its associated surface infrastructure (campsite) may have a detrimental impact on the surrounding water environment should this water be released to the environment. In order to prevent the occurrence of the above-mentioned impacts, dirty water collection sump will be used to collect all dirty water from the drilling site. The water collected from the sump will be re-used, evaporated and the sump will be rehabilitated once the drilling is finished.

All workers will be housed in the campsite to be established on site. The employees will be given strict instruction not to undertake activities that will affect the environment and that may have an impact on the landowner. Waste generated from the site will be collected in proper receptacle and disposed of in registered waste disposal sites. Agreements will be reached with landowners where the campsite will be sited.

### **6.5.3 Final Master Layout Plan**

The final maps showing the layouts of the proposed area will be submitted to the DMRE on granting of the prospecting right. The map will be developed to superimpose the proposed prospecting area together and associated infrastructure with the environmental sensitivities within the proposed area site.

## **6.6 ASPECTS FOR INCLUSION AS CONDITIONS OF THE ENVIRONMENTAL AUTHORISATION**

In authorising the proposed Waagkraal prospecting project, the following conditions should form part of the environmental authorisation:

- National Treasure Minerals (Pty) Ltd may not alter the location of any of the area activities included in this environmental impact assessment without obtaining the required environmental authorisation to do so under NEMA.
- National Treasure Minerals (Pty) Ltd will not undertake any new activity that was not part of this environmental impact assessment and that will trigger a need for an environmental authorisation without proper authorisation.
- National Treasure Minerals (Pty) Ltd must, where necessary, undertake specialists' studies, management procedures and method statement should the need arise.
- The EMPR must be implemented fully at all stages of the proposed area
- National Treasure Minerals (Pty) Ltd must limit night-time operations. This would be relevant for all work taking place at night within 150m from the closest receptors in this community. If night work is conducted, such must be conducted in agreement with the land owners and affected parties (lawful land occupier and labours).

## **6.7 DESCRIPTION OF ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE**

The EIA Regulations, 2014 outline specific requirements that a description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures must be provided in the BAR.

The assessments undertaken are based on conservative methodologies and these methods attempts to determine potential negative impacts that could occur on the affected environmental aspects. These impacts may however be of smaller magnitude than predicted, while benefits could be of a larger extent than predicted.

This section outlines various limitations to the specialist studies that have been undertaken and indicates, where appropriate, the adequacy of predictive methods used for the assessment. This has been done to provide the authorities and interested and affected parties with an understanding of how much confidence can be placed in this impact assessment.

The EIA has investigated the potential impact on key environmental media relating to the specific environmental setting for the site. A number of desktop assessment were undertaken and result thereof and are presented in this report.

The information provided in this BAR and EMPR is therefore considered sufficient for decision-making purposes.

## **6.8 REASONED OPINION AS TO WHETHER THE PROPOSED AREA SHOULD OR SHOULD NOT CONTINUE**

### **6.8.1 Reason why the activity should be authorised or not**

According to the impact assessment undertaken for the proposed area, the key impacts of the area are on soils, natural vegetation and land owners/occupiers.

The area will also have positive impacts due to the employment to be created although for a short term.

The public will also be requested for their comments. All comments to be received during Public Participation Process will be included in this BAR and EMPR. These comments will be addressed the as far as possible to the satisfaction of the interested and affected parties.

The management of the impacts identified in the impact assessment for all phases of the proposed area will be undertaken through a range of programmes and plans contained in the EMPR. In consideration of the programmes and plans contained within the EMPR, layouts and method statements compiled for the area, which is assumed will be effectively implemented, there will be significant reduction in the significance of potential impacts.

Based on the above, it is therefore the opinion of the EAP that the activity should be authorised.

### **6.8.2 Conditions that must be included in the authorisation**

See section 6.6 above.

## **6.9 PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION**

Based on the prospecting method statement, the environmental authorisation should be given for five years.

## **6.10 UNDERTAKING**

The signed undertaking will be presented to the DMRE on execution of the prospecting right.

## **6.11 FINANCIAL PROVISION**

According to Appendix 3 of the EIA Regulations, 2014, where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts must be provide in the BAR and EMPR. In order to avoid duplication, the financial provision for the proposed area has only been provided under the relevant section of the EMPR.

## **6.12 OTHER INFORMATION REQUIRED BY THE COMPETENT AUTHORITY**

Aside from the BAR and EMPR no other information has been requested by the competent authority.



### **6.13 OTHER MATTERS REQUIRED IN TERMS OF SECTION 24 (4) (A) AND (B) OF THE ACT**

Any matter required in terms of the above section of the Act will be complied with by National Treasure Minerals (Pty) Ltd.

# **PART B**

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## **Environmental Management Programme**

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## 1. DETAILS OF THE EAP

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The details of the EAP are provided in section 1.1 of part A of this document

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## 2. DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

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The requirements to describe the aspects of the activity are covered by the environmental management programme and are included in PART A of the document under section 1. The reader is therefore referred to section 1 of PART A of this document.

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## 3. COMPOSITE MAP

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The map superimposing the proposed area, its associated structures and infrastructure on the environmental sensitivities of the preferred site will be provided on approval of the EMPR. Note that all areas that must be avoided due to their environmental sensitivity will be indicated in the map.

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## 4. DESCRIPTION OF THE MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

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### 4.1 General Closure Principles and Objectives

The following are the closure objectives, general principles and objectives guiding closure of the Waagkraal prospecting project closure planning:

- Rehabilitation of areas disturbed as a consequence of prospecting to a land capability that will support and sustain a predetermined post-closure land use;
- Removal of all infrastructure/equipment that cannot be beneficially re-used, as per agreements established, and returning the associated disturbed land to the planned final land use;
- Removal of existing contaminated material from affected areas;
- Establishment of final landforms that are stable and safe in the long run;
- Establishment and implementation of measures that meet specific closure related performance objectives;
- Treatment of mine-affected water to ensure compliance with all relevant standards and supply
- Monitoring and maintenance of rehabilitated areas forming part of site closure to ensure the long-term effectiveness and sustainability of measures implemented.

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#### **4.2 Management of Environmental Damage, Environmental Pollution and Ecological degradation caused by the Waagkraal prospecting project Activities**

The following actions will be undertaken by National Treasure Minerals (Pty) Ltd to ensure that the closure objectives are attained.

#### **4.3 Infrastructure Areas**

- All infrastructure and equipment used during the prospecting operation will be removed from the site.
- All tracks that were used for access the drilling sites will be allowed to re-establish to its pre-prospecting condition. Should unsatisfactory results be noted, the area will be physically rehabilitated.
- All rehabilitated areas will be maintained for a period of 2 years, where after the frequency will be reassessed. Where necessary, vegetation cover will be maintained by annual application of fertiliser.
- Maintenance with respect to erosion will be conducted on a minimum three-monthly basis if and where required.

#### **4.4 Buildings (Offices, Workshops and Stores)**

Mobile structures will be used and such structures will be removed from the sites during decommissioning of the site.

#### **4.5 Potential Risk of Acid Mine Drainage**

No potential risk of acid mine drainage.

#### **4.6 Steps taken to Investigate, Assess and Evaluate the Impacts of the Acid Mine Drainage**

Since there is no risk of acid mine drainage, there will be no need for steps to be taken to investigate, assess and evaluate the impacts of acid mine drainage.

#### **4.7 Engineering and designs Solutions to be Implemented to Avoid or Remedy Acid Mine Drainage**

Since there is no risk of acid mine drainage, there will be no need for engineering and designs solutions to be implemented to avoid or remedy acid mine drainage.

#### **4.8 Measures to Remedy Residual or Cumulative Impacts from Acid Mine Drainage**

Since there is no risk of acid mine drainage, there will be no need for measures to remedy residual or cumulative impacts from acid mine drainage.

#### **4.9 Volumes and Rates of Water Use Required for the Proposed Area**

Since there is no risk of acid mine drainage, this section will not applicable.

#### **4.10 Water Use Licence Application**

No water use activities will be undertaken during the proposed prospecting operation; hence no water use licence will be applied for.

## 5. ENVIRONMENTAL MANAGEMENT PROGRAMME

Table 5: Environmental Management Programme for the proposed Waagkraal prospecting project.

Impact Reference	Activity	Environmental Attribute	Impact Objectives	Management	Targets (Impact Management Outcomes)	Management Interventions	Actions and	Responsibility for Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
<b>PRE-CONSTRUCTION AND CONSTRUCTION PHASES</b>											
<b>Establishment of access, to prospecting sites, establishment of the campsite, physical surveying of the site and pegging of drilling boreholes</b>											
Loss of soils, erosion of the soils and impacts on land owner's livelihood.	Soils, Land Use and Land Capability	To ensure that the activities in the development of the prospecting sites and associated infrastructure do not have detrimental impacts on the soils, land use and land capability.	Ensure that the establishment of the prospecting sites is undertaken in accordance with the approved EMPr.  All instituted buffer zones will be respected and adhered to.	Establishment of the site will be undertaken according to the approved prospecting method statement.  No soil stripping will be allowed during site establishment.  Should it be necessary to conduct geophysical surveys and geological mapping, ensure minimal disturbance of soil.  Any area that may result into the disturbance of the soils must be rehabilitated immediately on discovery.  Machinery to be used for the operation will be of good working conditions. Any hydrocarbon spill from the site establishment will be remediated as soon as possible.  Use sites that are unused and that are in the degraded state for the proposed development. This must be done in agreement with the land owner. The sitting of the boreholes must be conducted such that ensure that rocky ridges, sensitive grass lands, indigenous trees and shrubs, sites of geological importance and farmlands	Appointed contractor and site manager.	Visual monitoring through inspections.	Environmental Control Officer (ECO) during construction.	During construction phase.			
					Appointed contractor.	Visual monitoring and inspections	ECO monthly.	During construction phase.			
					Appointed contractor.	Visual monitoring and inspections.	ECO monthly.	During construction phase.			
					Appointed contractor and the appointed site manager.	Visual monitoring and inspections.	ECO monthly.	During construction phase.			
					Appointed contractor.	Visual monitoring and inspections	ECO monthly.	During construction phase.			
					Appointed contractor.	Undertake regular inspections.	ECO monthly.	During construction phase.			

Impact Reference	Activity	Environmental Attribute	Impact Objectives	Management	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility for Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
						actively used for crop farming are avoided.				
Loss of natural vegetation in the affected areas.		Flora	To ensure that the establishment of the prospecting site and associated infrastructure/equipment do not have detrimental impact on the area's flora.		The management of the impact will comply with the company's biodiversity management plan. Ensure that protected species should they be identified are not destroyed.	Use sites with most disturbed vegetation cover for the development. No strip of topsoil and vegetation will be allowed during site establishment. Ensure minimal disturbance of vegetation when conducting geophysical surveys and geological mapping. Any area that may result into the disturbance of the vegetation cover must be rehabilitated immediately on discovery. Before the drilling activities can commence, a biodiversity specialist must do a site inspection on the proposed marked drilling sites (proposed boreholes) to assess if there are no protected and/or critical natural vegetation. If any protected and/or critical natural vegetation occurs, the location of the proposed boreholes must be changed.	Appointed contractor and site manager. Appointed contractor and site manager. Appointed contractor and site manager. Appointed contractor and site manager. Appointed specialist.	Visual monitoring and inspections. Visual monitoring and inspections. Visual monitoring and inspections. Visual monitoring and inspections. A report with recommendations will be produced by the specialist.	ECO monthly. ECO monthly. ECO monthly. ECO monthly. Once the drilling sites are sited and study conducted.	During construction phase. During construction phase. During construction phase. During construction phase. During phase of the drilling programme where the siting of drilling sites is undertaken.
Migration of animal life due to disturbance caused proposed area		Animal Life	Ensure that the animal life within in the area is not affected by the proposed area.		Maintenance of the current status on animal life within the area.	Establishment of the site will be undertaken according to the approved prospecting method statement. No soil stripping will be allowed during site establishment. Any area that may result into the disturbance of the soils must be rehabilitated immediately on discovery. Use sites with most degraded environment for the site development. Poaching will be prohibited at the	Appointed contractor and site manager. Appointed contractor and site manager. Appointed contractor and site manager. Appointed contractor	Visual monitoring and inspections. Visual monitoring and inspections. Visual monitoring and inspections. Visual monitoring	ECO monthly. ECO monthly. ECO monthly. ECO monthly.	During construction phase. During construction phase. During construction phase. During construction phase.

Impact Reference	Activity	Environmental Attribute	Impact Objectives	Management	Targets (Impact Management Outcomes)	Management Interventions	Actions and	Responsibility for Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
						prospecting site.  Before the drilling activities can commence, a biodiversity specialist must do a site inspection on the proposed marked drilling sites (proposed boreholes) to assess if there are no animal burrows and habitats. If any burrows or habitat exist, the location of the proposed boreholes must be changed.		and site manager.  Appointed specialist.	and inspections.  A report with recommendations will be produced by the specialist.	Once the drilling sites are sited and study conducted.	During phase of the drilling programme where the sitting of drilling sites is undertaken.
Deterioration of water quality in the nearby streams and within the groundwater regime.		Surface and Ground Water	Ensure that the establishment of the area and its associated infrastructure does not have detrimental impact on nearby stream and the groundwater regime.		The quality of streams and groundwater within the site will comply with the target DWS target water quality objectives.  Construction will be in compliance with the regulations under the GN704.	Site establishment will not be undertaken within sensitive landscapes. These areas will be avoided. A distance of 100 meters will be created between the sites and the sensitive landscapes, which include all watercourses. Avoid stripping of areas within the construction sites.  Rehabilitate areas that may have been mistakenly stripped.  Storm water upslope of the campsite and drill sites will be diverted around these areas.  Proper waste management facilities will be put in place at the campsite and drilling site. Any hydrocarbon spill from the site establishment will be remediated as soon as possible.  The applicant must also apply for a GA before drilling within 500m of nearby streams and/or wetlands.		Appointed contractor and site manager.  Appointed contractor and site manager.  Appointed contractor and site manager.  Appointed contractor and site manager.  Appointed contractor	Regular inspections  Regular inspections  Regular inspections  Regular inspections  General Authorisation report/license	ECO monthly.  ECO monthly.  ECO monthly.  ECO monthly.  Once the drilling sites are sited and GA applied for.	During construction phase.  During construction phase  During construction phase  During construction phase.  During construction phase.
Wetland destruction and loss of habitat.		Sensitive Landscapes	Ensure that the construction activities do not have detrimental impacts on the sensitive landscapes.		Maintain the current state of the sensitive landscapes within the area (farm dams and	Construction activities will be limited to be more than hundred meters from the edge of the dams and seepage zone.		Appointed contractor and site manager.	Inspection to ensure compliance with the action plan will	ECO will conduct the inspections monthly.	Whenever construction is undertaken near the sensitive landscapes.



Impact Reference	Activity	Environmental Attribute	Impact Objectives	Management (Impact Management Outcomes)	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility for Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
					seepage zone).	The applicant must also apply for a GA before drilling within 500m of nearby streams and/or wetlands.	Appointed contractor	be conducted at the construction site. General Authorisation report/license	Once the drilling sites are sited.	Whenever construction is undertaken near the sensitive landscapes.
Air pollution through air pollutants' emissions, from the construction site.		Air quality	Ensure that all operations during the construction phase do not result in detrimental air quality impacts.	The construction will be undertaken such that the ambient air quality does not exceed the National Air Quality Standards.	Wet suppression will be conducted at areas with excessive dust emissions.  Traffic will be restricted to demarcated areas and traffic volumes and speeds within the construction site will be controlled.	Appointed contractor and site manager.  Appointed contractor and site manager.	Visual inspections of areas with possible dust emissions.  Regular inspections.	ECO monthly.  ECO monthly.	Throughout the construction phase.  Throughout the construction phase.	
Increased noise levels.		Noise aspects	Ensure that the noise levels emanating from the construction sites will not have detrimental effects on the mine employees and surrounding communities/land owners.	The noise levels from the construction sites will be managed and measures will be taken to ensure that noise levels are below the National Noise Control Regulations, SANS10103:2008 guidelines.	Limit the maximum speed to 60 km/h or less, subject to risk assessment. Well maintained equipment that are kept in good working order will be used. This equipment will be fitted with correct and appropriate noise abatement measures.  Ensure that the employees are issued with earplugs and that they are instructed to use them.  Educate employees on the dangers of hearing loss due to mine machinery noise.	Appointed contractor and site manager.  Site manager.  Site manager.	Undertake site checks on speeds used.  Speed checking will be conducted.  Use of earplugs will be checked and reported.	Site manager.  Site manager checking as regularly as possible.  Site manager will check the use of the earplugs as regularly as possible.	Throughout the construction phase.  Throughout the duration of the construction phase  Throughout the duration of the construction phase.	
Visual impacts on the surrounding communities and road users from the construction.		Visual aspects	Ensure that all operations during the construction phase do not result in detrimental visual impacts on surrounding properties, communities and road users.	Measures will be undertaken by the mine to ensure that the visual aspects from the site are complying with the relevant visual standards and objectives.	The land owner will be informed on the type of machinery and equipment to be used at the prospecting sites.  Lighting will be conducted in manner	Applicant and site manager.  Appointed contractor.	The constructed perimeter berms will be inspected for compliance with the design specifications.  Night time	Mine Engineer on a monthly basis.  The site manager	Throughout the construction phase.  During construction phase.	

Impact Reference	Activity	Environmental Attribute	Impact Objectives	Management	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility for Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
						that will reduce the impacts on visual aspects at night times.		inspection of the site will be undertaken.	once	
Damage or destruction of sites with archaeological and cultural significance.		Sites of archaeological and cultural importance	Ensure that the construction activities do not have detrimental impacts on the heritage sites.		The construction will be undertaken in compliance with the requirements of the National Heritage Resources Act, 1999 (Act 25 of 1999) and recommendations from the specialist.	The establishment of the sites will be away from any identified grave site or heritage sites. A buffer of hundred meters will be created between the sites and the proposed camp and drilling sites.	Appointed contractor and site manager.	The site will be monitored for any damages on a regular basis.	ECO monthly	Throughout the construction phase when activities are in close proximity to the heritage sites.
Impact from the influx of job seekers and employment of farm labourers.		Socio-economic aspects	Ensure that measures are taken to discourage influx of job seekers and employment of farm labourers.		Measures taken will be in line with the company's recruitment policies.	Recruitment will not be undertaken on site. Farm labourers will not be employed unless agreed to with the farm owners.	Appointed contractor and site manager.	Visual monitoring.	Site manager	Throughout the pre-construction and construction phase.
<b>OPERATIONAL PHASE</b>										
<b>Diamond Core drilling of the exploration boreholes, use of campsite and rehabilitation of the drilling sites</b>										
Soil profile disruption, contamination of soils, destruction of natural vegetation and loss of land use.		Soils, Natural Vegetation, Land Use and Land Capability.	Ensure that the operation of the drilling sites and use of campsite and rehabilitation of drilling site do not have detrimental impacts on the soils, natural vegetation and current land use.		The land use and capability of the sites where the operations will be undertaken will continue after the proposed area.	Ensure that the drilling of the exploration boreholes are conducted in such a manner that the environment is protected from possible spillages.  All boreholes and sumps will be rehabilitated to pre-drilling conditions.  Tarpaulins will be placed on the ground to prevent oil, grease, hydraulic fluid and diesel spills during emergency repairs. All oil spills will be remedied using approved methodologies. The contaminated soils will be removed and disposed of at a licensed waste disposal facility.  All waste generated from the drilling sites and the campsite will be	Appointed contractor and site manager.  Appointed contractor.  Appointed contractor	Regular inspections.  Regular inspections.  Regular inspections.	ECO monthly.  ECO monthly.  ECO monthly.	During the operational phase of the area.  During the operational phase of the area.  During the operational phase of the area.
							Appointed contractor	Inspection of the site will be	ECO monthly.	During the operational phase of the area.

Impact Reference	Activity	Environmental Attribute	Impact Objectives	Management	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility for Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
						<p>collected in proper receptacles and removed to registered disposal facilities e.g., sewage treatment plant, solid waste disposal site or hydrocarbon recycling or treatment facilities.</p> <p>Before the drilling activities can commence, a biodiversity specialist must do a site inspection on the proposed marked drilling sites (proposed boreholes) to assess if there are no protected and/or critical natural vegetation. If any protected and/or critical natural vegetation occurs, the location of the proposed boreholes must be changed.</p>	Appointed specialist	conducted.  A report with recommendations will be produced by the specialist.	Once the drilling sites are sited and study conducted.	During operational phase.
Migration of animal life due to disturbance caused proposed area		Animal Life	Ensure that the animal life within the area is not affected by the proposed area.		Maintenance of the current status on animal life within the area.	<p>Sites will be operated according to the approved prospecting method statement.</p> <p>As much as possible sites with degraded environment will be used for the drilling purposes.</p> <p>Poaching will be prohibited at the prospecting site.</p> <p>Before the drilling activities can commence, a biodiversity specialist must do a site inspection on the proposed marked drilling sites (proposed boreholes) to assess if there are no animal burrows and habitats. If any burrows or habitat exist, the location of the proposed boreholes must be changed.</p>	<p>Appointed contractor and site manager.</p> <p>Appointed contractor and site manager.</p> <p>Appointed contractor and site manager.</p> <p>Appointed specialist</p>	<p>Visual monitoring and inspections.</p> <p>Visual monitoring and inspections.</p> <p>Visual monitoring and inspections.</p> <p>A report with recommendations will be produced by the specialist.</p>	<p>ECO monthly.</p> <p>ECO monthly.</p> <p>ECO monthly.</p> <p>Once the drilling sites are sited and study conducted.</p>	<p>During operational phase.</p> <p>During operational phase.</p> <p>During operational phase.</p> <p>During operational phase</p>
The drilling operation and use of campsite may result in the generation of surface water runoff contaminated with		Surface and Ground Water.	Ensure that the drilling operation does not have detrimental impacts on the surface and ground water environment.		Clean surface and ground water environment/ regime will not be affected.	<p>No prospecting operations will be undertaken within 100 metres from the nearby streams.</p> <p>The sumps will be excavated for the collection of mud and excess water from the drilling sites. The sump will</p>	<p>Appointed contractor and site manager.</p> <p>Appointed contractor and site manager.</p>	<p>Visual monitoring and inspections.</p> <p>Visual monitoring and inspections.</p>	<p>ECO monthly.</p> <p>ECO monthly.</p>	<p>During operational phase.</p> <p>During operational phase.</p>

Impact Reference	Activity	Environmental Attribute	Impact Objectives	Management	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility for Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
silt (sedimentation) and possibly hydrocarbon fluids should spillages occur.						<p>be sized such that it will be able to contain the water and mud that will be generated during the prospecting operation.</p> <p>Storm water generated around the drilling site will be diverted away to the clean water environment. No concrete mixing and vehicle maintenance will be allowed on site. All hydrocarbons will be stored on protected storage areas away from the streams.</p> <p>Ensure that the land owners' borehole yield is observed during the drilling operation. Should it be proven that the operation is indeed affecting the quantity and quality of groundwater available to users and surrounding water resources, the affected parties must be compensated.</p> <p>The applicant must also apply for a GA before drilling within 500m of nearby streams and/or wetlands.</p>	<p>Appointed contractor and site manager.</p> <p>Appointed contractor and site manager.</p> <p>Appointed contractor</p>	<p>Visual monitoring and inspections.</p> <p>Regular meetings with landowners.</p> <p>General Authorisation report/license</p>	<p>ECO monthly.</p> <p>Site manager</p> <p>Once the drilling sites are sited.</p>	<p>During operational phase.</p> <p>During operational phase.</p> <p>Whenever drilling is taking place near sensitive landscapes.</p>
Generation of dust and fuel fumes by vehicular movement.		Air quality.	Ensure that the air quality in the vicinity of the prospecting sites and sites' access routes are not detrimentally altered.		The air quality in the vicinity of the drilling sites and sites' access routes will be maintained to stay within the national air quality standards.	<p>Dust suppression must be conducted during the operational phase of the area.</p> <p>Correct speed (60 km/h or less) will be maintained at the proposed area site.</p> <p>Vehicle maintenance must be conducted regularly to avoid excessive diesel fumes.</p>	<p>Appointed contractor and site manager.</p> <p>Appointed contractor and site manager.</p> <p>Appointed contractor and site manager.</p>	<p>Visual inspections of areas with possible dust emissions.</p> <p>Regular speed checks.</p> <p>Regular inspections.</p>	<p>ECO monthly.</p> <p>Site manager monthly.</p> <p>ECO monthly.</p>	<p>Throughout the operational phase.</p> <p>Throughout the operational phase.</p> <p>During operational phase.</p>
Wetland destruction and loss of habitat.		Sensitive Landscapes.	Ensure that the drilling operation does not have detrimental impacts on the		Maintain the current state of the wetlands within the area.	Operation of the drilling site will be limited to be more than hundred meters from the edge of the sensitive	Appointed contractor.	Inspection to ensure compliance with	ECO monthly.	During operational phase.

Impact Reference	Activity	Environmental Attribute	Impact Objectives	Management (Impact Management Outcomes)	Management Actions and Interventions	Responsibility for Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
			farms dams and identified seepage zone.		landscapes.  The applicant must also apply for a GA before drilling within 500m of nearby streams and/or wetlands.	Appointed contractor	the action plan.  General Authorisation report/license	Once the drilling sites are sited.	Whenever drilling is taking place near sensitive landscapes.
Increased noise levels.	noise	Noise aspects.	Ensure that the noise levels emanating from the operational sites will not have detrimental effects on the mine employees and surrounding communities/land owners.	The noise levels from the sites will be managed and measures will be taken to ensure that noise levels are below the National Noise Control Regulations, SANS10103:2008 guidelines.	Limit the maximum speed to 60 km/h or less, subject to risk assessment. Less noisy equipment will be used, the equipment will be kept in good working order and the equipment will be fitted with correct and appropriate noise abatement measures.  Ensure that the employees are issued with earplugs and that they are instructed to use them.  Educate employees on the dangers of hearing loss due to mine machinery noise.	Appointed contractor and site manager.  Site manager.  Appointed contractor.	Site checks regularly.  Regular monitoring and site check.  Use of earplugs will be checked and reported.	Site manager.  Site manager.  Site manager.	During operational phase.  During operational phase.  During operational phase.
Visual impacts on the surrounding communities and road users from the construction.		Visual aspects.	Ensure that the drilling operations do not result in detrimental visual impacts on surrounding properties, communities and road users.	Measures will be undertaken by the mine to ensure that the visual aspects from the site are complying with the relevant visual standards and objectives.	The land owner will be informed on the type of machinery and equipment to be used at the prospecting sites.  Lighting will be conducted in manner that will reduce the impacts on visual aspects at night times.	Applicant and site manager.  Appointed contractor.	The constructed perimeter berms will be inspected for compliance with the design specifications.  Night time inspection of the site will be undertaken.	Mine Engineer on a monthly basis.  The site manager once	During operational phase.  During operational phase.
Damage or destruction of sites with archaeological and cultural significance.		Sites of archaeological and cultural importance.	Ensure that the operational activities do not have detrimental impacts on the heritage sites.	The drilling operations will be undertaken in compliance with the requirements of the National Heritage Resources Act, 1999 (Act 25 of 1999) and recommendations from the specialist.	The drilling sites will be away from any identified grave site or heritage sites. A hundred-meter buffer will be created between the sites and the proposed camp and drilling sites.	Appointed contractor.	The site will be monitored for any prospecting related damages on a regular basis.	ECO monthly.	Throughout the operational phase.
Safety, intrusion		Socio-economic	Ensure that the drilling	The mine will ensure that	Announce any road closures and	Appointed contractor	Liaison with	Site manager as	Throughout the operational

Impact Reference	Activity	Environmental Attribute	Impact Objectives	Management	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility for Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
	and livelihood impacts on the landowners and occupiers.	aspects.	operation does not significantly disrupt the daily living and movements of the land owners and occupiers.		all safety standards are met and that access to landowners and occupiers are not detrimentally affected.	other disruptions and maintain roads used for the operation in good order.  Keep communication with land owners and land occupiers open during the operational phase of the area. Ensure that negotiations on compensation are undertaken before the drilling programme can commence. This will include any other conditions that the landowner may deem necessary for the prospecting operation.  Ensure that safety measures are implemented to prevent impacts on land owners and occupiers.	and site manager.  Applicant and site manager.  Site manager.	affected parties.  Meetings with the landowners. Minutes of any meeting held with landowners and agreements will be recorded and filed.  Regular checks and inspections.	and when necessary.  Site manager as and when meetings are held.  Site manager.	phase.  Throughout the operational phase.  Throughout the operational phase.
<b>DECOMMISSIONING AND CLOSURE PHASE</b>										
<b>Removal of infrastructure and final rehabilitation of disturbed areas</b>										
	Compaction and contamination of soils within the rehabilitation site.	Soils.	Ensure that the soils in the vicinity of the rehabilitation site is not detrimentally impacted.		Rehabilitated areas will be maintained to comply with the closure objectives.	All vehicles and machinery used at the rehabilitation site will be kept in good working order.  No repairs of vehicles or machinery will be conducted at the rehabilitation site unless it is emergency repairs, which will be conducted on protected ground.  Movement of mine vehicles and machinery will be limited to demarcated routes, which will be rehabilitated when no longer in use.	Appointed contractor.  Appointed contractor.  Appointed contractor.	Vehicles and machinery will be inspected regularly and any oil incidences will be reported.  All incidents of emergency repairs will be inspected and occurrence recorded.  Rehabilitation site will be inspected to monitor areas with compaction or hydrocarbon contamination.	Site manager will conduct the inspections monthly.  Site manager.  ECO will conduct the inspections monthly.	Throughout the decommissioning and closure phases.  Throughout the decommissioning and closure phases.  Throughout the decommissioning and closure phases.
	Re-instatement of soil productivity,	Soils, Land Capability, Land	Ensure that the rehabilitation of the sites re-instate the soil		Rehabilitated areas will be maintained to comply	All infrastructure will be removed from the site in accordance to the	Appointed contractor.	Removal of the infrastructure will	Site manager will conduct the	During decommissioning phase.

Impact Reference	Activity	Environmental Attribute	Impact Objectives	Management (Impact Outcomes)	Management Actions and Interventions	Responsibility for Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
land capability, land use and topographical patterns.	Use and Topography.	productivity, land capability, land use and topographical patterns	with the closure objectives.	rehabilitation plan.			be inspected.	inspections.	
Pollution of surface water environment.	Surface Water.	Ensure that the rehabilitation of the site does not have detrimental impacts on the surface water environment.	The surface water leaving the rehabilitation site will comply with the DWS target water quality parameters.	The site area will be rehabilitated to be free draining.  Erosion protection measures such as the use of contour berms and repair of gullies will be undertaken until such time that the rehabilitated surfaces can be shown to be sustainable.  Existing roads should be used where possible and new disturbed areas should be minimised.	Appointed contractor.  Appointed contractor.  Rehabilitation officer.	Progress of rehabilitation will be monitored. Areas where grass has not yet been established will be monitored for excessive erosion. Rehabilitation site will be inspected for misuse.	ECO will conduct monitoring of the rehabilitation annually.	Throughout the decommissioning and closure phases.	
Air pollution from rehabilitation site.	Air quality.	Ensure that rehabilitation do not have detrimental impacts on air quality.	Decommissioning and rehabilitation of the site will be conducted in such a manner that the ambient air quality does not exceed the air quality standards.	Where necessary, wet suppression will be conducted at areas with excessive dust emissions. Vehicles and machinery will be well maintained.  The traffic volumes and speed within the rehabilitation site will be controlled.	Appointed contractor.  Site manager and appointed contractor.	Visual inspections of areas with possible dust emissions will be conducted.  Site inspections will be conducted.	ECO will conduct inspections monthly.  Site manager will conduct inspections monthly.	Throughout the decommissioning phase.  Throughout the decommissioning phase.	
Generated noise from the rehabilitation site.	Noise.	Ensure that the rehabilitation activities does not have detrimental impacts on people.	Ensure that the noise from the rehabilitation activities do not exceed the SANS 10103 Rating Level.	Smaller or less noisy equipment should where possible be used when working near receptors.  Equipment will be well maintained and fitted with the correct and appropriate noise abatement measures.	Appointed contractor and site manager.  Site manager and appointed contractor.	Regular site check.  Regular site check.	Site manager.  Site manager.	Throughout the decommissioning phase.	
Damage or destruction of sites with archaeological and cultural significance.	Sites of archaeological and cultural importance.	Ensure that the rehabilitation does not have detrimental impacts on heritage sites.	Should heritage sites be identified, rehabilitation in close proximity to the sites will not be damaged or destroyed by the rehabilitation activities.	A hundred-meter buffer will be maintained between any site and the rehabilitation site.	Appointed contractor and the site manager.	The sites will be monitored for any rehabilitation related damages.	ECO will monitor the site monthly.	Throughout the decommissioning phase.	

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## 6. FINANCIAL PROVISION

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Section 24 P of NEMA requires an applicant applying for an environmental authorisation related to mining to comply with the prescribed financial provision for the rehabilitation, closure and ongoing post decommissioning management of negative environmental impacts before the Minister responsible for mineral resources issues the environmental authorisation. The above-mentioned financial provision may be in the form of an insurance, bank guarantee, trust fund or cash.

Regulations pertaining to the pertaining to the financial provision for prospecting, exploration, mining or production operations (GNR 1147) were promulgated on the 20<sup>th</sup> of November 2015. National Treasure Minerals (Pty) Ltd has undertaken the financial provision determination in line with the requirements of section 11 of the Regulations pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations (GNR 1147). The financial provision determination for the proposed area is submitted to the Department of Mineral Resources and Energy for their consideration.

### **6.1 DESCRIPTION OF CLOSURE OBJECTIVES AND EXTENT TO WHICH THEY HAVE BEEN ALIGNED TO THE DESCRIBED BASELINE ENVIRONMENT**

The closure objectives for the proposed area as detailed under section 4.1 of the EMPR, were determined in consideration of physical (infrastructure), biophysical (environmental) and socio-economic measures as well as alignment to the closure components provided by the Department of Mineral Resources (DMR). See section 4.1 for the closure objectives.

### **6.2 CONFIRMATION THAT THE ENVIRONMENTAL OBJECTIVES IN RELATION TO CLOSURE HAVE BEEN CONSULTED WITH LANDOWNERS AND INTERESTED AND AFFECTED PARTIES**

The draft BAR and EMPR is made available to the interested and affected parties during the public participation process for the proposed area. Note that the consultation of interested and affected parties included the owners of the properties directly affected by the proposed area and owners of land immediately adjacent the proposed area.

The above confirms that the land owners and interested and affected parties were consulted regarding the environmental objectives in relation to the closure of the proposed area.

### **6.3 REHABILITATION PLAN FOR THE PROPOSED AREA**

In terms of Regulation 23 of NEMA EIA Regulations, 2014, an EMPR must address the requirements as determined in the regulations, pertaining to the financial provision for the rehabilitation, closure and post closure of the proposed operations. In view of the above, a rehabilitation plan must be provided to the DMR in support of the financial provision determined for the proposed operations. Since no disturbance has results on site due to the proposed area no annual rehabilitation plan was compiled.



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## **6.4 COMPATIBILITY OF THE REHABILITATION PLAN WITH THE CLOSURE OBJECTIVES**

The rehabilitation plan has been drafted to be compatible with the closure objectives.

## **6.5 DETERMINATION OF THE QUANTUM OF THE FINANCIAL PROVISION REQUIRED TO MANAGE AND REHABILITATE THE ENVIRONMENT**

The financial pecuniary provision for Waagkraal prospecting project will be determined based on the requirements of Chapter 2.4.1 of the Guideline document for the evaluation of the quantum of closure-related financial provision provided by a Mine, revision 1.6, September 2004, DMR.

## **6.6 METHOD OF PROVIDING FOR THE FINANCIAL PROVISION**

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

- financial guarantee from a bank registered in terms of the Banks Act, 1990 (Act No. 94 of 1990) or from a financial institution registered by the Financial Services Board as an insurer or underwriter;
- deposit into an account administered by the Minister responsible for mineral resources; *or*;
- contribution to a trust fund established in terms of applicable legislation.

National Treasure Minerals (Pty) Ltd has opted to use a financial guarantee to provide for the determined quantum for financial provision.

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## **7. MECHANISM FOR MONITORING COMPLIANCE WITH AND PERFORMANCE ASSESSMENT AGAINST THE ENVIRONMENTAL MANAGEMENT PROGRAMME AND REPORTING THEREOF**

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### **7.1 INSPECTIONS AND MONITORING**

During the impact assessment, potential impacts on the environment were identified. Mitigation measures were also specified for prevention and management of the impact so as to minimise their effect on the environment. This section will describe how the mine intends to ensure that the mitigation measures are being undertaken and that their effectiveness is proven.

A monitoring programme has been developed for the identified impacts and their mitigation measures. This monitoring programme will be undertaken and results thereof used to determine the effectiveness of the mitigation measures. The ECO will have an overall responsibility for ensuring that all monitoring is conducted according to the approved EMPR.

### **7.2 MONITORING COMPLIANCE WITH AND PERFORMANCE ASSESSMENT AGAINST THE ENVIRONMENTAL MANAGEMENT PROGRAMME AND REPORTING THEREOF**

As part of the general terms and conditions for an environmental authorisation and in order to ensure compliance with the EMPR and to assess the continued appropriateness and adequacy of the EMPR, National Treasure Minerals (Pty) Ltd will:

- Conduct monitoring on a continuous basis (see EMPR).
- Conduct performance assessments of the environmental management programme once in every two years.
- Compile and submit a performance assessment report to the minister in which compliance with the approved Environmental Management Programme is demonstrated.

The performance assessment report will as a minimum contain the following:

- Information regarding the period applicable to the performance assessment
- The scope of the assessment.
- The procedure used for the assessment.
- The interpreted information gained from monitoring the approved environmental management programme.
- The evaluation criteria used during the assessment.
- The results of the assessment.
- Recommendations on how and when non-compliance and deficiencies will be rectified.

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## 7.3 PROCEDURE FOR ENVIRONMENTAL RELATED EMERGENCIES AND REMEDIATION

An environmental emergency is an unplanned event, which has the potential to result in a significant adverse environmental impact and/or could result in legal liability to **National Treasure Minerals (Pty) Limited** in terms of environmental legislation requirements. The following define most likely potential environmental emergencies:

- Hydrocarbon spills or leaks
- Surface fires, including veld fires
- Transportation accident

**National Treasure Minerals (Pty) Limited** has developed procedures for environmental related emergencies for the Waagkraal prospecting project, which is explained in more detail below.

### Introduction

This procedure describes the process to be followed to report and deal with emergencies, which may occur on the prospecting site. An effective, comprehensive, well-considered and tested environmental emergency preparedness and response plan has the potential to save lives, prevent unnecessary damage to company and other property and to manage environmental risk.

This standard procedure aims are to identify potential for and respond to accidents and emergency situations, and for preventing and mitigating the environmental impacts that may be associated with them. Below are the objectives of the above-mentioned procedure:

- To ensure quick and controlled response to environmental emergencies through the use of correct personnel and equipment.
- To prevent incidents from becoming more extensive through the timeouts contact and arrival of trained personnel on site.
- To establish a management mechanism from which a range of safety, environmental and health issues can be dealt with should they arise.

### Purpose of the procedure

To provide guidance to all drilling crew in the event of an environmental emergency at Waagkraal prospecting project or related to its activities. This procedure is developed so as to provide guidance to ensure that:

- Danger to the environment, personnel, contractors and non-employees are minimized.
- Legal liability is managed and minimised.
- Public relations are effectively managed during and following an emergency.
- Reporting is effective and corrective/follow-up actions are implemented.

This procedure contains information relevant to all drilling crew of the prospecting site. It is the responsibility of all employees to familiarize themselves with the contents of this procedure. Furthermore, site manager should ensure that all contractors have access to this procedure and the requirements contained herein.

## Legal requirements

The following below listed legislations were identified for the emergency response activities in the mining industry. The legislation requires that governmental department be kept informed of incidents and accidents:

- Regulation 51 of Regulations under the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002) – PROCEDURE FOR ENVIRONMENTAL RELATED EMERGENCY AND REMEDIATION
- Mine Health & Safety Act 29 of 1996 – MANNER OF REPORTING AND KEEPING OF INFORMATION REGARDING INCIDENTS & EMERGENCIES
- Occupational Health & Safety Act 85 of 1993 – EMPLOYEE REQUIREMENTS TO REPORT INCIDENTS WHERE ACTIVITY HAS OCCURRED

## Responsibilities

### *Site Manager*

**National Treasure Minerals (Pty) Limited** is responsible for the safety and well-being of employees working at Waagkraal prospecting project as well as the protection of the environment from unnecessary negative impact. The Site Manager has a responsibility to initiate a warning process should an emergency occur or should something at the prospecting site deteriorate in an uncontrolled manner presenting a risk to employees, the public or the environment.

### *Site Manager*

It is the responsibility of the Site Manager to appoint a person or persons to review and audit the activities as covered by the scope of this Procedure. The Site Manager or his appointed representative shall ensure that the audits are being conducted systematically and at regular defined intervals. The Site Manager shall further ensure that the person nominated to perform audits of the emergency system, are given all the necessary assistance and facilities to conduct the task effectively.

### *Local Government*

Local governments have the responsibility to warn residents of a hazardous situation, these warnings must be based on information provided by the site manager.

### *All employees, contractors and other relevant parties*

All employees, contractors and other relevant parties should ensure that they are familiar with this procedure.

## Description of Possible Emergencies and Remedial actions.

The following define most likely potential environmental emergencies. The Site Manager will be contacted in all emergencies. In all the cases the surrounding area must be cordoned off in a safe and efficient way. Emergency equipment for direct incidents must be available on the prospecting site at all times.

### **Hydrocarbon spills,**

These are typically spillages or leaks of hydrocarbon liquids from containers and pipelines. The hydrocarbon liquids involved in these emergencies are diesel, new and used oils and paint. The spillages of hydrocarbon liquids may potentially contaminate the groundwater regime, surface water

and soils over the affected areas. These, if not remediated properly, may have permanent detrimental effects environmental components.

All hydrocarbons will be stored in well enclosed containers. Emergency telephone numbers with contact persons will be placed near the containers. Credible company will be called, if a carbon spill occurs, they will assess the situation and take the necessary steps.

#### **Transportation accident,**

The drilling crew uses various machinery and vehicles such as drill rig and light vehicles for the transportation of material around the prospecting site. During an accident, while transporting these materials, both the material and the liquids within the vehicles may cause detrimental damage to the environment. Liquids will include diesels, petrol and oils from the vehicles.

Speed limits will be place around the prospecting site. The employees will be made aware of the speed limits and the reasons for having them. The following procedure will be implemented.

- Spillages will be rectified as soon as possible.
- Type of spillage must be identified.
- Clean-up will be done by credible company.
- If outside the prospecting site, the traffic department will be notified.

#### **Surface fires, including veld fires.**

These include any fires within the Waagkraal prospecting right project. These fires may emanate either from the prospecting site or outside the prospecting site. The fires are considered emergency situations since they put lives of employees at risk and result in the destruction of environmental components such as natural vegetation (grasses, trees), animal life (wild and domestic livestock) and air quality. It is for this reason that fires have been identified as a potential emergency situation.

- Firefighting equipment will always be kept at the prospecting site ready, in a good working condition and at an accessible location. Correct fire extinguishers will be used to extinguish the fire. Note that no water on electrical and liquid based fires will be used. The employees will be trained on dealing with fire situation. First aid equipment will be made available at all times. Site Manager will assemble the fire team and combat the fire.
- If the fire seems to go out of control, the Fire Brigade from the nearby town will be contacted. Waagkraal prospecting project will establish a working agreement with the Fire Brigade from the nearby town to make themselves available at any time in a case fires are out of control.
- All affected farmers will be contacted.

At any prospecting site and at any works:

- a) No person shall place, throw or leave, or cause or permit to be placed, thrown or left, any naked light or flame or any burning lighting torch, match, cigarette, tobacco, paper or other burning material on or near any combustible material or inflammable substance where this may cause danger from fire or explosion;
- b) No waste material of a combustible nature shall be stored anywhere in quantity sufficient to create a fire hazard;

- b) no welding, flame-cutting or flame-heating shall take place unless adequate means are immediately available for extinguishing any fire which may result from such operation;
- c) on completion of any welding, flame-cutting or flame-heating, an examination shall be carried out by a competent person to ensure that no fire will result from such operation;
- d) all machinery shall be so constructed, installed, operated and maintained as to prevent as far as practical, dangerous heating.

### **Notification process**

There are six main steps in managing an emergency, from the identification of the situation to final close off. They are as follows:

- Find and identify
- Ensure human safety
- Reporting
- Containment and clean-up
- Corrective action
- Monitoring

### **Emergency equipment and supplies**

There will be a directory of emergency equipment and other supplies on site as well as person/s responsible for the equipment.

### **Communication systems**

Communication is critical during an emergency on site so that efforts to manage the situation are coordinated to produce the desired results. The communication channels that will be available on site will include:

- Internal phone line system
- Hand held radios
- Cellular phone

### **Training**

The site manager will ensure that employees are trained on emergencies that might occur at Waagkraal prospecting project.

### **Method of emergency activity identification**

During the prospecting operation at the said site, the site manager will ensure that measures are put in place to ensure that other possible environmental emergency activities are identified.

### **Review and revision**

During the course of the prospecting operation a number of emergency response drills will be carried out and recorded (minimum of one per every year). Emergency response drills will normally be carried out during operational hours to best evaluate the response and involve the highest number of employees. These are at the discretion of the Site Manager and may involve one or more of the

emergency activities listed in this standard procedure. Emergency response drills should not be of the same type unless significant problems were experienced with the previous drill.

Regular auditing and questioning of the key personnel involved in emergency response will also be conducted. This will take the form of planned task observations (PTO). It is the responsibility of the Site Manager to undertake these PTO's on a regular basis and record the response.

Information from PTO's and drills will be collated and assessed. Alterations and modifications to the Emergency Response Procedure will also be conducted after the response drill evaluation. This task will be performed in co-ordination with the Site Manager to which the drill applies.

## **ENVIRONMENTAL AWARENESS PLAN**

In terms of section 39(3)(c) of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), Waagkraal prospecting project must compile and implement an environmental awareness plan. The above-mentioned environmental awareness plan must describe the manner in which the site manager (in this case Waagkraal prospecting project) will inform their employees of any environmental risk which may result from their work and the manner in which the environmental risks will be addressed to avoid pollution or/and degradation of the environment. This document, therefore concerns the details of the environmental awareness plan for Kransfontein prospecting project as required by the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002).

In view of the above, Waagkraal prospecting project has developed an environmental awareness plan for the proposed Kransfontein prospecting project, which is explained in more detail below.

Note that the responsible person will revise these environmental awareness procedures from time to time. The date of commencement of the revised procedure will always be indicated to prevent confusion, in this case after the issuing of prospecting right to Waagkraal prospecting project.

This Environmental Awareness (Standard Training Procedure) sets out the training objectives regarding to environmental awareness. It is a stand-alone procedure, which serves to improve awareness, training and competency in the environmental field. It contains no detail on the actual training initiatives but rather serves to ensure that a responsible person is appointed to deal with and increase environmental awareness on the prospecting site.

### **Scope**

This Environmental Training Standard Procedure sets out the prospecting site's training objectives regarding environmental awareness. It is a stand-alone procedure, which serves to improve awareness, training and competency in the environmental field. It contains no detail on the actual training initiatives but rather serves to ensure that a responsible person is appointed to deal with and increase environmental awareness on the prospecting site.

### **Objectives**

The following are the objectives set for this standard procedure:

- To explain and aid the personnel involved in training with regards Environmental Management System (EMS);
- To clarify the EMS training and ensure that all employees are correctly instructed with regards to the environment.

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### **Safety risks associated with activity**

There were no hazards identified in applying this standard procedure.

### **Responsibilities**

In the case where there is no training department on site, a responsible person should be identified (Site manager, Environmental Officer or Consultant) to ensure that the objective of this procedure is met.

### **Legal requirements**

The following legislation and standards apply to this Standard Procedure:

- \* Employment Equity Act 55 of 1998 – AREAS WHERE EMPLOYMENT EQUITY ARE DEFINED, INCLUDING TRAINING & DEVELOPMENT.
- \* National Environmental Management Act 77 of 1998 – RECOMMENDATIONS FOR INSTITUTIONAL CO-OPERATION.
- \* Minerals and Petroleum Resources Act, 2002 (Act 28 of 2002) – DEVELOPMENT OF AN ENVIRONMENTAL AWARENESS PLAN.

### **Induction Programme**

An Induction Programme, which will include environmental awareness programme will be established for Waagkraal prospecting project. During the training sessions various topics will be discussed such as, but not limited to: Water Pollution Prevention, Good Environmental Housekeeping, etc. Through the Induction Programme, the site manager, or any other responsible appointed person shall ensure that all staff receives training in:

Administrative requirements and procedures, which will include the Environmental Emergency.

### **Procedures**

Resource conservation and environmental reporting and general environmental awareness for prospecting site related environmental issues.

All employees (including contractor employees) will undergo induction. Waagkraal prospecting project induction includes training and awareness on environmental issues on the drilling site and is compulsory for all new employees. The induction programmes will as mentioned above, have an environmental management component. On an annual basis the environmental section of the induction gets updated to ensure that it is up to date. Consideration should be given to:

- Significant environmental impacts as identified in the EMP.
- Procedures: environmental awareness and emergency procedures.
- Trends in incidents.
- Trends in audit findings.

### **Trainee needs**

The identification of environmental training and environmental awareness needs are derived from an analysis of the type of role different categories of employees play at Waagkraal prospecting project. The following categories are considered, viz:

- Site Management.



- Supervisors.
- Operators.
- Visitors and contractors.

Each of these categories has different responsibilities and therefore has different knowledge requirements and environmental awareness training needs to obtain that knowledge.

### **Training Planning**

Identified and agreed training needs shall be included in budgets. Course attendance (other than at the internal induction courses) shall be scheduled on the basis of the importance of task contribution to the maintenance, effectiveness and improvement of the objectives.

### **General environmental awareness training**

General awareness training will be offered to operators, processors during the safety toolbox talks. This will be conducted on rotational basis. New environmental awareness topics are determined and new topics are introduced after all the shifts have received training/awareness on the current topic. The following will be undertaken to ensure that the above awareness training is conducted:

- A monthly environmental awareness topic for discussion will be distributed to the prospecting site. These topics will be discussed at the safety toolbox talks, by SHE (Safety, Health and Environmental) site manager /Environmental officers if available.
- The topics will also be displayed on the notice boards of the prospecting site.
- Ad hoc environmental awareness sessions to the prospecting site will be conducted on request. The presentations will focus on the environmental issues relevant to individual tasks.

### **Job specific environmental awareness training**

Job specific training will be developed to address urgent training needs as identified /required. The training material will focus on the following:

- Waste prevention and control (implementation of the waste management procedure).
- Hydrocarbon and chemical spill reporting and clean up.
- Storing and handling of chemicals.
- Rehabilitation.

Supervisory staff within specific drilling site will be equipped with the necessary knowledge and information to guide their employees on environmental aspects applicable in performing a specific task.

### **Competency training**

Site manager (training official/environmental officer if available) is responsible for the environmental competency and awareness training of middle management and supervisors. This training will be conducted on both a one-to-one basis and through workshops. If required, external organizations may be requested to provide training to selected employees (e.g., EMP auditing).

Competence and the effectiveness of training and development initiatives will be determined through the following:

- Trend analysis and reporting
- Analysis of work areas during visits and audits

- Trend analysis of monthly incidents (or zero tolerance if available) as recorded per prospecting site.

**Certification**

Photocopies of certificates issued after completion of a training course shall be maintained in the staff member's file and Training Department's records.

**Records**

Environmental awareness and training records will be kept at a safe and accessible place on site.

**7.4 UNDERTAKING TO COMPLY**

I, ....., the undersigned and duly authorised thereto by **National Treasure Minerals (Pty) Ltd** have studied and understand the contents of this document in its entirety and hereby duly undertake to adhere to the conditions as set out therein including the amendment(s) agreed to by the Regional Manager.

Signed at ..... this.....day of.....20.....

.....

**Signature of applicant Designation**

**APPROVAL**

Approved in terms of Section 39(4) of the Mineral and Petroleum Resources Development Act, 2002 (Act 29 of 2002)

Signed at.....this.....day of.....20.....

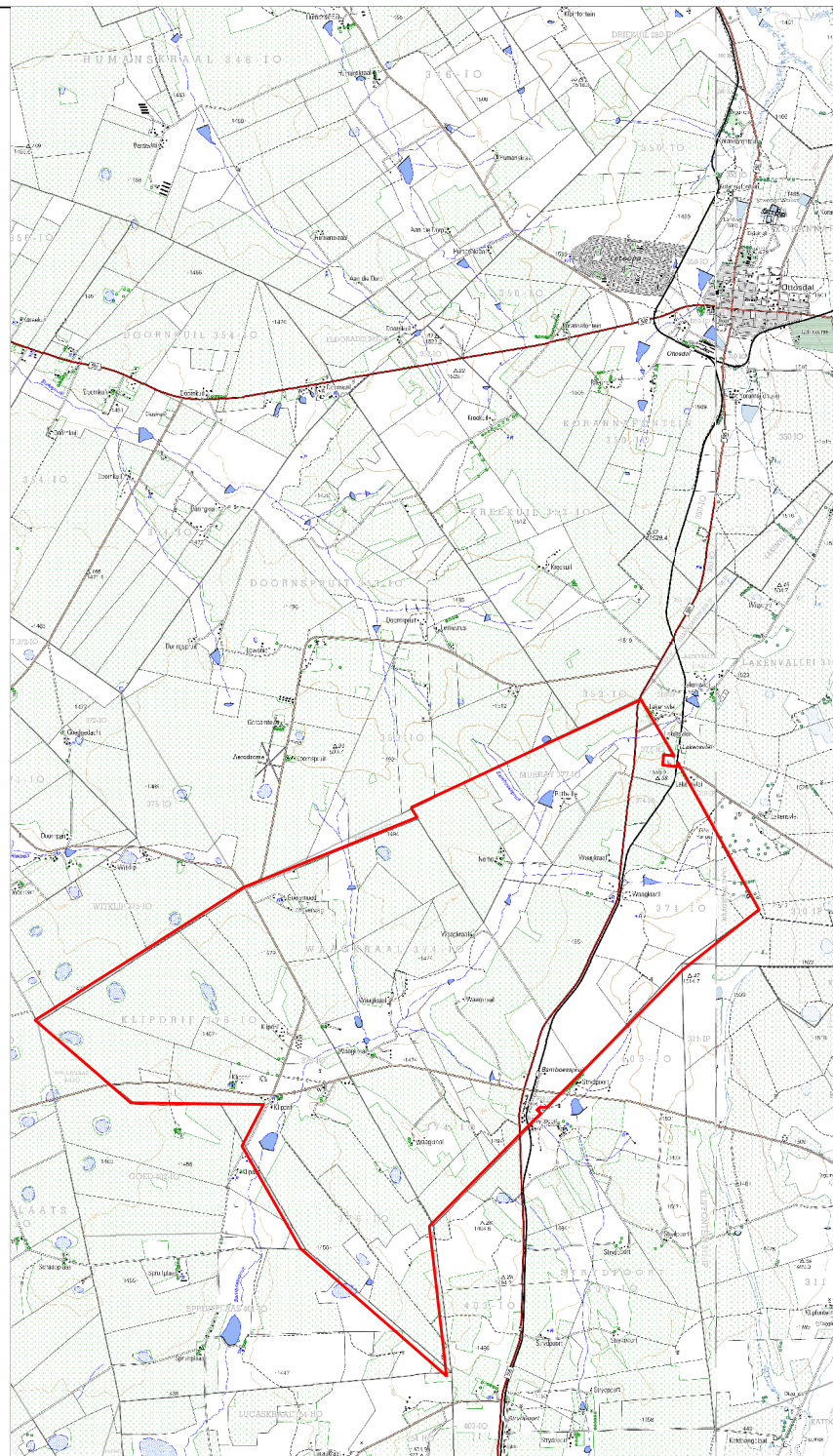
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**REGIONAL MANAGER**

**REGION:**.....

# PROSPECTING CO-ORDINATES WG 25°

POINTS	LAT	LON
1	-26.8935353	25.9442313
2	-26.895108	25.9453621
3	-26.9041236	25.9209578
4	-26.9068158	25.9136673
5	-26.9072938	25.9128449
6	-26.9133739	25.9023822
7	-26.9137469	25.9017401
8	-26.9197507	25.8914062
9	-26.9231304	25.8855879
10	-26.9252643	25.8819139
11	-26.9259963	25.8806536
12	-26.9268497	25.8791841
13	-26.9288136	25.8758023
14	-26.9375557	25.8872869
15	-26.938807	25.888931
16	-26.9422387	25.8934404
17	-26.9423064	25.909355
18	-26.9423411	25.9176721
19	-26.9491969	25.9138185
20	-26.9617895	25.9219773
21	-26.9659058	25.9246448
22	-26.979556	25.9423302
23	-26.9866491	25.951523
24	-26.9854659	25.9513627
25	-26.9822755	25.9509304
26	-26.9738514	25.9497893
27	-26.9726614	25.9496281
28	-26.9653543	25.9486047
29	-26.9621025	25.9481494
30	-26.9579357	25.9526784
31	-26.955514	25.9553104
32	-26.9521654	25.9589496
33	-26.9479454	25.9635334
34	-26.9476737	25.9638286
35	-26.9473422	25.9641892
36	-26.9451326	25.9665921
37	-26.9434737	25.9683964
38	-26.9429116	25.9676664
39	-26.94247	25.9682105
40	-26.9424643	25.9694943
41	-26.9372161	25.9752017
42	-26.9198784	25.9940082
43	-26.9116624	26.005383
44	-26.909808	26.0079628
45	-26.9053771	26.0051886
46	-26.9006499	26.0022293
47	-26.8862711	25.9932308
48	-26.8858701	25.9929798
49	-26.8865002	25.992852
50	-26.8862427	25.9901745
51	-26.88453	25.9903154
52	-26.8847016	25.9922486
53	-26.8755443	25.9861167
54	-26.880469	25.9746787
55	-26.8831485	25.9684366
56	-26.8832914	25.9681038
57	-26.8894062	25.9538554
58	-26.8917235	25.9484544
1	-26.8935353	25.9442313



# NATIONAL TREASURE MINERALS (PTY) LTD REG NO: 2016/265134/07

APPLICATION FOR PROSPECTING RIGHT

Plan compiled in accordance with  
Regulation 2(2) of the Mineral & Petroleum  
Resources Development Act 2002  
(ACT 28 of 2002)

Scale 1 : 3 400

## LEGEND

PROSPECTING RIGHT AREA	
National Freeway; National Route	
Arterial Route	
Main Road	
Secondary Road; Bench Mark	
Other Road; Bridge	
Track and Hiking Trail	
Railway; Station or Siding	
Other Railway; Tunnel	
Embankment; Cutting	
Power Line	
Built-up Area	
Buildings; Ruin	
Post Office; Police Station; Store	
Place of Worship; School; Hotel	
Fence; Wall	
Windpump; Monument	
Communication Tower	
Mine Dump; Excavation	
Trigonometrical Station; Marine Beacon	
Lighthouse and Marine Light	
Cemetery; Grave	
International Boundary and Beacon	
Provincial Boundary	
Game, Nature Reserve & State Forest Boundary	
Perennial River	
Perennial Water	
Non-perennial River	
Non-perennial Water	
Dry Water Course	
Dry Pan	
Marsh and Vlei	
Pipeline (above ground)	
Water Tower; Reservoir; Water Point	
Coastal Rocks	
Prominent Rock Outcrop	
Erosion; Sand	
Woodland	
Cultivated Land	
Orchard or Vineyard	
Recreation Ground	
Row of Trees	



The figure lettered 1-58 AND 1 represent a Prospecting Right area in extent of approximately 6693.13ha, comprising of portions 1,3,4, remaining extent of the farm MURRAY 377 IO, portions 1,2,3,4,5,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,23,26,27,29,31,37 of the farm WAAGKRAAL 374 IO, portions 1,2,3,4,5,7,9,10,11,12,13,14 and remaining extent of the farm KLIPRIF 376 IO, Located 7.52km SOUTH of the town OTTOSDAL, in the Magisterial district of DELAREYVILLE for which NTM (PTY) LTD REG NO. 2016/265134/07 has applied for a prospecting right in terms of Section 16 of the Mineral and Petroleum Resources Development Act, 2002, (Act 28 of 2002), but subject to Regulation 17 of the Mine Health and Safety Act, 1996 (Act 29 of 1996), excluding any area within 100 meters of any public road, railway, cemetery, residential area or public area.

SIGNED: .....  
REGIONAL MANAGER  
NORTH WEST PROVINCE

SIGNED: .....  
NTM (PTY) LTD  
Reg No: 2016/265134/07



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Waterkloof Glen  
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