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BASIC ASSESSMENT REPORT

NIMBARGO RESOURCES (PTY) LTD: KOOKFONTEIN PROSPECTING RIGHT APPLICATION PROJECT

DOCUMENT DETAILS

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mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

and

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

PREPARED BY:

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PR Reference Number: GP30/5/1/1/2 (10652) PR

FILE REFERENCE NUMBER SAMRAD:

Important Notice

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

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

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

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

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

Objective of the Basic Assessment Process

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

Determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;

Identify the alternatives considered, including the activity, location, and technology alternatives;

Describe the need and desirability of the proposed alternatives;

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

The nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and

The degree to which these impacts-

aa) Can be reversed;

bb) May cause irreplaceable loss of resources; and

cc) Can be managed, avoided or mitigated;

Through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to –

Identify and motivate a preferred site, activity and technology alternative;

Identify suitable measures to manage, avoid or mitigate identified impacts; and

Identify residual risks that need to be managed and monitored.

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Abbreviations

AMSL	: Above Mean Sea Level
BAR	: Basic Assessment Report
BID	: Background Information Document
BGL	: Below Ground Level
BMM	: Black Mountain Mining
DMREE	: Department of Mineral Resources and Energy
DHSWS	: Department of Human Settlement, Water and Sanitation
EA	: Environmental Authorisation
EAP	: Environmental Assessment Practitioner
EIA	: Environmental Impact Assessment
EIMS	: Environmental Impact Management Services
EMPR	: Environmental Management Programme
GIS	: Geographic Information System
I&AP	: Interest and Affected Party
MPRDA	: Mineral and Petroleum Resources Development Act
NEMA	: National Environmental Management Act
NEMWA	: National Environmental Management Waste Act
NGA	: National Groundwater Archive
NWA	: National Water Act
PR	: Prospecting Right
PPP	: Public Participation Process
MRA	: Mining Right Application
MWP	: Mining Works Programme
SAMRAD	: South African Mineral Resources Administration System

PART A: SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1 INTRODUCTION

Nimbargo Resources (Pty) Ltd (the Applicant) has submitted an application for a Prospecting Right (PR) in terms of Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) and an Application for Environmental Authorization (EA) in terms of Chapter 4 of GNR 982 promulgated under the National Environmental Management Act (Act 107 of 1998) (NEMA) to prospect for sand (general), clay (general) and silica sand (general and silica). The Department of Mineral Resources and Energy (DMRE) has accepted the PR application on condition the EA application process is concluded.

The proposed project will aim to ascertain if economically viable mineral deposits exist within the application area. In order to undertake prospecting activities, Nimbargo Resources will require a Prospecting Right in terms of the MPRDA (Act No.28 of 2002). The Applicant is also required to obtain an EA in terms of the NEMA which involves the submission of a Basic Assessment Report (BAR). Environmental Impact Management Services (Pty) Ltd (EIMS) have been appointed by Nimbargo Resources to compile the BAR (this report) in support of the Prospecting Right application, which in turn will be submitted to the DMRE for adjudication.

This BAR has been designed to meet the requirements for a BAR and Environmental Management Programme (EMPR) as stipulated in the 2014 EIA Regulations (as amended) promulgated under the NEMA. The adjudicating authority for this Application will be the DMRE, and this report has been compiled in accordance with the applicable DMRE guidelines and reporting template.

The proposed project covers an area of 2949.7522 hectares. The area is located approximately 7km north of Vereeniging and 4km southwest from Meyerton, located within the Sedibeng District, Gauteng Province.

A Prospecting Work Programme (PWP) has been developed by the applicant to include both non-invasive and invasive prospecting activities. The PWP includes a total of 71 drill sites however the final number stands at 58 sites due to site sensitivities as well as removal of certain properties from the original prospecting right area. The geology of the proposed Kookfontein study area is primarily underlain by the Vryheid Formation (Ecca Group, Undifferentiated Karoo), Precambrian dolomites and associated marine sedimentary rocks that are allocated to the Malmani Subgroup (Chuniespoort Group, Transvaal Supergroup), as well as Quaternary superficial deposits.

The Prospecting Right Application and Application for Environmental Authorisation were submitted to the DMRE via the South African Mineral Resources Administration (SAMRAD). The DMRE accepted the Application for Environmental Authorisation on 20 January 2020 and the Prospecting Right Application on 13 December 2019. An application for an extension to submit the final BAR due to Covid-19 was submitted to the DMRE and granted on the 22nd July 2020.

A Public Participation Plan (PP Plan) has been prepared in accordance with the requirements of the National Environmental Management Act (Act 107 of 1998-NEMA), and the Directions issued by the Department of Environment Forestry and Fisheries (GN 650 of 5 June 2020) in terms of the Disaster Management Act (Act 57 of 2002). The purpose of the PP Plan is to ensure that a successful public participation process is carried out for the duration of the project.

The BAR (this report) has been made available to Interested and Affected Parties (I&AP's) for comment from the 6th August 2020 to the 7th September 2020. All comments received during this period will be included in the BAR submitted to the DMRE for adjudication.

1.1 REPORT STRUCTURE

This report has been compiled in accordance with the EIA Regulations, 2014 (Government Notice (GN) R982). A summary of the report structure, and the specific sections that correspond to the applicable regulations, is provided in Table 1 below.

Table 1: Report Structure

Environmental Regulation NEMA EIA Regulations, 2014	Description	Section in Report
Appendix 1(3)(a):	Details of – The EAP who prepared the report; and The expertise of the EAP, including a curriculum vitae;	Section 1.2 Section 1.3
Appendix 1(3)(b):	The location of the activity, including: The 21-digit Surveyor General code of each cadastral land parcel; Where available, the physical address and farm name; and Where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Section 1.4
Appendix 1(3)(c):	A plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, or, if it is – A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; On land where the property has not been defined, the coordinates within which the activity is to be undertaken;	Section 1.4, 1.5
Appendix 1(3)(d):	A description of the scope of the proposed activity, including – All listed and specified activities triggered and being applied for; and	Section 2

Environmental Regulation NEMA EIA Regulations, 2014	Description	Section in Report
	A description of the activities to be undertaken including associated structures and infrastructure;	
Appendix 1(3)(e):	A description of the policy and legislative context within which the development is proposed including – An identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and How the proposed activity complies with and responds to the legislation and policy context plans, guidelines, tools frameworks, and instruments;	Section 3
Appendix 1(3)(f):	A motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location;	Section 4
Appendix 1(3)(g):	A motivation for the preferred site, activity and technology alternative;	Section 5
Appendix 1(3)(h):	A full description of the process followed to reach the proposed alternative within the site, including: Details of all the alternatives considered; Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them; The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage, and cultural aspects; The impacts and risks identified for each alternative including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which these impacts – Can be reversed; May cause irreplaceable loss of resources; and Can be avoided, managed or mitigated;	Section 6 Section 6.1 Section 6.2 Section 6.3 Section 6.4 Section 6.5 Section 6.6 Section 0 Section 6.8

Environmental Regulation NEMA EIA Regulations, 2014	Description	Section in Report
	The methodology used in determining and ranking the nature, significance, consequences, extent duration and probability of potential environmental impacts and risks associated with the alternatives; Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological social, economic, heritage and cultural aspects; The possible mitigation measures that could be applied and level of residual risk; The outcome of the site selection matrix; If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and A concluding statement indicating the preferred alternatives, including preferred location of the activity;	
Appendix 1(3)(i):	A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including – A description of all environmental issues and risks that were identified during the environmental impact assessment process; and An assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;	Section 6.5 Section 6.6 Section 6.7 Section 6.8 Section 7
Appendix 1(3)(j):	An assessment of each identified potentially significant impact and risk, including – Cumulative impacts; The nature, significance and consequence of the impact and risk; The extent and duration of the impact and risk; The probability of the impact and risk occurring; The degree to which the impact and risk can be reversed; The degree to which the impact and risk may cause irreplaceable loss of resources; and	Section 8

Environmental Regulation NEMA EIA Regulations, 2014	Description	Section in Report
	The degree to which the impact and risk can be mitigated;	
Appendix 1(3)(k):	Where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report;	Section 9
Appendix 1(3)(l):	An environmental impact statement which contains – A summary of the key findings of the environmental impact assessment; A map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicting any areas that should be avoided, including buffers; and A summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	Section 10
Appendix 1(3)(m):	Based on the assessment, and where applicable, impact management measures from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPR;	Section 11
Appendix 1(3)(n):	Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;	Section 12
Appendix 1(3)(o):	A description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Section 13
Appendix 1(3)(p):	A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	Section 14

Environmental Regulation NEMA EIA Regulations, 2014	Description	Section in Report
Appendix 1(3)(q):	Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, and the date on which the activity will be concluded, and the post prospecting monitoring requirements finalised;	Section 15
Appendix 1(3)(r):	An undertaking under oath or affirmation by the EAP in relation to: The correctness of the information provided in the reports; The inclusion of comments and inputs from stakeholders and I&Ps; The inclusion of inputs and recommendations from the specialist reports where relevant; and Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties;	Section **27**
Appendix 1(3)(s):	Where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	Section 17
Appendix 1(3)(t):	Any specific information that may be required by the competent authority; and	Section 18
Appendix 1(3)(u):	Any other matters required in terms of section 24(4)(a) and (b) of the Act.	Section 19
Appendix 4(1)(1)(a):	Details of – The EAP who prepared the EMPR; and The expertise of that EAP to prepare an EMPR, including a curriculum vitae;	Section 1
Appendix 4(1)(1)(b):	A detailed description of the aspects of the activity that are covered by the EMPR as identified by the project description;	Section 2
Appendix 4(1)(1)(c):	A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	Section 1.5 Section 10.2

Environmental Regulation NEMA EIA Regulations, 2014	Description	Section in Report
Appendix 4(1)(1)(d):	A description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified though the environmental impact assessment process for all phases of the development including – Planning and design; Pre-prospecting activities; Construction activities; Rehabilitation of the environment after prospecting and where applicable post closure; and Where relevant, operation activities;	Section 7 Section 8 Section 11
Appendix 4(1)(1)(f):	A description of proposed impact management actions, identifying the manner in which the impact management contemplated in paragraphs (d) will be achieved, and must, where applicable, include actions to – Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; Comply with any prescribed environmental management standards or practices; Comply with any applicable provisions of the ac regarding closure, where applicable; and Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;	Section 11, 21
Appendix 4(1)(1)(g):	The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 23
Appendix 4(1)(1)(h):	The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 23
Appendix 4(1)(1)(i):	An indication of the persons who will be responsible for the implementation of the impact management actions;	Section 23

Environmental Regulation NEMA EIA Regulations, 2014	Description	Section in Report
Appendix 4(1)(1)(j):	The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Section 21.5
Appendix 4(1)(1)(k):	The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 23
Appendix 4(1)(1)(l):	A program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Section 23
Appendix 4(1)(1)(m):	An environmental awareness plan describing the manner in which – The applicant intends to inform his or her employees of any environmental risk which may result from their work; and Risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Section 25
Appendix 4(1)(1)(n):	Any specific information that may be required by the competent authority.	Section 18

1.2 DETAILS OF THE EAP

EIMS was appointed by the Applicant to fulfil the role of Environmental Assessment Practitioner (EAP) to compile this report. The contact details of the EAP's who compiled the report are as follows:

Table 2: EAP Details

Name of Practitioner	Mr Brian Whitfield (Project Manager)	Ms Cheyenne Muthukarapan (Consultant)
Tel No.:	011 789 7170	011 789 7170
Fax No.:	086 571 9047	086 571 9047
E-mail:	brian@eims.co.za	cheyenne@eims.co.za

1.3 EXPERTISE OF THE EAP

1.3.1 QUALIFICATIONS OF THE EAP

In terms of Regulation 13 of the EIA Regulations, 2014, an independent Environmental Assessment Practitioner (EAP), must be appointed by the applicant to manage the application. EIMS has been appointed by the Applicant as the EAP and is compliant with the definition of an EAP as defined in Regulations 1 and 13 of the EIA Regulations and Section 1 of the NEMA. This includes, inter alia, the requirement that EIMS is:

- Objective and independent;
- Has expertise in conducting EIA's;
- Comply with the NEMA, the Regulations and all other applicable legislation;
- Takes into account all relevant factors relating to the application; and
- Provides full disclosure to the applicant and the relevant environmental authority.

The declaration of independence of the EAP and the Curriculum Vitae (indicating the experience with environmental impact assessment and relevant application processes) of the consultants that were involved in the BAR process and the compilation of this report are attached as Appendix A.

1.3.2 SUMMARY OF EAP'S PAST EXPERIENCE

EIMS is a private and independent environmental management-consulting firm that was founded in 1993. EIMS has in excess of 25 years' experience in conducting EIAs, including many EIA's for mines and mining related projects.

Mr Brian Whitfield is a senior project manager at EIMS and has been involved in numerous significant projects over the past 16 years he has been with the company. He holds a BSc (Botany and Zoology) and a BSc Honours degree in Botany from the University of the Witwatersrand. Brian is a registered professional natural scientist with the South African Council for Natural Scientific Professions (Registration Number: 400447/13). Brian's broad range of experience includes managing and/or undertaking projects in various sectors, including Energy, Mining, Oil and Gas, Water and Infrastructure. Brian's other experience includes Site Assessments, Water-use licensing, Environmental Monitoring and Auditing, Environmental Management Plans and Strategic Environmental Assessments.

Ms Cheyenne Muthukarapan holds a Bachelor of Science degree in Environmental and Geographical Science from the University of Cape Town and an Advanced Diploma in Business Project Management from the University of Cape Town. Her expertise lies in public consultation/participation processes and sustainability

consulting. She has participated in numerous public/stakeholder consultations in relation to environmental impacts, and the formulation of sustainable solutions to various environmental problems.

1.4 LOCATION OF THE OVERALL ACTIVITY

The table below provides details on the properties that fall within the Prospecting Right/ Environmental Authorisation Application Area.

Table 3: Locality Details

Farm Name (s)	Various portions of the Farms Damfontein; Kookfontein; Smaldeel; Farm Vlakfontein and Waldrift. Refer to Table 4 below for a detailed list of properties included in the application area.
Application Area (Ha)	The area is 2949.7522Ha
Magisterial District	Sedibeng District Municipality
Distance and direction from nearest town	The area is located approximately 7km north of Vereeniging and 4km southwest from Meyerton, Sedibeng District, Gauteng Province.
21-digit Surveyor General Code for each Portion	Please refer to Table 4 below.

Table 4: Properties within the Application Area

Nr.	Registered Land Description	Extent (Ha)	Title Deed/Diagram Deed	SG Code
1	Farm Kookfontein 545 IQ Portion 2	65.9697	T407/1973	T0IQ00000000054500002
2	Farm Kookfontein 545 IQ Portion RE of 16	13.3971	T20698/1937	T0IQ00000000054500016
3	Farm Kookfontein 545 IQ Portion 22	79.9464	T106019/2008	T0IQ00000000054500022
4	Farm Kookfontein 545 IQ Portion 27	14.8849	T20524/1956	T0IQ00000000054500027
5	Farm Kookfontein 545 IQ Portion 29	325.1100	T38756/2014	T0IQ00000000054500029
6	Farm Kookfontein 545 IQ Portion 30	21.4100	T46345/1964	T0IQ00000000054500030
7	Farm Kookfontein 545 IQ Portion 35	0.8800	T31763/1960	T0IQ00000000054500035
8	Farm Kookfontein 545 IQ Portion 54			T0IQ00000000054500054
9	Farm Kookfontein 545 IQ Portion 55	239.8600	T21553/2014	T0IQ00000000054500055
10	Farm Kookfontein 545 IQ Portion 64	32.9150	T4134/1984	T0IQ00000000054500064
11	Farm Kookfontein 545 IQ Portion 65	9.2024	T32934/1973	T0IQ00000000054500065
12	Farm Kookfontein 545 IQ Portion 66	1.0680	T31527/2013	T0IQ00000000054500066
13	Farm Kookfontein 545 IQ Portion 93	75.5238	T21555/2014	T0IQ00000000054500093
14	Farm Kookfontein 545 IQ Portion 95	11.4480	T133049/2000	T0IQ00000000054500095
15	Farm Kookfontein 545 IQ Portion RE of 97	30.1766	T106019/2008	T0IQ00000000054500097
16	Farm Kookfontein 545 IQ Portion 98			T0IQ00000000054500098

17	Farm Kookfontein 545 IQ Portion 99	306.8451	T7728/2004	T0IQ00000000054500099
18	Farm Kookfontein 545 IQ Portion RE of 100	29.4237	T27726/2004	T0IQ00000000545000100
19	Farm Kookfontein 545 IQ Portion RE of 102	246.0913	T148120/2007	T0IQ00000000545000102
20	Farm Kookfontein 545 IQ Portion 105			T0IQ00000000545000105
21	Farm Kookfontein 545 IQ Portion 106			T0IQ00000000545000106
22	Farm Kookfontein 545 IQ Portion 108			T0IQ00000000545000108
23	Farm Kookfontein 545 IQ Portion 109			T0IQ00000000545000109
24	Farm Damfontein 541 IQ Portion 1	685.2300		T0IQ00000000054100001
25	Farm Damfontein 541 IQ Portion 2	94.6300	T34205/2014	T0IQ00000000054100002
26	Farm Damfontein 541 IQ Portion 36	68.9000	T121970/2006	T0IQ00000000054100036
27	Farm Damfontein 541 IQ Portion 37	39.6300	T121970/2006	T0IQ00000000054100037
28	Farm Smaldeel 542 IQ Portion 4	60.1600	T19577/2008	T0IQ00000000054200004
29	Farm Waldrift 599 IQ Portion 16	10.7336	T6244/2010	T0IQ00000000059900016
30	Farm Waldrift 599 IQ Portion 89	64.8284	T133050/2000	T0IQ00000000059900089
31	Farm Vlakfontein 546 IQ Portion 7	26.9547	T132692/1999	T0IQ00000000054600007
32	Farm Vlakfontein 546 IQ Portion 111	8.5700	T1269/1978	T0IQ00000000054600111
33	Farm Vlakfontein 546 IQ Portion 114	8.5653	T36908/2006	T0IQ00000000054600114
34	Farm Vlakfontein 546 IQ Portion 115	8.5653	T36908/2006	T0IQ00000000054600115

35	Farm Vlakfontein 546 IQ Portion 118	8.5653	T41994/2006	T0IQ00000000054600118
36	Farm Vlakfontein 546 IQ Portion 119	8.5653	T33765/2015	T0IQ00000000054600119
37	Farm Vlakfontein 546 IQ Portion 125	8.5653	T55067/2005	T0IQ00000000054600125
38	Farm Vlakfontein 546 IQ Portion 144	8.5653	T44945/2005	T0IQ00000000054600144
39	Farm Vlakfontein 546 IQ Portion 151	8.5653	T81463/1997	T0IQ00000000054600151
40	Farm Vlakfontein 546 IQ Portion 152	8.5653	T44945/2005	T0IQ00000000054600152
41	Farm Vlakfontein 546 IQ Portion 153	8.5653	T44945/2005	T0IQ00000000054600153
42	Farm Vlakfontein 546 IQ Portion 154	8.5653	T5978/1979	T0IQ00000000054600154
43	Farm Vlakfontein 546 IQ Portion 159	37.4252	T51311/2001	T0IQ00000000054600159
44	Farm Vlakfontein 546 IQ Portion 167	66.0962	T132692/1999	T0IQ00000000054600167
45	Farm Vlakfontein 546 IQ Portion 173	43.5399	T121981/2004	T0IQ00000000054600173
46	Farm Vlakfontein 546 IQ Portion 175	12.5335	T71399/2003	T0IQ00000000054600175
47	Farm Vlakfontein 546 IQ Portion 194	8.8544	T132692/1999	T0IQ00000000054600194
48	Farm Vlakfontein 546 IQ Portion 195	13.8426	T132692/1999	T0IQ00000000054600195
49	Farm Vlakfontein 546 IQ Portion 197	65.6097	T13816/1984	T0IQ00000000054600197
50	Farm Vlakfontein 546 IQ Portion 198	52.4090	T17085/2005	T0IQ00000000054600198
	TOTAL AREA (HA)	2949.7522		

1.5 LOCALITY **MAP**

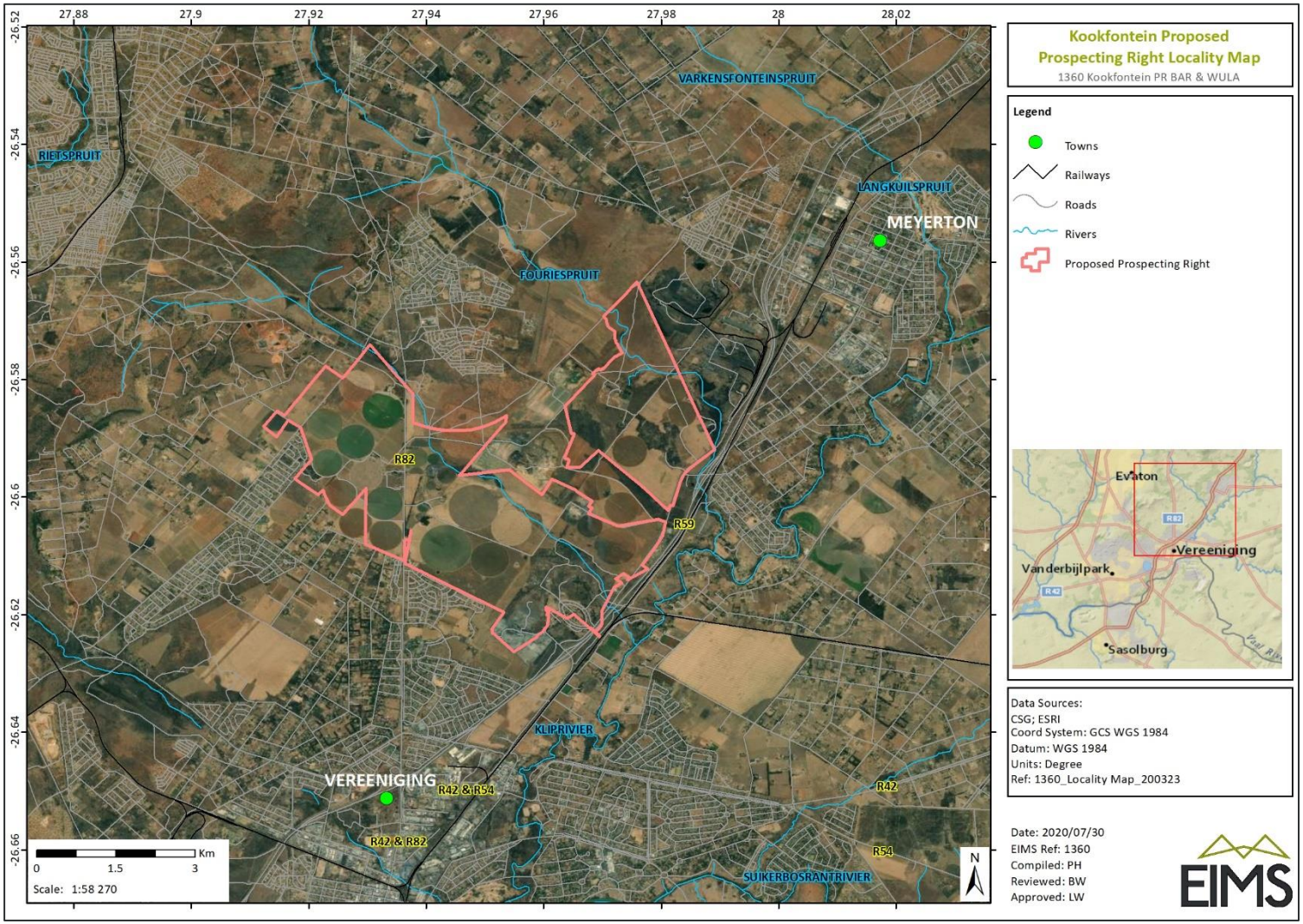


Figure 1: Locality Map for the proposed Kookfontein Prospecting Right

2 DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY

Both non-invasive and invasive prospecting activities will be undertaken as part of the proposed Prospecting Work Programme (PWP). The application will follow a phased approach, where the prospecting work program is divided into three (3) sequential phases. These phases are described in the sub-sections below.

2.1 DESCRIPTION OF PLANNED NON-INVASIVE ACTIVITIES (PHASE 1)

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

2.1.1 DESKTOP STUDIES

Accessing all available public information on the geology, mineral occurrence and topography;

Accessing all information on past work carried out in the area from geophysics, geochemistry, image interpretation, drilling and mining;

Any information accessed will be reviewed, collated and achieved for reference.

2.1.2 SPATIAL DATABASE COMPILATION

Compilation of spatial information into a GIS database for access, correlation and evaluation.

The GIS system will be used and maintained for the period of prospecting right exploration programme and regularly updated as new information is generated by the exploration programme.

2.1.3 LAND SURVEY

All spatial information accessed and collected in the field will be standardised using the WGS84 datum.

2.1.4 REMOTE SENSING

As part of the initial review, public domain aerial photos will be acquired and a detailed geological and structural interpretation will be done on these to aid in identifying target areas that are not readily evident on the ground and to provide an independent interpretation of the geology of the area.

Satellite imagery will also be acquired to provide a more regional viewpoint of the area of interest. As before a detailed geological and structural interpretation will be done on these images to provide a more regional viewpoint on the target areas. Satellite imagery is used to complement the aerial photos interpretations as the combination of multi-spectral bands can be used to highlight certain lithology's, vegetation types, soil types, alteration minerals, etc.

2.1.5 GEOPHYSICAL SURVEY TO BE UNDERTAKEN

Both airborne and ground geophysical surveys may be undertaken for the prospecting right area. This is dependent on the results of the desktop study. These surveys will be used in conjunction with the data available to the public from the Council for Geoscience.

A small airborne magnetic/radiometric survey using drone technology may be carried out over the proposed prospecting area to map the structural geology of the area.

Follow up ground geophysical surveys will be carried out on coincident targets from the compilation of geological and geophysical data. These surveys may include ground gravity, ground electromagnetics, IP and controlled source audio magnetotellurics (CSAMT).

2.2 DESCRIPTION OF PLANNED INVASIVE ACTIVITIES (PHASE 2)

The proposed project will include drilling activities which result in land disturbances. Details of the drilling is provided in the section below.

2.3 DRILLING

It is not possible at this stage to locate exactly where drilling will be carried out as this will be determined by the results of geophysical and geological work carried out in Phase 1 of the prospecting programme. In order to limit amendments of the PWP & EMP on the location of drill holes, it will be assumed that a drill hole as per Figure 2 below will be located in intervals of 500 meters (indicated resource as per SAMREC code) with no more than 2 holes being actively drilled at any given time. The initial holes will be drilled on the prospecting area that forms part of this application. A maximum amount of 58 holes will be drilled. As stated in the PWP, environmental sensitivity was not taken into account for the proposed drill sites identified in Figure 2. The sensitivity of the proposed drill sites was assessed for the purposes of this report and the findings presented in Section 10.1 below

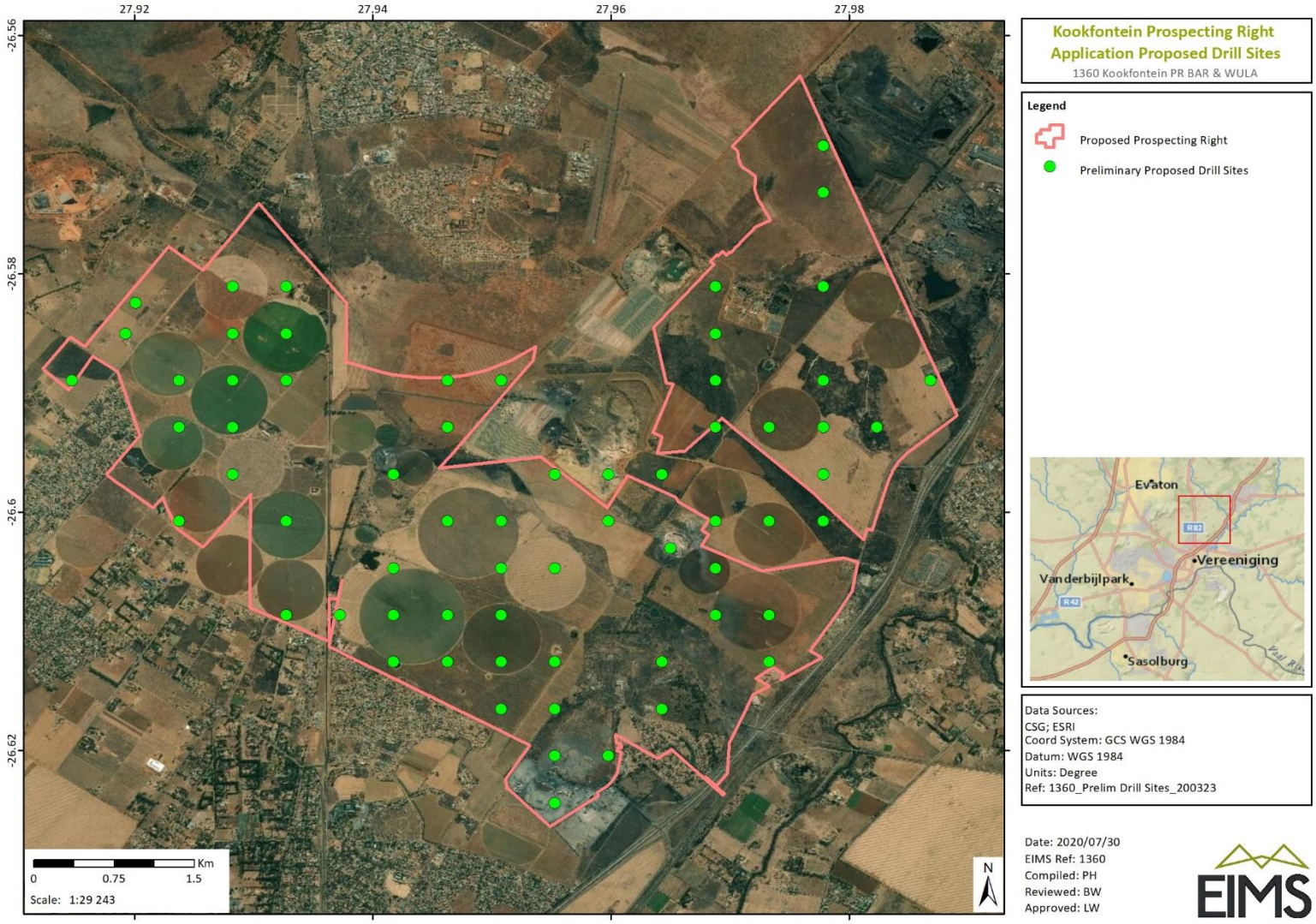


Figure 2: Preliminary Dill sites

2.4 DESCRIPTION OF PRE-FEASIBILITY STUDIES (PHASE 3)

Following the invasive prospecting activities and laboratory analysis the following activities will be covered during the pre-feasibility study:

- Geological Modelling with suitable software to generate contour plans of all quality parameters as well as the depth and thickness of the ore body;
- Initial mining method evaluation with a superficial cost study and financial model;
- A preliminary marketing study to determine the pricing and demand for the product; and
- A funding plan.

2.5 SUMMARY OF PROPOSED ACTIVITIES

Table 5 below provides a summary of the proposed phases, associated activities and time frames for the duration of the PWP.

Table 5: Timeframes each of the proposed activities

Phase	Activity	Year 1	Year 2	Year 3
Phase 1 **(Month 0-12)**	Non-Invasive Prospecting Geophysical Survey, Field surveys, Literature Studies, Obtaining historical borehole and trenching data and resource information	X		
Phase 2 **(Month 12-24)**	Invasive Prospecting Infill Drilling and Lab Analysis of cores/samples.		X	
Phase 3 **(Month 24-36)**	Non-Invasive Prospecting Analytical Desktop and Feasibility Studies			X

2.6 LISTED AND SPECIFIED ACTIVITIES

Name of Activity	Details of Activity	Aerial extent of the Activity	Listed Activity	Applicable Listing Notice	Waste Management Authorisation
Activities directly related to prospecting of a mineral resource, including the operation of that activity which requires a prospecting right in	Prospecting Activities, including: • Drilling • Drill site establishment • hydrocarbon storage	2949.7522Ha	X	GNR 983 Activity 20	N/A

Name of Activity	Details of Activity	Aerial extent of the Activity	Listed Activity	Applicable Listing Notice	Waste Management Authorisation
terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks.					
Prospecting Activities		2.84Ha	X	GNR 983 Listing 20 (as amended 2017)	N/A
Including:					
Drill site establishment		A drill site of approximately 40m^2 will be established that will require: • Clearing of vegetation for sumps and the drill entrance point • Earth sumps for water recycling • Laydown for drill rods, fuel and chemical storage and chemical toilets	X	GNR 983 Activity 20 (as amended 2017)	N/A
Borehole Drilling (up to 20m deep)		1m^2			N/A
The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation		1-20 Ha	X	GNR985 Activity 27 (as amended 2017)	N/A

Name of Activity	Details of Activity	Aerial extent of the Activity	Listed Activity	Applicable Listing Notice	Waste Management Authorisation
The clearance of an area of 300 square meters 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.		300m^2	X	GNR985 Activity 12 (as amended 2017)	
Temporary Access Road (if required). **Not exceeding 3.5m in width.**		Plan to use existing access roads as far as possible.			
Temporary 'Camp site', core / equipment store and site office. Staff will be **accommodated off site unless permission is given by landowners. A temporary site camp comprising of shade, equipment storage and seating for meals may be established.**		0.05 Ha			
Hydrocarbon Storage		Drill site establishments may result in small volumes of hydrocarbons being stored on site including: • Diesel • Drill Rod / Machine lubricants It is not expected that the volume of	X	GNR 983 Activity 20 (as amended 2017)	

Name of Activity	Details of Activity	Aerial extent of the Activity	Listed Activity	Applicable Listing Notice	Waste Management Authorisation
		hydrocarbons stored on site will exceed 80m^3. This activity is therefore considered as part of drill site establishment.			

3 POLICY AND LEGISLATIVE CONTEXT

Applicable Legislation and Guidelines	Reference Where Applied (i.e. where in this document has it been explained how the development complies with and responds to the legislation and policy context)	How does this Development Comply with and Respond to the Legislation and Policy Context
National Environmental Management Act (No. 107 of 1998) (NEMA) and the 2014 EIA Regulations	This Basic Assessment Report is prepared as in support of the Application for Environmental Authorisation under the NEMA.	In terms of the National Environmental Management Act an Application for Environmental Authorisation subject to a Basic Assessment Process has been applied for. **Activities applied for:** • **GNR 983 Activity 20;** • **GNR 983 Activity 27; and** • **GNR 985 Activity 12**
Minerals and Petroleum Resources Development Act (No.28 of 2002) (MPRDA)	In support of the Prospecting Right Application submitted by Nimbargo Resources (Pty) Ltd, in terms of Section 16 of the MPRDA, the applicant is required to obtain an Environmental Authorisation in terms of Section 5A(b) of the MPRDA.	A Prospecting Right Application has been submitted in terms of Section 16 of the Mineral and Petroleum Resources Development Act
National Water Act (No. 36 of 1998) (NWA): **Water may not be used without prior authorisation by the DHSWS. A section 21 Water Use Licence Application will be applied for.**	Section 21 of this report provides detail on applicable water uses.	A Water Use Licence application through a general authorisation process be will applied for.in terms of Section 21 of the National Water Act (NWA, No. 36 of 1998).

Applicable Legislation and Guidelines	Reference Where Applied (i.e. where in this document has it been explained how the development complies with and responds to the legislation and policy context)	How does this Development Comply with and Respond to the Legislation and Policy Context
The National Environmental Management: Biodiversity Act (Act No. 10 of 2004 – NEMBA)	Regulations published under NEMBA provides a list of protected species (flora and fauna), according to the Act (GN R. 151 dated 23 February 2007, as amended in GN R. 1187 dated 14 December 2007) which require a permit in order to be disturbed or destroyed.	Several individuals of three protected plant species within Gauteng (*Boophone disticha, Crinum bulbispermum and Hypoxis hemerocallidea*) were observed and marked during the specialist survey. There is no intention to remove these specimens and as such, no applications are required in terms of the National Environmental Management: Biodiversity Act. Mitigation measures relating to the management of protected species as well as alien and invasive species are included in Part B: EMPr of this report.
National Environmental Management: Waste Act (No. 59 of 2008)	Waste generation associated with prospecting activities	Waste from the prospecting activities will not trigger a listed activity in terms of GN 921, Category A, B or C, hence no Waste Management Licence will be applied for.
National Heritage Resources Act (No. 25 of 1999) and Regulations	The Environmental Attributes Associated with The Alternatives 6.4 description of the cultural and heritage landscape	A Heritage and Palaeontology specialist study was undertaken, and sensitive sites recorded on the sensitivity map. No prospecting activities are to take place within close proximity (including relevant buffer zones) to these sites.
National Environmental Management: Air Quality Act (No. 39 of 2004) and National Dust Control Regulations (2013)	Section 8 assesses the impact of the generation of dust during prospecting activities	Mitigation measures relating to the management of dust impacts are included Part B: EMPr of this report.
SANS 10103 (Noise Regulations)	Section 8 assesses the impact of noise impacts during prospecting	Mitigation measures relating to the management of noise impacts are included Part B: EMPr of this report.
National Forests Act (No. 84 of 1998) and Regulations	Section 6.4 Description of the receiving environment. Removal of protected trees during site clearance for prospecting	No protected tree species or forests occur within the prospecting area and as such no permits are required from the

Applicable Legislation and Guidelines	Reference Where Applied (i.e. where in this document has it been explained how the development complies with and responds to the legislation and policy context)	How does this Development Comply with and Respond to the Legislation and Policy Context
		Department of Forestry and Fisheries (DAFF).
Mine Health and Safety Act (Act No. 29 of 1996) and Regulations	Refer to section 21 General duties of employers to ensure the health and safety of employees.	Mitigation measures ensuring the health and safety of employees are included Part B: EMPr of this report.
Occupational Health and Safety Act (No. 85 of 1993)	Refer to section 21 General duties of employers to their employees	Mitigation measures ensuring the health and safety of employees are included Part B: EMPr of this report.
Regulations pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations – No R1147, 20 November 2015	Refer to Sections 17 and 22. Financial provision associated with the prospecting activity	Financial provision for the rehabilitation or management of negative environmental impacts associated with the prospecting activity are included in this report.
Mining and Biodiversity Guidelines 2013 **The Mining and Biodiversity Guidelines (2013) was developed by the Department of Mineral Resources, the Chamber of Mines, the South African National Biodiversity Institute and the South African Mining and Biodiversity Forum, with the intention to find a balance between economic growth and environmental sustainability. The Guideline is envisioned as a tool to "foster a strong relationship between biodiversity and mining which will eventually translate into best practice within the mining sector. In identifying biodiversity priority areas which have different levels of risk against mining, the Guideline categorises biodiversity priority areas into four categories of biodiversity priority areas in relation to their importance from a biodiversity and ecosystem service point of view as well as**	Section 6.4 Description of the receiving environment Section 6.5 Impacts and risks identified Section 6.8 Possible mitigation measures	The specialist identified drill sites within the natural (CBA) areas and these sites have been excluded from the final list of drill sites moving forward.

Applicable Legislation and Guidelines	Reference Where Applied (i.e. where in this document has it been explained how the development complies with and responds to the legislation and policy context)	How does this Development Comply with and Respond to the Legislation and Policy Context
the implications for mining in these areas.		
Sedibeng Spatial Development Plan 2030: Development Principal 8: Optimally utilize the mining potential in the District in such a way that a sustainable balance is maintained between mining, agriculture and the natural environment.	Refer to Section 6.4 The purpose of the SDP is to ensure that the proposed project is consistent with the spatial planning for the Sedibeng District Municipality (SDM) and that such information can be accessed and utilized by local municipalities within the SDM to inform land use planning and development as well as decision making processes within the SDM.	Prospecting is not specifically excluded from this area in terms of the spatial planning information contained in the Sedibeng SDP.
Gauteng Provincial Environmental Management Framework (EMF) **The Gauteng Department of Agriculture and Rural Development (GDARD) produced an Environmental Management Framework for the whole of Gauteng. The objective of the GPEMF is to guide sustainable land use management within the Gauteng Province. The GPEMF, inter alia, serves the following purposes:** **To provide a strategic and overall framework for environmental management in Gauteng;** **Align sustainable development initiatives with the environmental resources, developmental pressures, as well as the growth imperatives of Gauteng;** **Determine geographical areas where certain activities can be excluded from an EIA process; and** **Identify appropriate, inappropriate and conditionally compatible activities in various**	Refer to Appendix C. Map and land use guidelines for areas of environmental importance. Municipality is required to undertake the assessment of all their areas and identify environmentally important areas and these assessments include wetland and rivers and these features need to be indicated. The sensitivity of these systems is also included in the framework. Action plans in terms of management and monitoring requirements to sustain these areas are required and indicated as part of the EMF strategy for municipality.	Portions of the proposed project fall within zone 1 and zone 5 of the EMF which are areas depicted as the Urban Development Zone and the Industrial and Commercial focus zone respectively. No exclusions to listed activities are relevant under the Gauteng Provincial EMF and therefore environmental authorisation is being applied for the relevant listed activities.

Applicable Legislation and Guidelines	Reference Where Applied (i.e. where in this document has it been explained how the development complies with and responds to the legislation and policy context)	How does this Development Comply with and Respond to the Legislation and Policy Context
Environmental Management Zones in a manner that promotes proactive decision-making.		
Gauteng Conservation Plan Version 3.3 (C-Plan 3.3)	Refer to section 6.4. Potential Impacts associated with proposed project.	The Gauteng Conservation Plan was considered in ensuring the protection of the surrounding ecology. The Biodiversity specialist assessment identified that the project area falls across a Critical Biodiversity Area and an Ecological Support Ara. Prospecting sites have been excluded based on their proximity to sensitive areas.
Gauteng Spatial Development Framework 2030	The purpose of this document is to ensure that the proposed project is consistent with the spatial planning for the Gauteng Province and that such information can be accessed and utilized by district and local municipalities within the province to inform land use planning and development as well as decision making processes.	Spatial Planning information of the province is sourced from this document.

4 NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

Prospecting is an important step in determining the viability of a mineral resource. Mining has played a significant role in defining South Africa's economic, political and social landscape and has allowed for the growth and development of numerous industries that are either suppliers to the mining industry or users of its product. Growth in both private and Government infrastructure developments have resulted in an increase in demand for raw materials such as sand and clay. The proposed project will provide valuable information in determining the presence of a viable mineral resource in the area.

5 MOTIVATION FOR THE OVERALL PREFERRED SITE, ACTIVITIES AND TECHNOLOGY ALTERNATIVE

The proposed prospecting project involves the search for commercially viable sand and clay resources. The application area has been selected as the preferred site based on ore genesis and occurrence in the area and therefore site location alternatives cannot be considered for this application.

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

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

It should be noted that the exact locations of the boreholes have not been identified at this stage. The location of these boreholes will be dependent on the findings of the non-invasive prospecting activities as well as the environmental sensitivities identified through this application. Once the proposed target areas for the boreholes have been identified during the phases as set out in Table 5 above, these areas will be investigated and will be subject to the conditions of this document.

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

This section describes the specific site area and the location of site features, having taken into consideration the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout.

6.1 DETAILS OF DEVELOPMENT FOOTPRINT ALTERNATIVES

The development footprint is expected to be a fraction of the application area size, which is estimated to be 2949.7522Ha. The geology is the primary driver in determining the location of prospecting. The project area is located approximately 7km north of Vereeniging, approximately 4km southwest from Meyerton.

6.1.1 PROPERTY

The properties comprising the prospecting area as well as the adjacent properties are predominantly characterised by intensive agriculture and grazing, agricultural small holdings and farmsteads, with some mining activities, residential urban development and industrial development. The Waldrift Nature Reserve is also located within the southern portion of the proposed project area however, in 2007 under the approval of the Premier of the Gauteng Province (16 October 2007), the declaration of the Waldrift as a Nature Reserve was withdrawn. The Waldrift Nature Reserve is no longer protected under the National Environmental Management Protected Areas Act (NEMPAA).

The proposed prospecting area is underlain by the Vryheid Formation (Ecca Group, Undifferentiated Karoo), Precambrain dolomites and associated marine sedimentary rocks that are located to the Malmani Subgroup (Chuniespoort Group, Transvaal Supergroup), as well as the Quaternary superficial deposits.

The Vryheid Formation comprises of mudrock, rhythmite, siltstone and find to coarse-grained sandstone. The Malmani Subgroup succession is about 2 km-thick and consists of a series of formations of oolitic and stromatolitic carbonates (limestones and dolomites), black carbonaceous shales and minor secondary cherts.

The inferred tectono-stratigraphic setting of the prospecting area is therefore considered favourable for containing sand (general), clay (general) and silica sand (general and silica). As such no assessment of alternative properties were assessed.

6.1.2 TYPE OF ACTIVITY

Invasive prospecting activities such as drilling as well as non-invasive activities will be conducted during prospecting. No bulk sampling work is to be carried out during this prospecting program.

6.1.3 DESIGN OR LAYOUT

Specific areas within the application area will be identified for invasive prospecting activities (e.g. drilling) in order to minimize land destruction during prospecting. The maximum extent of the invasive activities is estimated to be a 28 000 m^2 (2.8 ha), which is only a fraction of the application area illustrated in Figure 1.

It is assumed in the PWP that a drill hole will be located in intervals of 500 meters however the position of a number of boreholes may need to be changed due to the findings of the specialist studies. It is further stated in the PWP that no more than 2 holes being actively drilled at any given time. A maximum of 58 drill holes will be drilled. A combination of HQ (63.5mm) and NQ (47.63mm) drilling will be used to drill targets. Boreholes will be drilled up to a maximum of 20m deep.

It should be noted that specific areas have been identified as highly sensitive in terms of the surface environmental features. These features include burial grounds and graves; historical structures; the formally protected archaeological site (the Redan engraving site); critical biodiversity areas and wetlands. As such, the main alternative (only alternative assessed further in this document) for this project will be the avoidance (no-go areas) of the invasive prospecting activities within these environmentally sensitive areas. For remaining areas, mitigation measures have been recommended as per the sections below and these should be adhered to. Please refer to Section 10.2 below for a detailed composite map showing the areas of high sensitivity.

It is noted that the different phases and timeframes of the prospecting are, by their nature, dependent on the results obtained during the preceding phases of such prospecting. The proposals set out in the PWP are therefore made on the basis that results obtained during the preceding phases may necessitate reasonable changes and adaptations to such proposals, which will be reported as prescribed.

6.1.4 TECHNOLOGY ALTERNATIVES

The technologies that have been selected are proven effective in the determination of resource viability within the proposed prospecting area. Some of the techniques employed in the non-invasive prospecting will include desktop studies, spatial database compilation, land survey and remote sensing. Invasive prospecting will involve testing the target sites using diamond drilling, reverse circulation drilling or percussions drilling. The PWP anticipates that a combination of HQ (63.4mm) and NQ (47.63mm) drilling cores will be used to drill target.

6.1.5 OPERATIONAL ASPECTS

Operational aspects that have been considered for the effective implementation of the PWP include financial arrangements and availability of appropriate equipment and technical skills. Financing of the proposed work plan will be sourced from the Nimbargo Resources (Pty) Ltd budget and is estimated to total R16 260 000.

Details of the equipment available are included in Table 6 below. Nimbargo Resources (Pty) Ltd has ensured that technical personnel are available to execute the prospecting work program.

Table 6: Appropriate equipment available

Resources
A contractor will be used for all geology, invasive drilling and an independent laboratory will be used for chemical assays.
Mapping and GIS Software
Project Manager – Mining and Environmental

6.1.6 OPTION OF NOT IMPLEMENTING

If the prospecting right is not granted, the potential to identify viable mineral resources could be lost. Historical prospecting and mining activities have taken place in the vicinity of the proposed prospecting right area and as such the proposed prospecting activities represent a continuation of surrounding land uses.

6.2 DETAILS OF THE PUBLIC PARTICIPATION PROCESS TO BE FOLLOWED

6.2.1 PUBLIC PARTICIPATION METHODOLOGY

The Public Participation Process (PPP) is a requirement of several pieces of South African Legislation and aims to ensure that all relevant I&AP's are consulted, involved and their opinions are taken into account and a record included in the reports submitted to Authorities. The process ensures that all stakeholders are provided this opportunity as part of a transparent process which allows for a robust and comprehensive environmental study.

The landowners and other pre-identified key I&AP's were sent an initial notification letter on during August 2019, disseminated via email and registered mail. I&AP's were provided an initial registration period to register for the proposed project. Subsequent notifications will be sent as I&APs are identified. All pre-identified and registered I&APs have been notified of the availability of the BAR for review and comment. All comments received during this period will be included in this BAR and submitted to the Commenting Authority. A full description of the Public Participation Process will be included in the Comments and Responses Report which is attached as Appendix B to this report.

6.2.2 IDENTIFICATION OF I&AP'S

An initial I&AP list was compiled using WinDeed searches to determine the contact details of the registered landowners of the project affected properties and surrounding properties. Notifications were distributed to I&APs on site where possible. The I&AP database includes amongst others: landowners, communities, regulatory authorities and other specialist interest groups. Additional I&APs have been registered during the initial notification and call to register period. The I&APs database will continue to be updated throughout the duration of the EIA process. A full list of I&APs is attached in Appendix B.

6.2.3 LIST OF AUTHORITIES IDENTIFIED AND NOTIFIED

The following authorities have been identified and notified, but not limited to, of the proposed Kookfontein Prospecting Right Application:

- Emfuleni Local Municipality;
- Gauteng Department of Agriculture and Rural Development (GDARD)
- Gauteng Department of Energy and Mineral Resources (DEMR);
- Gauteng Department of Health: Environmental Health;
- Gauteng Department of Health;
- Gauteng Department of Human Settlements;
- Gauteng Department of Social Development;
- Gauteng Tourism Authority
- Midvaal Local Municipality;

- National Department of Human Settlements, Water and Sanitation (DHSWS);
- National Department of Rural Development and Land Reform;
- Sedibeng District Municipality; and
- South African Heritage Resources Agency (SAHRA)

6.2.4 LIST OF KEY STAKEHOLDERS IDENTIFIED AND NOTIFIED

The following key stakeholders, have been identified and notified of the proposed Kookfontein Prospecting Right Application:

- Agricultural Research Council;
- Endangered Wildlife Trust;
- Eskom Holdings (SOC) Limited;
- South African National Biodiversity Institute (SANBI);
- South African Heritage Resources Agency (SAHRA);
- South African National Roads Agency Limited (SANRAL); and
- Wildlife and Environment Society of South Africa (WESSA).

6.2.5 LIST OF SURROUNDING SURFACE RIGHTS HOLDERS/LANDOWNERS IDENTIFIED

The following surrounding surface rights holders/landowners of the area under application have been identified of the proposed Kookfontein Prospecting Right application:

- Actop Asphalt Pty Ltd;
- Blokbles Inv Pty Ltd
- Cape Gate Pty Ltd
- Carel de Klerk
- Cartoon Investment Pty Ltd;
- Chris and Marjorie Pieters Familie Trust;
- Daily Maid Cleaning Services Pty Ltd;
- Damfontein Five-Four One Pty Ltd;
- De Jager Boerdery;
- Donald McKay;
- Dumisani Mazinyane;
- Edward Vivian Venter;
- Eon Viljoen;
- Estelle de Jager;
- ETS Emergency Training Solutions;
- Fred Johannes Weber;
- Gerhardus Josiah Goss;
- Gert and Ms Susara van der Walt;
- Humrec-Human Resource Training Centre;
- Iketsetseng Agricultural Development Trust;
- John Balassis;
- Klip Industrial Park Pty Ltd;
- Koola, and Zainab Hussain;
- Locker Davies Prop Development cc;
- Lodiwikus van Rensburg;
- Lucky Zondo;
- Marxville Brahaman Stoetplaas Pty Ltd;
- Meropa Trust;
- Mohammed Ammen Saib
- Nienaber Family Trust;
- Ocon Brick Pty Ltd;
- Paulus Tieseto;

- Petrus Gerhardus Pieters;
- Ptyprops 171 Pty Ltd;
- Rosherville Prop Pty Ltd;
- Samancor Manganese Pty Ltd;
- Siyahula Agricultural Farming Services cc;
- Smakeiso Maziyane;
- Smaldeel Trust;
- South Vereeniging Prop Pty Ltd;
- The Republic of South Africa;
- T-L Ramovha Family Trust;
- Transnet Pty Ltd;
- Tutu Nicholas Mlungwana;
- Walkerville Hardware cc;
- Weltevreden Trust;
- Wessel Hamman Trust;
- Zink Inv. 26 Private Co Lt

The I&AP database is included in Section Appendix B.

6.2.6 NOTIFICATION OF I&AP'S

All I&AP's were notified of the proposed Prospecting Right Application via the following methods:

- Registered letters, emails and/or faxes;
- Background Information Document;
- Questionnaires;
- Placement of English and Afrikaans A1 Correx Site Notices in various locations within and surrounding the proposed project area;
- Placement of a newspaper advert in the Vaalweekbald

Refer to Appendix B for proof of notification sent to I&APs and for proof of correspondence with I&APs.

Notification documents sent to all pre-identified I&AP's included the following information:

- The proposed project area;
- List of activities to be authorised;
- Scale and extent of activities to be authorised;
- Typical impacts of activities to be authorised;
- The duration of the activity;
- Sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land;
- The purpose of the proposed project;
- The prospecting methods to be used;
- Details of the affected properties (including parent farm and portion);
- Details of the MPRDA and NEMA Regulations that must be adhered to;
- The minerals being prospected for;
- Date by which comment, concerns and objections must be forwarded through to EIMS; and
- Contact details of the Environmental Assessment Practitioner (EAP).

In addition, a questionnaire was included in the registered letters, emails and facsimiles sent and requested the following information from I&AP's:

- To provide information on how they consider that the proposed activities will impact on them or their socio-economic conditions;
- To provide written responses stating their suggestions to mitigate the anticipated impacts of each activity;
- To provide information on current land uses and their location within the area under consideration;
- To provide information on the location of environmental features on site, to make written proposals as to how and to what standard the impacts on site can be remedied.
- To mitigate the potential impacts on their socio-economic conditions to make proposals as to how the potential impacts on their infrastructure can be managed, avoided or remedied;
- Details of the landowner and information on lawful occupiers;
- Details of any communities existing within the area;
- Details of any Tribal Authorities within the area;
- Details of any other I&AP's that need to be notified;
- Details on any land developments proposed;
- Details of any perceived impacts to the environment that should be considered in the BAR; and
- Any specific comments concerns or objections to the proposed prospecting operation.

I&AP's were provided an opportunity to register as I&AP's for the proposed project from the 5th August 2020 to date. I&AP's were also notified of the availability of the BAR which has been made available for 30 days from 5th August 2020 until the 7th September 2020, for review and comment. Comments obtained during the BAR process and the responses of the EAP will be included in the Final BAR.

6.3 SUMMARY OF ISSUES RAISED BY I&AP'S

Any comments received during the PPP have been included in Appendix B. Refer to the I&AP database in Appendix B for a full list of registered interested and affected parties as well as the consultation report.

6.4 THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES

6.4.1 SOCIO-ECONOMIC CONTEXT

The proposed Kookfontein Prospecting Project will be situated on several farm portions as identified in Table 4. The area is located approximately 7km north of Vereeniging and 4km southwest from Meyerton. The application area falls within the Emfuleni Local Municipality (LM) as well as the Midvaal LM, within the Sedibeng District Municipality in the Gauteng Province. The prospecting area falls within ward 16 of Emfuleni LM and ward 3 of Midvaal LM within the Sedibeng District Municipality (SDM).

Emfuleni LM has the smallest land cover of all the local municipalities within the SDM with an area of 987.45 km^2. Emfuleni LM has two main city/town centres, namely, Vereeniging and Vanderbijlpark and forms the centre of what was formerly known as the Vaal triangle, renowned for its contribution to the iron and steel industry in South Africa. Emfuleni LM also contains six large peri-urban townships namely Evaton, Waldrift, Rust-ter-Vaal, Roshness and Deonairpark.

According to Census 2011, the Emfuleni LM has a total population of 721 663 people, of which 85.4% are black African, 12% are white, 1.2 % are coloured and 1% are Indian/Asian. Other groups make up 0,4% of the population. The education levels in the LM are low. Of those aged 20 years and older, 36.7% have some

secondary schooling, 3.6% have completed primary schooling, 32.4 % completed Grade 12/matric, 12.9% have some higher education, and 4 % of have no schooling.

The main economic activity within the Emfuleni LM is manufacturing. Manufacturing contributes 36.5 % of the municipalities gross value add (GVA, approximately R16.9 billion) and 87% of the SDM total manufacturing output. Of the 202 543 economically active people (employed and unemployed but looking for work), 34.7% (107 555) are unemployed. 20145 people are classified as discouraged work-seekers. Of the 85 594 economically active youth (aged 15 – 35), 45% are unemployed.

There are 220 135 households in the municipality, with an average household size of 3,1 persons per household. Of the households in the municipality, 69.9% have access to piped (tap) water inside the dwelling/institution, 88.2% have a flush toilet connected to sewage systems, 89.8% have weekly refuse removal and 92.2% have electricity for lighting.

The Census 2011 shows that there is a broad distribution of incomes across households in the Emfuleni LM with the largest portion, 16.4% of households earning between R19 601 – R38 200 per annum. Approximately, 14.5% of all households earn no income.

Midvaal Local Municipality (LM) is an administrative area in the SDM. The LM is the largest of the 3 municipalities in the SDM covering an area of 1 722 km^2. The Midvaal LM consists of predominantly rural area with extensive farming constituting approximately 50% of the total area.

According to the Midvaal IDP, the Midvaal LM has a total population of 95301 people, of which 58.5% are black African, 39.1% are white, 1.6 % are coloured and 0.8% are Indian/Asian. The education levels in the LM are low. Of the total LM population, 34.40% have some secondary schooling, 3.80% have completed primary schooling, 32.3 % completed Grade 12/matric, 15.3% have some higher education, and 5.2% of have no schooling.

The main economic activities within the LM are manufacturing, finance, government, community and social services and wholesale and retail trade. Of the LM economic activities manufacturing contributes 27.6 %, finance contributes 24.1%, government, community and social services contributes 23.6% and wholesale and retail trade contribute 15.1%. Cumulatively, these activities contribute to 90.4% to the local economy. Of the 45956 economically active people (employed and unemployed but looking for work), 18.8% (8620) are unemployed. 1939 people are classified as discouraged work-seekers.

There are 29 965 households in the municipality, with an average household size of 3,05 persons per household. Of the households in the municipality, 64.9% have access to piped (tap) water inside the dwelling/institution, 58% have a flush toilet connected to sewage systems, 82.1% have weekly refuse removal and 79.3% have electricity for lighting.

The Demacon Midvaal Economic Analysis (2015) shows that there is a broad distribution of incomes across households in the Midvaal LM with the largest portion, 16.5%, of households earning between R21 350- R42 698 per annum. Approximately, 13.9% of all households earn no income.

6.4.2 TYPE OF ENVIRONMENT AFFECTED BY THE PROPOSED ACTIVITY

This section of the report has been compiled with input from various specialists that were appointed to undertake the specialist assessments for the application area. The following specialist studies were undertaken:

- Terrestrial and Wetland Assessment- The Biodiversity Company;
- Heritage and Palaeontological Impact Assessment- PGS Heritage

6.4.2.1 TOPOGRAPHY

The prospecting area covers various farm portions, over an area of approximately 2949.7522 Ha. Topographically, the prospecting area ranges in altitudes from approximately 1454m amsl to 1525m amsl. This is predominantly due to existing mining operations in the area. The area is also characterised by extensive agricultural areas from the west to east. As can be seen in Figure 3 , the average elevation from the most northern point to the most south point of the project area is approximately 1477 m amsl and the average slope

is 3.3%. Figure 4 shows that the average elevation from the most western point to the most eastern point of the project area is 1483m amsl and the average slope is 1%.

6.4.2.2 CLIMATE

The climate is warm and temperate in Vereeniging. In winter, there is much less rainfall in Vereeniging than in summer. This location is classified as Cwb by Köppen and Geiger. The average annual temperature is 16.5 °C. annual rainfall is approximately 659 mm per year. The least amount of rainfall occurs in August with an average of approximately 6 mm. In January, the precipitation reaches its peak, with an average of 110 mm. The temperatures are highest on average in January, at around 21.7°C. At 9.0°C on average, July is the coldest month of the year. (en.climate-data.org, 2020)

6.4.2.3 GEOLOGY AND SOILS

The geology of the proposed Kookfontein study area is primarily underlain by the Vryheid Formation (Ecca Group, Undifferentiated Karoo), Precambrian dolomites and associated marine sedimentary rocks that are allocated to the Malmani Subgroup (Chuniespoort Group, Transvaal Supergroup), as well as Quaternary superficial deposits. According to the PalaeoMap on the SAHRIS database, the Palaeontological Sensitivity of the Vryheid Formation (Ecca Group, Undifferentiated Karoo) is Very High, while that of the Malmani Subgroup and Quaternary deposits are both High (Almond and Pether 2008, SAHRIS website). Groenewald and Groenewald (2014) allocated a High Sensitivity to the Malmani Subgroup as they noted that, in addition to the stromatolites, potentially fossiliferous Late Caenozoic Cave breccias within the “Transvaal dolomite” outcrop area could be present. These breccias are not individually mapped on geological maps (Butler, 2020).

Soil sampling during the site visit revealed mainly dark orthic topsoils underlain by a G-horizon which were classified as a Katspruit soil form, although some areas contained a more gritty, sandy substrate which was classified as a Kroonstad soil form. Descriptions of these dominant soil forms are shown in Figure 6.

6.4.2.4 HYDROGEOLOGY

No detailed hydrogeology study has been undertaken as part of this application due to the low impact the proposed prospecting drilling (20m deep) will have on the groundwater. No abstraction of groundwater is included in this application and no pollution of the groundwater is foreseen due to the prospecting activities.

6.4.2.5 LAND COVER

As illustrated in Figure 7, the application area is mostly cultivated land with areas of grassland, forested land, wetlands and mines and quarries. Patches of mines and quarry areas can be found on the northern and central portion of the application area. Grassland is present in patches across the Kookfontein project area, predominately in the northern and southern area

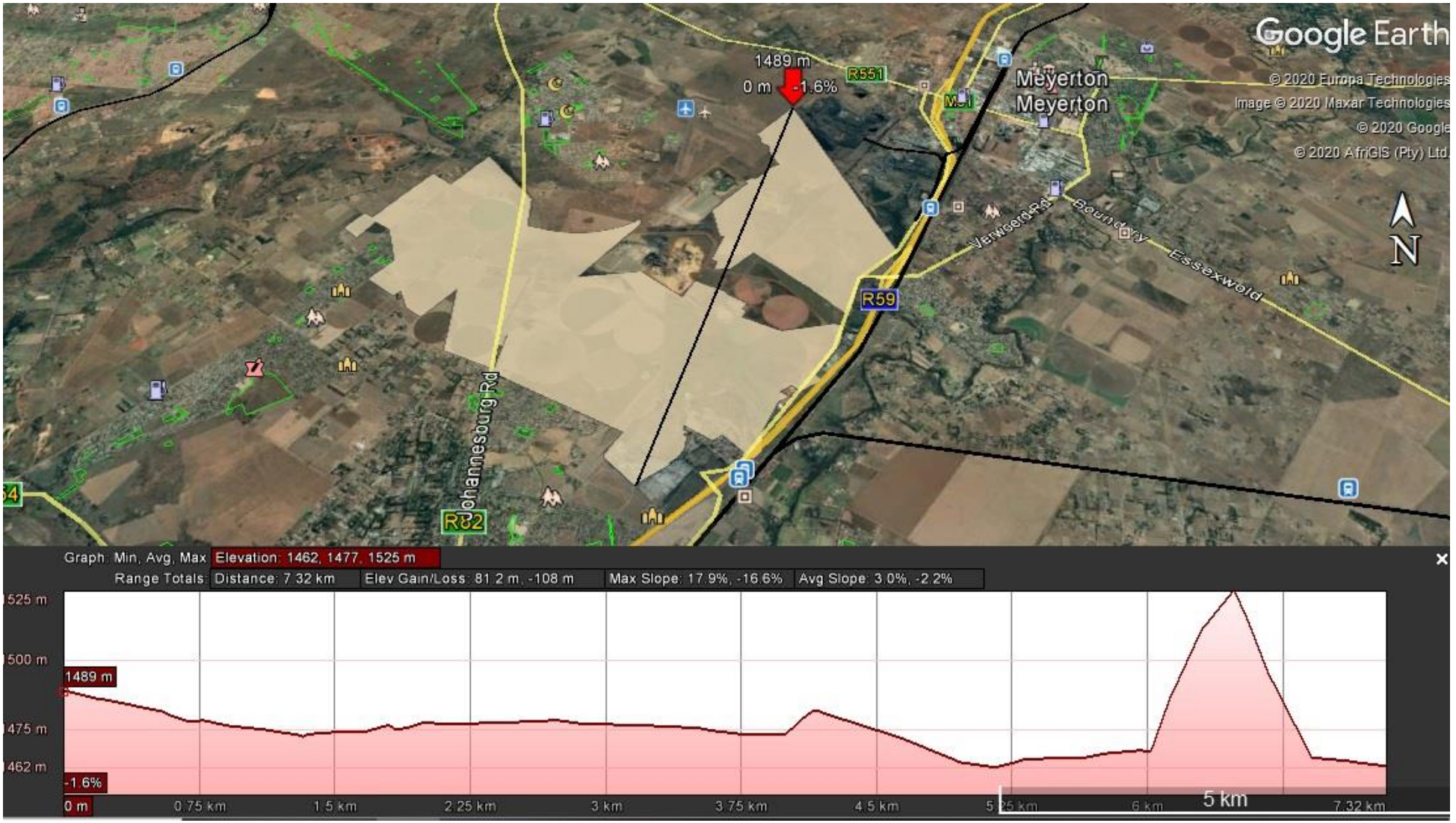


Figure 3: Elevation profile of the proposed prospecting area (north to south)

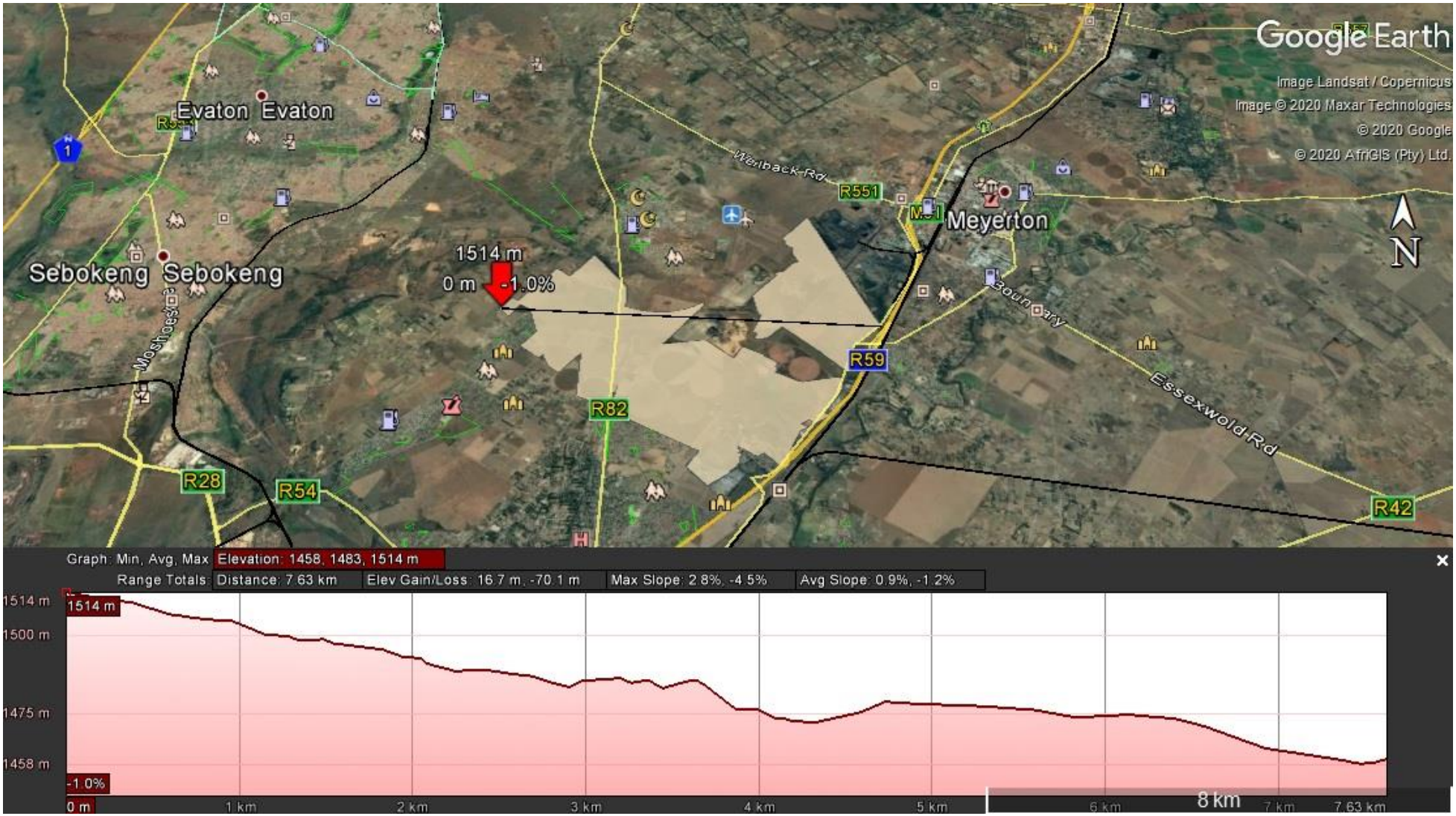


Figure 4: Elevation profile of the proposed prospecting area (west to east)

Figure 5: Geology of the application area

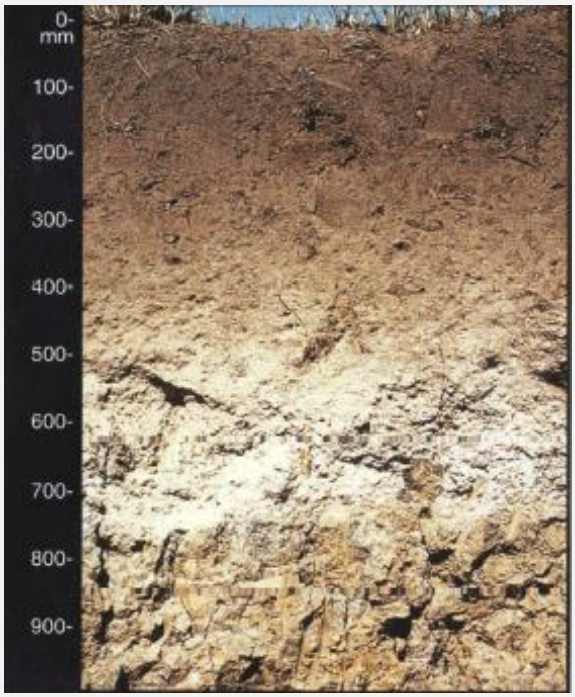
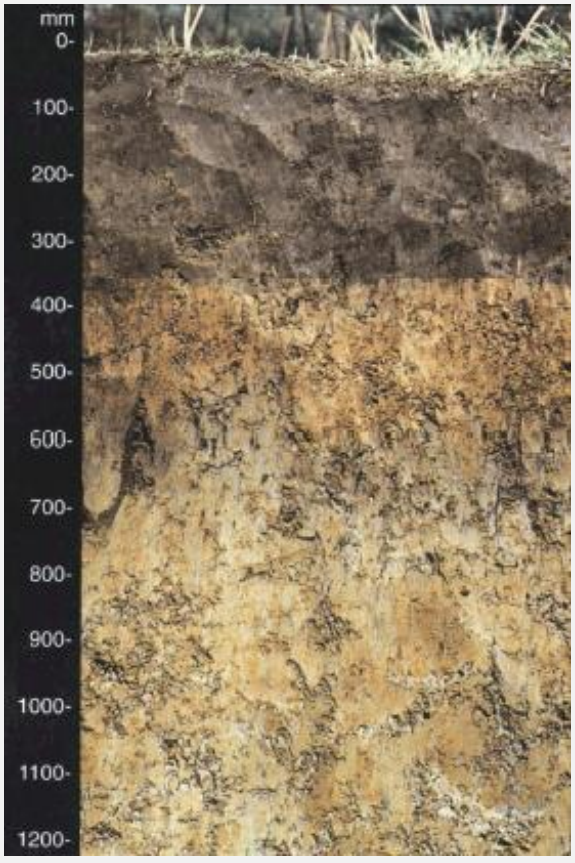
Kroonstad	
	The terrain was mid-slope to channel. Saturation was typically permanent to seasonal. The soil shows an orthic A horizon over an E over a G horizon. The G-horizon acts as a plug with virtually no permeability and as a result water moves laterally downslope leaching the E-horizon.
Katspruit:	
	Widespread associated with a number of permanent zones. Permanent. Orthic over G horizon. In the Katspruit soil form an orthic A horizon overlies a G horizon which is typical moist with grey matrix colours. Mottling may or may not occur down to a depth of 50 cm. Many of the Katspruit soils associated with the valley bottom systems in the area are not characteristically saturated at depth. This is largely the result of incision of the stream channel, which serves to drain these areas. The soil profile thus dries out.

Figure 6: Cross section of soil profiles of the proposed prospecting area (SASA, 1999)

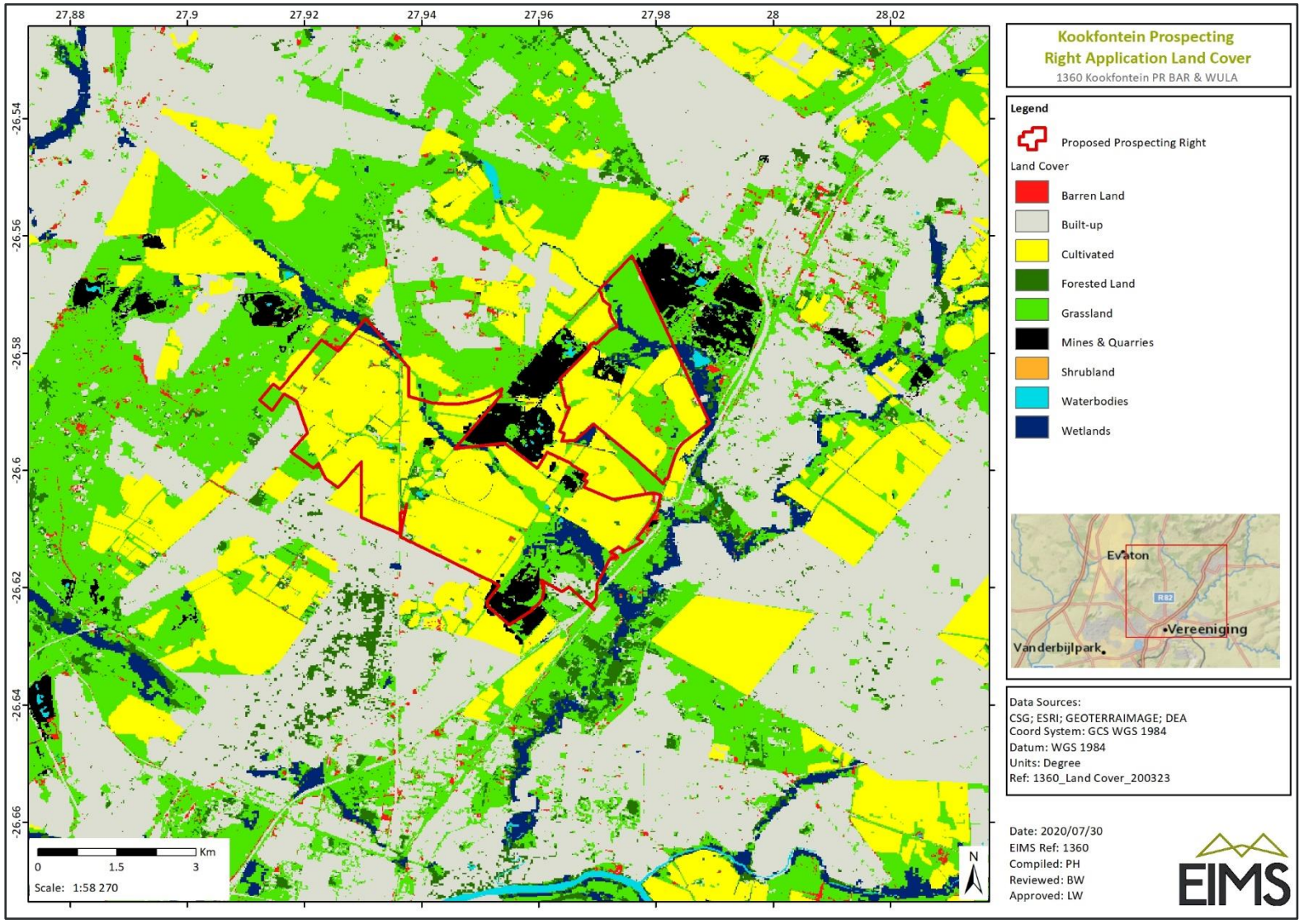


Figure 7: Land Cover

6.4.2.6 ECOSYSTEM PROTECTION LEVEL AND THREAT STATUS

The Soweto Highveld Grassland vegetation type is found in Mpumalanga, Gauteng and to a little extent also in neighbouring Free State and North-West Provinces. This vegetation type typically comprises of an undulating landscape on the Highveld plateau supporting short to medium-high, dense, tufted grassland dominated almost entirely by *Themeda triandra* and accompanied by a variety of other grasses such as *Elionurus muticus, Eragrostis racemosa, Heteropogon contortus* and *Tristachya leucothrix*. Scattered small wetlands, narrow stream alluvia, pans and occasional ridges or rocky outcrops interrupt the continuous grassland cover (Mucina & Rutherford, 2006).

Ecosystem protection level tells us whether ecosystems are adequately protected or under-protected. Ecosystem types are categorised as not protected, poorly protected, moderately protected or well protected, based on the proportion of each ecosystem type that occurs within a protected area recognised in the Protected Areas Act (Skowno et al., 2019).

According to Mucina and Rutherford (2006), the Soweto Highveld Grassland vegetation type is classified as Endangered (EN). The national target for conservation protection for this vegetation type is 24% (Figure 8), but only a few areas are statutorily conserved (52.7%) in Waldrift, Krugersdorp, Leeuwkuil, Suikerbosrand, Rolfe's Pan Nature Reserves or privately conserved in Johanna Jacobs, Tweefontein, Gert Jacobs, Nikolaas and Avalon Nature Reserves and the Heidelberg Natural Heritage Site.

The proposed prospecting area was superimposed on the ecosystem protection level map for this type of vegetation to assess the protection status of terrestrial ecosystems associated with the development (Figure 9). Based on Figure 9 the terrestrial ecosystems associated with the proposed prospecting area are rated as not protected for the entire project area. This means that these ecosystems are considered not to be adequately protected in areas such as national parks or other formally protected areas.

Ecosystem threat status outlines the degree to which ecosystems are still intact or alternatively losing vital aspects of their structure, function and composition, on which their ability to provide ecosystem services ultimately depends (Skowno *et al*., 2019).Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Least Threatened (LT), based on the proportion of each ecosystem type that remains in good ecological condition (Skowno *et al*., 2019).

The project area was superimposed on the terrestrial ecosystem threat status. As seen in the figures below, the project area is situated within an ecosystem that are listed as VU.

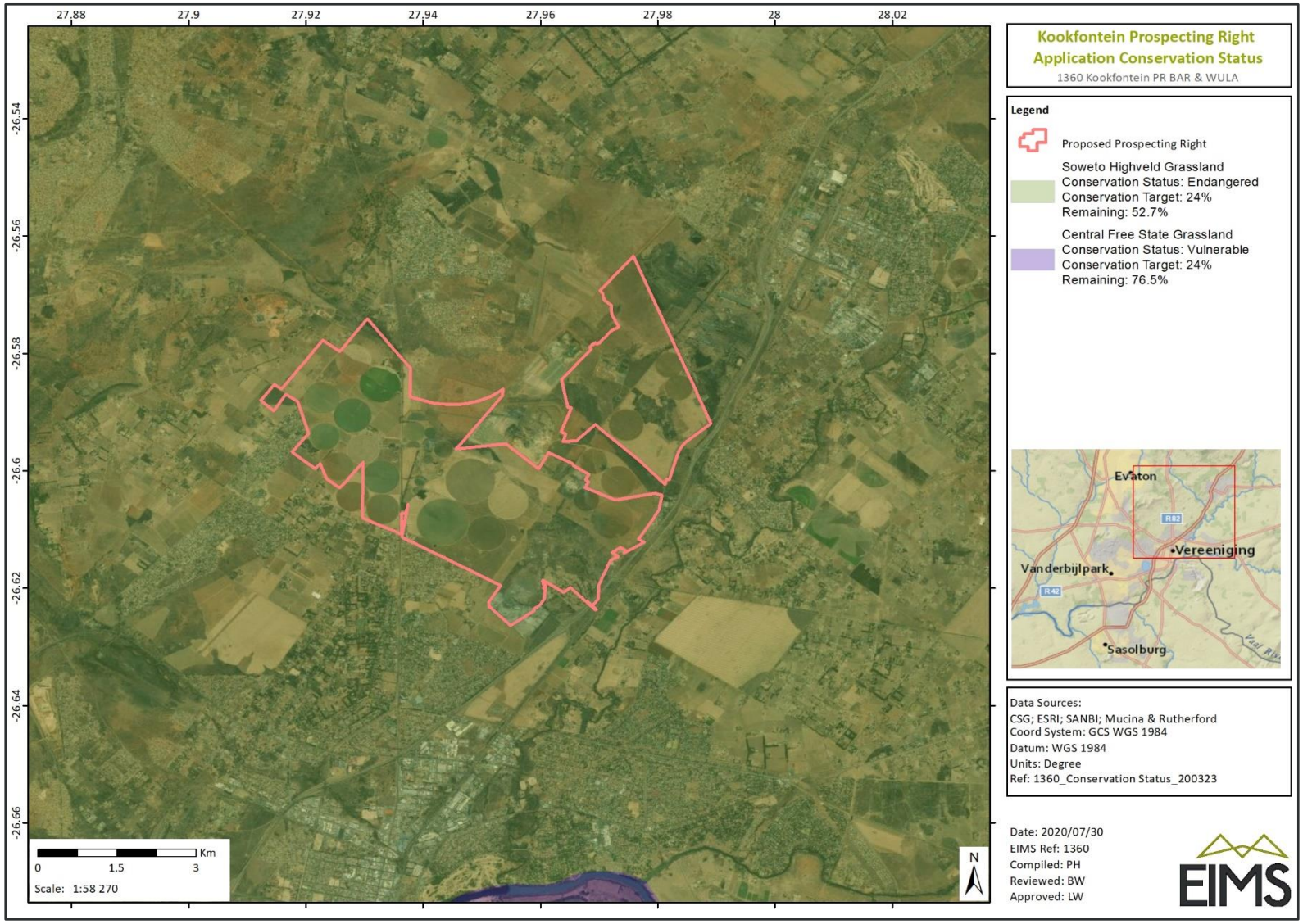


Figure 8: Conservation Status in terms of Vegetation type (Mucina and Rutherford; 2006)

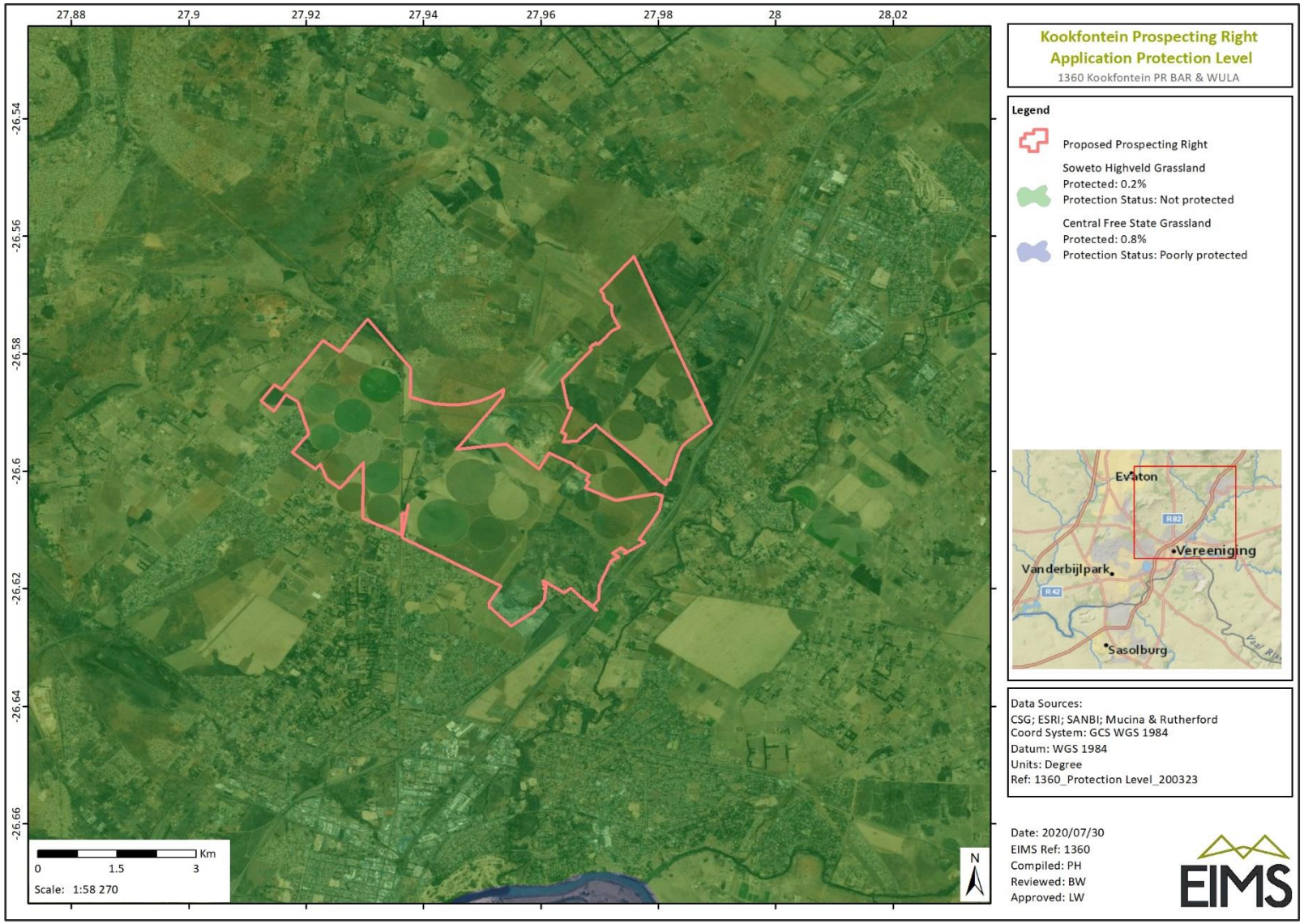


Figure 9: Ecosystem Protection Level in terms of Vegetation type (Mucina and Rutherford; 2006)

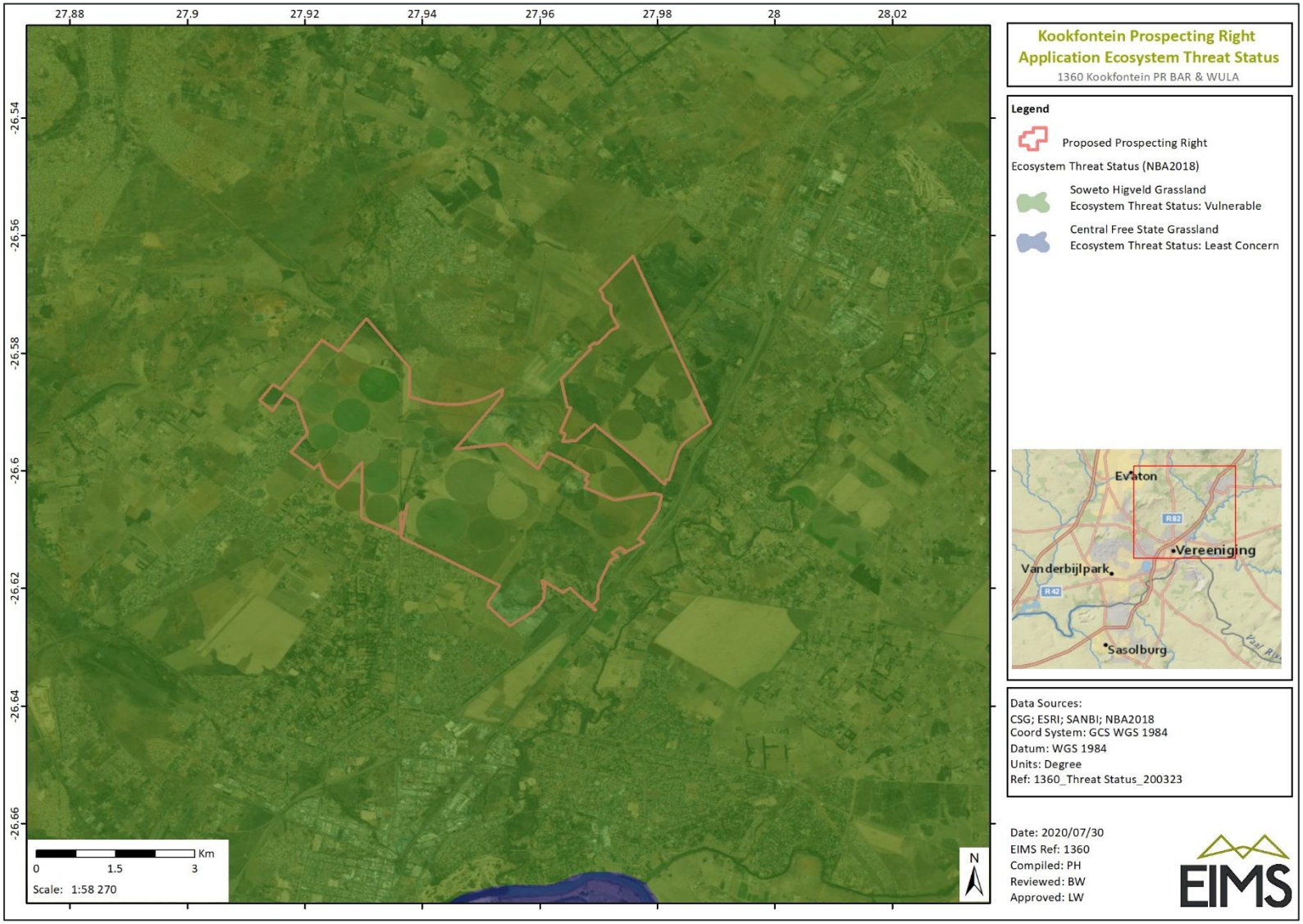


Figure 10: The project area showing the regional ecosystem threat status of the associated terrestrial ecosystems (NBA, 2018).

6.4.2.7 RAMSAR SITES & WORLD HERITAGE SITES

There are no Ramsar sites or World heritage sites within the application area.

6.4.2.8 TERRESTRIAL ECOSYSTEMS

The project area is situated within the grassland biome. This biome is centrally located in southern Africa, and adjoins all except the desert, fynbos and succulent Karoo biomes (Mucina & Rutherford, 2006). The grassland biome comprises many different vegetation types. The project area is situated within the Soweto Highveld Grassland vegetation type according to Mucina & Rutherford (Figure 11). Based on the Plants of Southern Africa (BODATSA-POSA, 2019) database, 361 plant species have the potential to occur in the project area and its surroundings. Of the 361-plant species, two (2) species is listed as being species of conservation concern (SCC). This species is *Gnaphalium nelsonii* and *Lithops lesliei subsp. Lesliei*. They are described in Section 9.7 of the Ecological Specialist Report (Appendix E: Specialist Reports).

Table 7: Plant Species of Conservation Concern expected to occur in the prospecting area (BODATSA-POSA, 2016)

Family	Taxon	Author	IUCN	Ecology	Habitat
Asteraceae	Gnaphalium nelsonii	Burtt Davy	NT	Indigenous; Endemic	Seasonally wet places in grassland and savanna, and along dry watercourses.
Aizoaceae	Lithops lesliei subsp. lesliei	(N.E.Br.) N.E.Br.	NT	Indigenous	Primarily in arid grasslands, usually in rocky places, growing under the protection of forbs and grasses

6.4.2.9 GAUTENG CONSERVATION PLAN (CRITICAL BIODIVERSITY AREAS (CBAS))

The Gauteng Conservation Plan (Version 3.3) (GDARD, 2014b) classified areas within the province on the basis of its contribution to reach the conservation targets within the province. These areas are classified as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) to ensure sustainability in the long term. The CBAs are classified as either 'Irreplaceable' (must be conserved), or 'Important'.

Critical Biodiversity Areas (CBAs) are terrestrial and aquatic areas of the landscape that need to be maintained in a natural or near-natural state to ensure the continued existence and functioning of species and ecosystems and the delivery of associated ecosystem services. If these areas are not maintained in a natural or near natural state then biodiversity targets cannot be met.

The project area falls across both a CBA: Important and an ESA classified area (Figure 12).The remaining sections of this project are "unclassified"

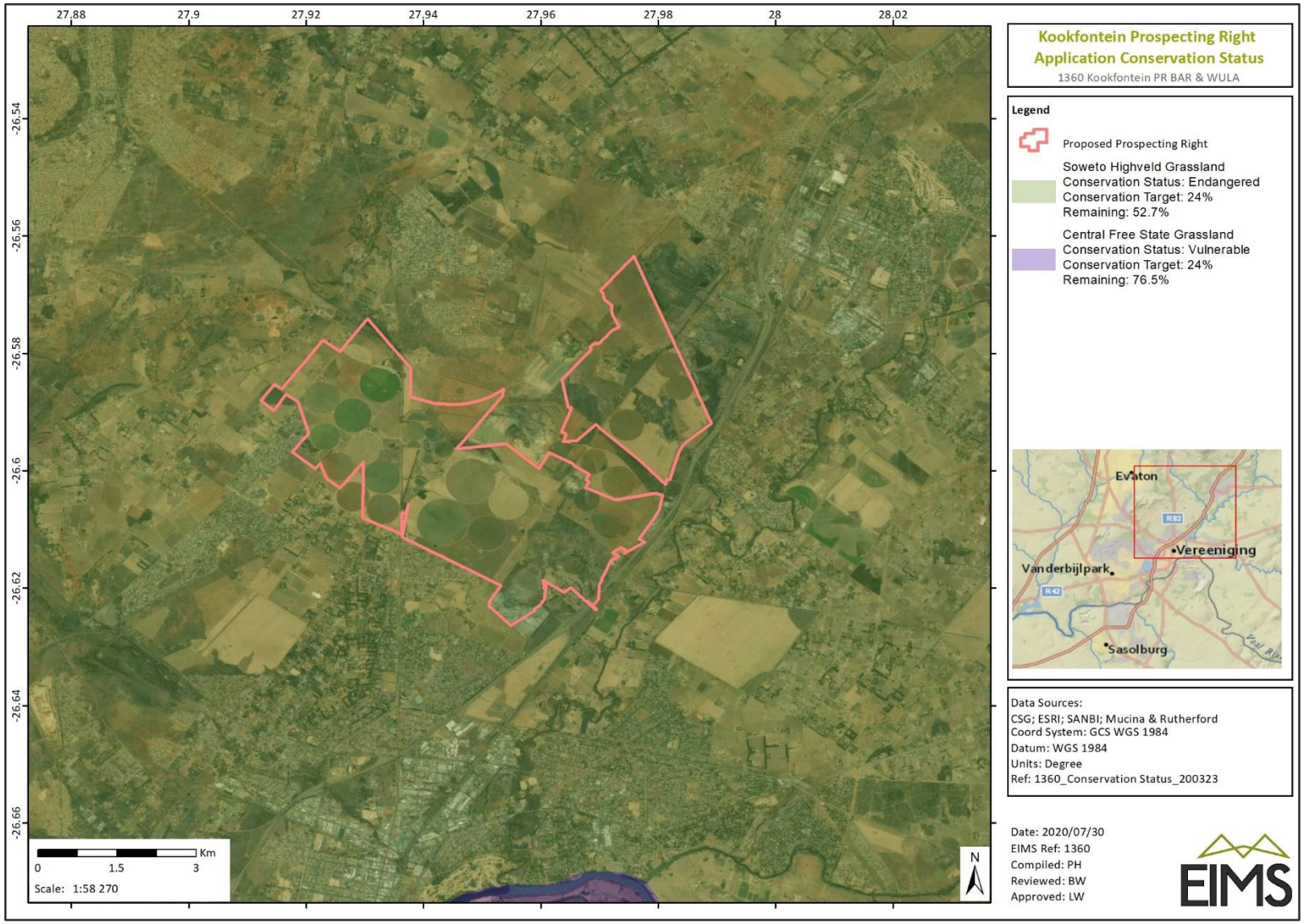


Figure 11: Vegetation types based on the Vegetation Map of South Africa, Lesotho & Swaziland (BGIS, 2018)

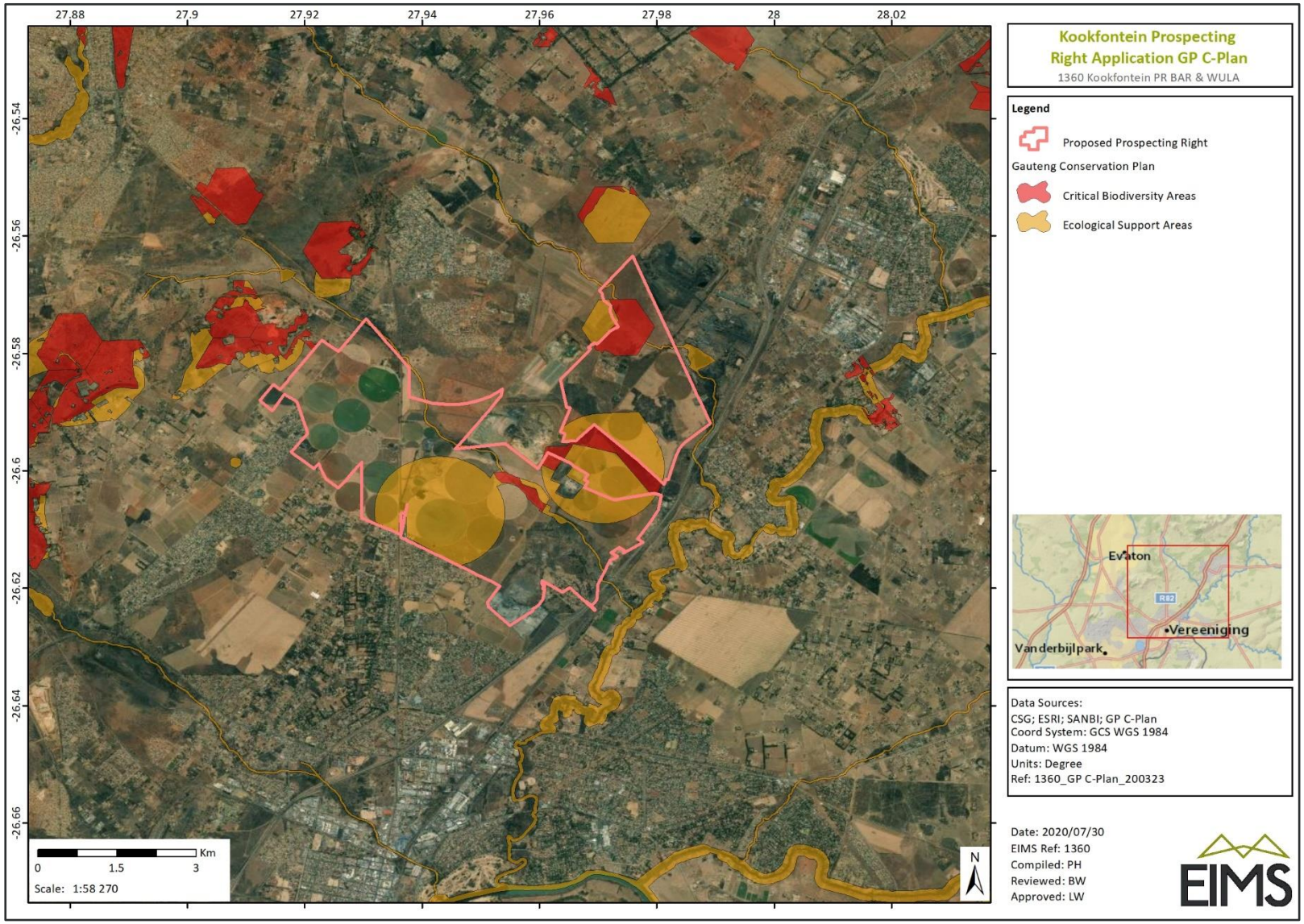


Figure 12: Critical Biodiversity Areas within the proposed project area

6.4.2.10 MINING AND BIODIVERSITY GUIDELINES

The Mining and Biodiversity Guidelines (2013) were developed by the Department of Mineral Resources, the Chamber of Mines, the South African National Biodiversity Institute and the South African Mining and Biodiversity Forum, with the intention to find a balance between economic growth and environmental sustainability. The Guideline is envisioned as a tool to "foster a strong relationship between biodiversity and mining which will eventually translate into best practice within the mining sector." In identifying biodiversity priority areas, which have different levels of risk against mining, the Guideline categorises biodiversity priority areas into four categories of biodiversity priority areas in relation to their importance from a biodiversity and ecosystem service point of view as well as the implications for mining in these areas:

A. Legally protected areas, where mining is prohibited;

B. Areas of highest biodiversity importance, which are at the highest risk for mining;

C. Areas of high biodiversity importance, which are at a high risk for mining; and

D. Areas of moderate biodiversity importance, which are at a moderate risk for mining. Table 8 shows the four different categories and the implications for mining within each of these categories.

The Guideline provides a tool to facilitate the sustainable development of South Africa's mineral resources in a way that enables regulators, industry and practitioners to minimise the impact of mining on the country's biodiversity. It provides the mining sector with a practical, user- friendly manual for integrating biodiversity considerations into the planning processes and managing biodiversity exploration through to closure. The Guideline provides explicit direction in terms of where mining-related impacts are legally prohibited, where biodiversity priority areas may present high risks for mining projects, and where biodiversity may limit the potential for mining.

Overall, proponents of a mining activity in biodiversity priority areas should demonstrate that:

- There is significant cause to undertake mining – by commenting on whether the biodiversity priority area coincides with mineral or petroleum reserves that are strategically in the national interest to exploit. Reference should also be made to whether alternative deposits or reserves exist that could be exploited in areas that are not biodiversity priority areas or are less environmentally sensitive areas;

- Through the process of a rigorous EIA and associated specialist biodiversity studies the impacts of the proposed mining are properly assessed following good practice. It is critical that sufficient time and resources are budgeted to do so early in the planning and impact assessment process, including appointing appropriate team of people with the relevant skills and knowledge as required by legislation;

- Cumulative impacts have been considered;

- The mitigation hierarchy has been systematically applied and alternatives have been rigorously considered;

- The issues related to biodiversity priority areas have been incorporated into a robust EMP as the main tool for describing how the mining or prospecting operation's environmental impacts are to be mitigated and managed; and

- Good practice environmental management is followed, monitoring and compliance enforcement is ensured.

Table 8: The mining and biodiversity guidelines categories

Category	Biodiversity priority areas	Risk for mining	Implications for mining
A. Legally protected	Protected areas (including National Parks, Nature Reserves, World Heritage Sites, Protected Environments, Nature Reserves) Areas declared under Section 49 of the Mineral and Petroleum Resources Development Act (No. 28 of 2002)	Mining prohibited	Mining projects cannot commence as mining is legally prohibited. Although mining is prohibited in Protected Areas, it may be allowed in Protected Environments if both the Minister of Mineral Resources and Minister of Environmental Affairs approve it. In cases where mining activities were conducted lawfully in protected areas before Section 48 of the Protected Areas Act (No. 57 of 2003) came into effect, the Minister of Environmental Affairs may, after consulting with the Minister of Mineral Resources, allow such mining activities to continue, subject to prescribed conditions that reduce environmental impacts.
B. Highest biodiversity importance	Critically endangered and endangered ecosystems Critical Biodiversity Areas (or equivalent areas) from provincial spatial biodiversity plans River and wetland Freshwater Ecosystem Priority Areas (FEPAs) and a 1km buffer around these FEPAs Ramsar Sites	Highest risk for mining	Environmental screening, environmental impact assessment (EIA) and their associated specialist studies should focus on confirming the presence and significance of these biodiversity features, and to provide site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making for mining, water use licenses, and environmental authorisations. If they are confirmed, the likelihood of a fatal flaw for new mining projects is very high because of the significance of the biodiversity features in these areas and the associated ecosystem services. These areas are viewed as necessary to ensure protection of biodiversity, environmental sustainability, and human well-being. An EIA should include the strategic assessment of optimum, sustainable land use for a particular area and will determine the significance of the impact on biodiversity. This assessment should fully consider the environmental sensitivity of the area, the overall environmental and socio-economic costs and benefits of mining, as well as the potential strategic importance of the minerals to the country. Authorisations may well not be granted. If granted, the authorisation may set limits on allowed activities and impacts and may specify biodiversity offsets that would be written into license agreements and/or authorisations.

C. High biodiversity importance	Protected area buffers (including buffers around National Parks, World Heritage Sites* and Nature Reserves) Transfrontier Conservation Areas (remaining areas outside of formally proclaimed protected areas) Other identified priorities from provincial spatial biodiversity plans High water yield areas Coastal Protection Zone Estuarine functional zone	High risk for mining	These areas are important for conserving biodiversity, for supporting or buffering other biodiversity priority areas, and for maintaining important ecosystem services for particular communities or the country as a whole. An EIA should include an assessment of optimum, sustainable land use for a particular area and will determine the significance of the impact on biodiversity. Mining options may be limited in these areas, and limitations for mining projects are possible. Authorisations may set limits and specify biodiversity offsets that would be written into license agreements and/or authorisations.
D. Moderate biodiversity importance	Ecological support areas Vulnerable ecosystems Focus areas for protected area expansion (land-based and offshore protection)	Moderate risk for mining	These areas are of moderate biodiversity value. EIAs and their associated specialist studies should focus on confirming the presence and significance of these biodiversity features, identifying features (e.g. threatened species) not included in the existing datasets, and on providing site-specific information to guide the application of the mitigation hierarchy. Authorisations may set limits and specify biodiversity offsets that would be written into license agreements and/or authorisations.

Portions in the north and central part of the project area is classified as “highest biodiversity importance” with associated highest risks for mining. The central part of the project area is classified as “moderate biodiversity importance” with its associated moderate risk for mining

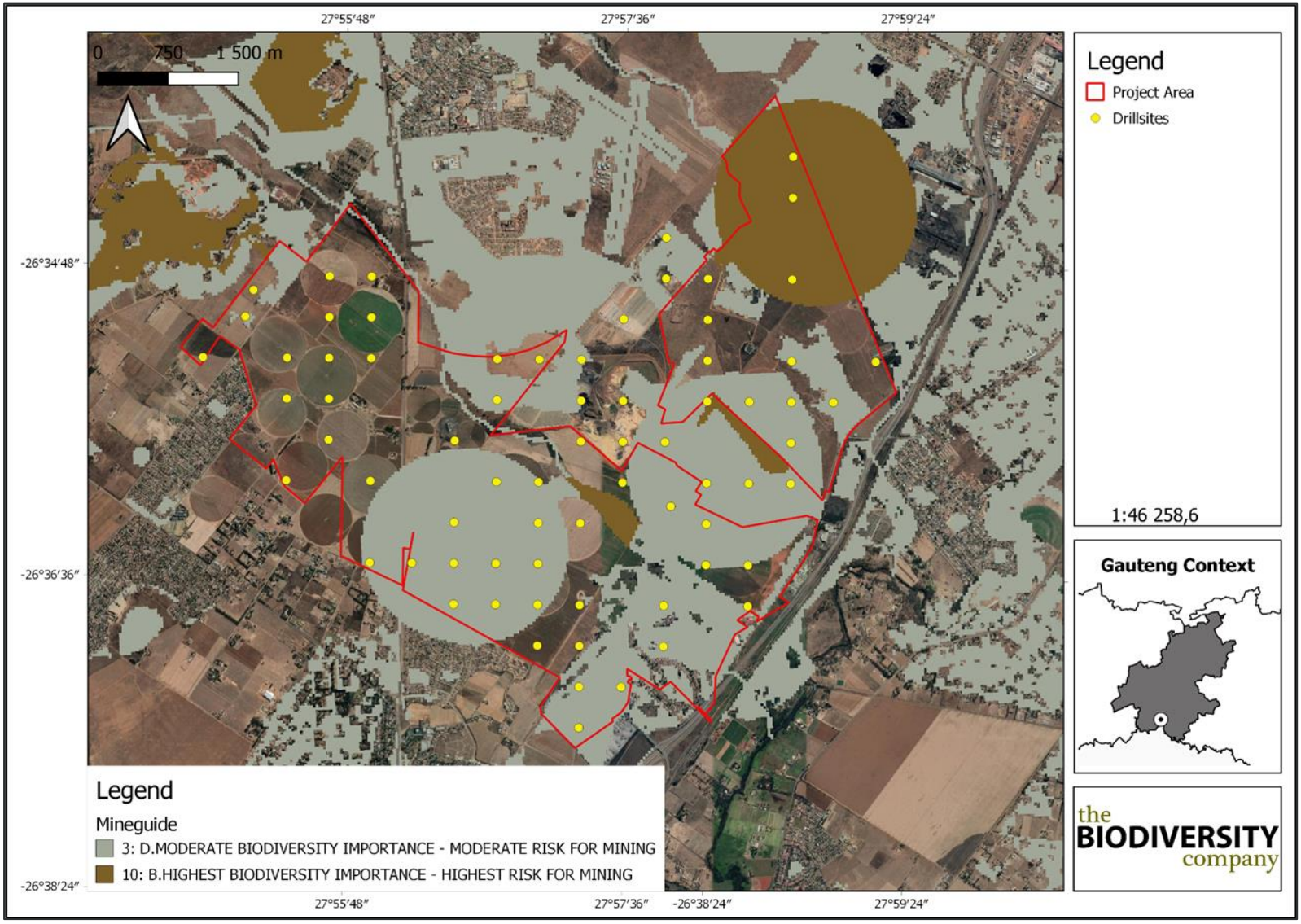


Figure 13: The project area superimposed on the Mining and Biodiversity Guideline spatial dataset (2013)

6.4.2.11 **VEGETATION ASSESSMENT**

The vegetation assessment was conducted throughout the extent of the project area. A total of 107 tree, shrub and herbaceous plant species were recorded in the project area during the field assessment. Some of the plant species recorded can be seen in Figure 14.

Figure 14: Some of the flora species recorded in the project area: A) *Selago densiflora*, B) *Boophone disticha*, C) *Cleome maculata*, D) *Ledebouria revoluta*, E) *Hypoxis iridifolia*, and F) *Helichrysum inornatum*

6.4.2.11.1 PROTECTED PLANT SPECIES

Several individuals of three protected plant species within Gauteng (Boophone disticha, Crinum bulbispermum and Hypoxis hemerocallidea) were observed and marked during the field survey, and their locations mapped can be seen in Figure 15. These plants are protected due to them being collected for their medicinal values and has led to a decrease in their numbers. Protected plant species can either be relocated in situ (preferred option) or a permit to destroy can be obtained.

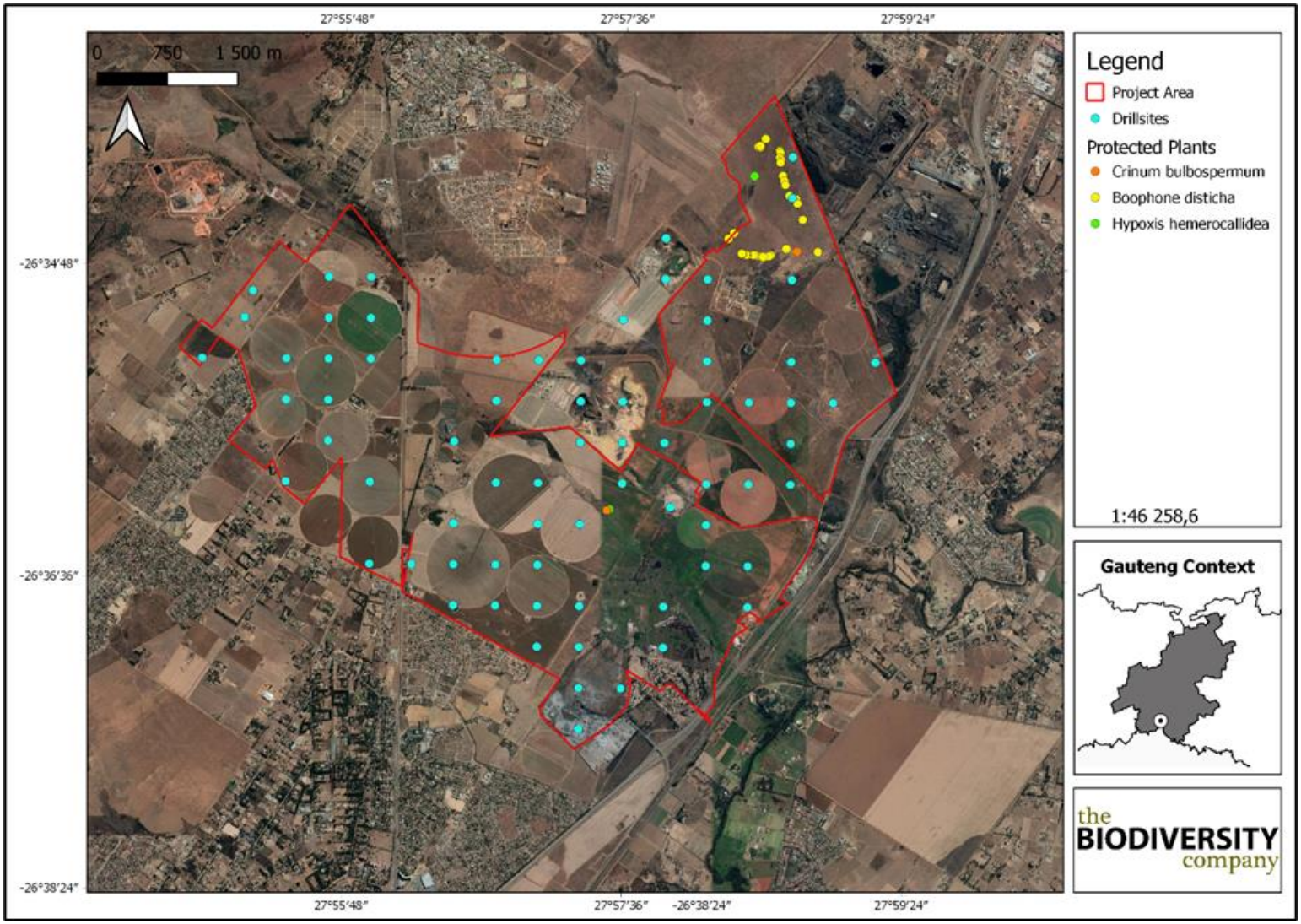


Figure 15: Locations of the protected plant species marked during the specialist field survey.

6.4.2.11.2 ALIEN AND INVASIVE PLANTS

Declared weeds and invader plant species have the tendency to dominate or replace the canopy or herbaceous layer of natural ecosystems, thereby transforming the structure, composition, and function of these systems. Therefore, it is important that these plants are controlled and eradicated by means of an eradication and monitoring programme. Some invader plants may also degrade ecosystems through superior competitive capabilities to exclude native plant species.

The National Environmental Management: Biodiversity Act (NEMBA) is the most recent legislation pertaining to alien invasive plant species. In August 2014, the list of Alien Invasive Species was published in terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004) (Government Gazette No 78 of 2014). The Alien and Invasive Species Regulations were published in the Government Gazette No. 37886, 1 August 2014, and was amended in February 2018 in the Government Gazette No. 41445. The legislation calls for the removal and / or control of alien invasive plant species (Category 1 species). In addition, unless authorised thereto in terms of the National Water Act, 1998 (Act No. 36 of 1998), no land user shall allow Category 2 plants to occur within 30 meters of the 1:50 year flood line of a river, stream, spring, natural channel in which water flows regularly or intermittently, lake, dam or wetland. Category 3 plants are also prohibited from occurring within proximity to a watercourse.

Below is a brief explanation of the three categories in terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA):

- Category 1a: Invasive species requiring compulsory control. Remove and destroy. Any specimens of Category 1a listed species need, by law, to be eradicated from the environment. No permits will be issued.
- Category 1b: Invasive species requiring compulsory control as part of an invasive species control programme. Remove and destroy. These plants are deemed to have such a high invasive potential that infestations can qualify to be placed under a government sponsored invasive species management programme. No permits will be issued.
- Category 2: Invasive species regulated by area. A demarcation permit is required to import, possess, grow, breed, move, sell, buy or accept as a gift any plants listed as Category 2 plants. No permits will be issued for Category 2 plants to exist in riparian zones.
- Category 3: Invasive species regulated by activity. An individual plant permit is required to undertake any of the following restricted activities (import, possess, grow, breed, move, sell, buy or accept as a gift) involving a Category 3 species. No permits will be issued for Category 3 plants to exist in riparian zones.

Note that according to the regulations, a person who has under his or her control a category 1b listed invasive species must immediately:

- Notify the competent authority in writing
- Take steps to manage the listed invasive species in compliance with:
    - Section 75 of the Act;
    - The relevant invasive species management programme developed in terms of regulation 4; and
    - Any directive issued in terms of section 73(3) of the Act.

Twenty (20) alien and/or invasive plants were recorded during the field survey within the project area. It is recommended that an Alien Plant Species Management Plan be implemented within the project areas in order to prevent the prospecting activities and movement exacerbating the infestation.

6.4.2.12 **FAUNA**

6.4.2.12.1 AVIFAUNA

Based on the South African Bird Atlas Project, Version 2 (SABAP2) database, 273 bird species have the potential to occur in the vicinity of the project area. The full list of potential bird species is provided in Appendix E.

Of the potential bird species, twelve (12) species are listed as SCC either on a regional or global scale.

Table 9: List of bird species of regional or global conservation importance that are expected to occur in close vicinity to the project area (South African Bird Atlas Project, Version 2 (SABAP2)).

Species	Common Name	Conservation Status		Likelihood of Occurrence
		Regional (SANBI, 2016)	IUCN (2017)	
Calidris ferruginea	Sandpiper, Curlew	LC	NT	Moderate
Ciconia abdimii	Stork, Abdim's	NT	LC	Low
Circus ranivorus	Marsh-harrier, African	EN	LC	High
Eupodotis senegalensis	Korhaan, White-bellied	VU	LC	High
Falco biarmicus	Falcon, Lanner	VU	LC	High
Falco vespertinus	Falcon, Red-footed	NT	NT	High
Glareola nordmanni	Pratincole, Black-winged	NT	NT	Moderate
Mycteria ibis	Stork, Yellow-billed	EN	LC	Moderate
Oxyura maccoa	Duck, Maccoa	NT	NT	Moderate
Phoenicopterus minor	Flamingo, Lesser	NT	NT	Low
Phoenicopterus ruber	Flamingo, Greater	NT	LC	Low
Rostratula benghalensis	Painted-snipe, Greater	NT	LC	Moderate
Sterna caspia	Tern, Caspian	VU	LC	Moderate

Important Bird & Biodiversity Areas (IBAs) are sites of international significance for the conservation of the world's birds and other conservation significant species as identified by Birdlife International. These sites are also all Key Biodiversity Areas; sites that contribute significantly to the global persistence of biodiversity (Birdlife, 2017). The project area is approximately 9.8km away from the Suikerbosrand Nature Reserve IBA and therefore no IBAs will be affected by this prospecting right application.

6.4.2.12.2 MAMMALS

The IUCN Red List Spatial Data (IUCN, 2017) lists 79 mammal species that could be expected to occur within the project area. Of these species, 11 are medium to large conservation dependant species, such *Ceratotherium simum* (Southern White Rhinoceros) and *Tragelaphus oryx* (Common Eland) that, in South Africa, are generally restricted to protected areas such as game reserves. These species are not expected to occur in the project area and are removed from the expected SCC list. They are however still included in the expected species list (Appendix E)

Of the remaining 79 mammal species, 68 are considered small to medium sized, fourteen (14) (20.5%) are listed as being of conservation concern on a regional or global basis.

Table 10:List of mammal species of conservation concern that may occur in the project area as well as their global and regional conservation statuses

Species	Common Name	Conservation Status		Likelihood of occurrence
		Regional (SANBI, 2016)	IUCN (2017)	
Aonyx capensis	Cape Clawless Otter	NT	NT	High
Atelerix frontalis	South Africa Hedgehog	NT	LC	High
Crocidura maquassiensis	Makwassie musk shrew	VU	LC	Moderate
Eidolon helvum	African Straw-coloured Fruit Bat	LC	NT	Low
Felis nigripes	Black-footed Cat	VU	VU	Low
Hydrictis maculicollis	Spotted-necked Otter	VU	NT	High
Leptailurus serval	Serval	NT	LC	High
Mystromys albicaudatus	White-tailed Rat	VU	EN	Moderate
Ourebia ourebi	Oribi	EN	LC	Low
Panthera pardus	Leopard	VU	VU	Low
Parahyaena brunnea	Brown Hyaena	NT	NT	Low
Pelea capreolus	Grey Rhebok	NT	NT	Low
Poecilogale albinucha	African Striped Weasel	NT	LC	Moderate
Redunca fulvorufula	Mountain Reedbuck	EN	LC	Low

6.4.2.12.3 REPTILES AND AMPHIBIANS

Based on the IUCN Red List Spatial Data (IUCN, 2017) and the Reptile Map database provided by the Animal Demography Unit (ADU, 2019) 57 reptile species have the potential to occur in the project area (Appendix E). One of the species are a SCC (IUCN, 2017) however there are no recorded instances of the Nile Crocodile occurring in this area.

Based on the IUCN Red List Spatial Data (IUCN, 2017) and the Amphibian Map database provided by the Animal Demography Unit (ADU, 2019) 21 amphibian species have the potential to occur in the project area (Appendix E). No amphibian SCCs are expected to occur in the project area.

Table 11: Reptiles species of conservation concern that may occur in the project area as well as their global and regional conservation statuses (IUCN, 2017; SANBI, 2016).

Species	Common Name	Conservation Status		Likelihood of Occurrence
		Regional (SANBI, 2016)	IUCN (2017)	
Crocodylus niloticus	Nile Crocodile	VU	LC	Low

6.4.2.13 WATERCOURSES

This spatial dataset used to determine watercourses on site is part of the South African Inventory of Inland Aquatic Ecosystems (SAIIAE) which was released as part of the National Biodiversity Assessment (NBA) 2018. National Wetland Map 5 includes inland wetlands and estuaries, associated with river line data and many other data sets within the South African Inventory of Inland Aquatic Ecosystems (SAIIAE) 2018.

Ecosystem threat status (ETS) of river ecosystem types is based on the extent to which each river ecosystem type had been altered from its natural condition. Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Least concern (LC), with CR, EN and VU ecosystem types collectively referred to as 'threatened' (Van Deventer et al., 2019; Skowno et al., 2019).

Figure 16 shows that a not protected wetland and a poorly protected wetland can be found in the project area. Both a protected and a poorly protected river can also be found in the project area. Figure 17 shows that these wetlands are CR and LC respectively while the river has an ecosystem threat status of CR.

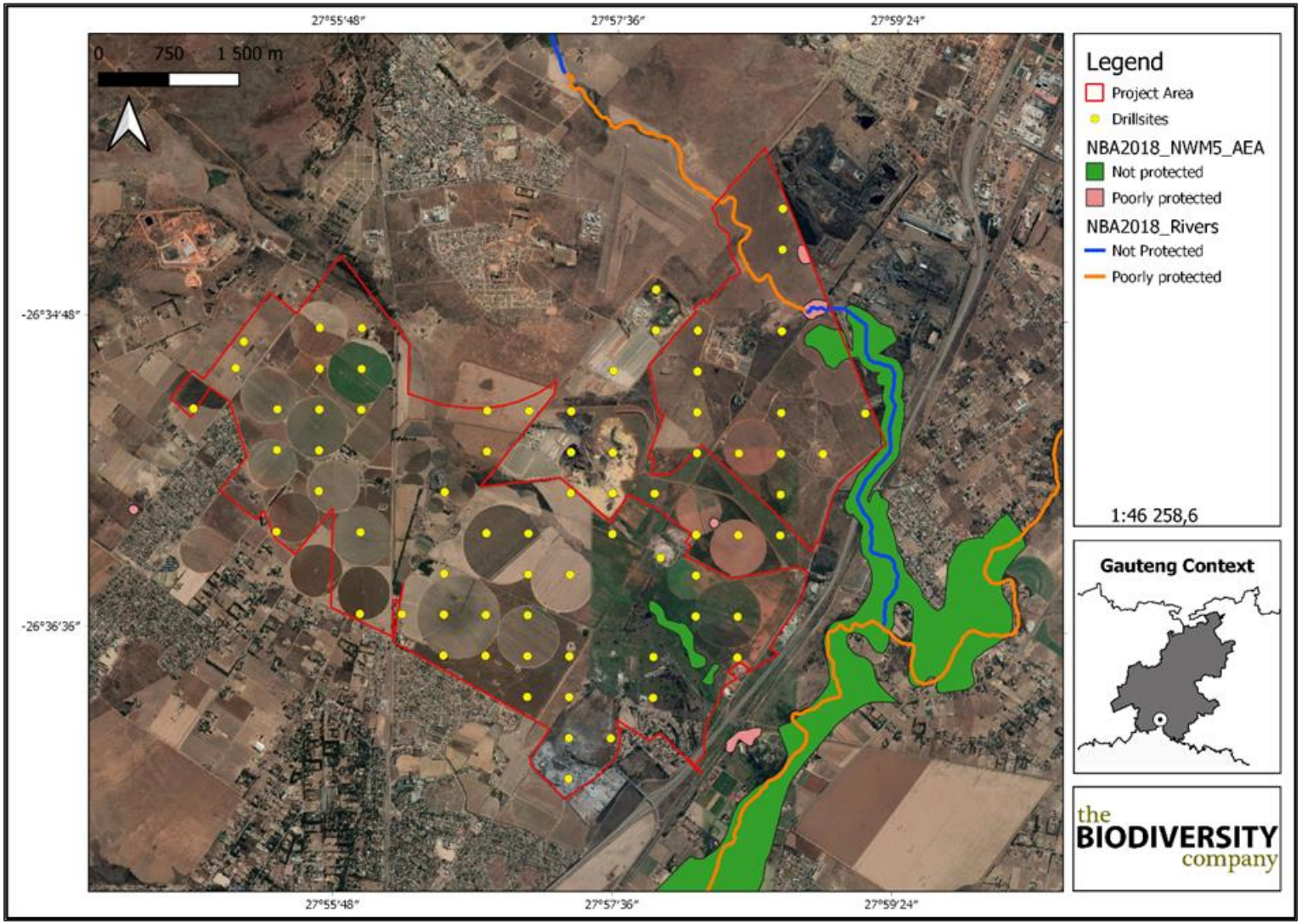


Figure 16: The project area in relation to the protection status of the wetland (NBA, 2018).

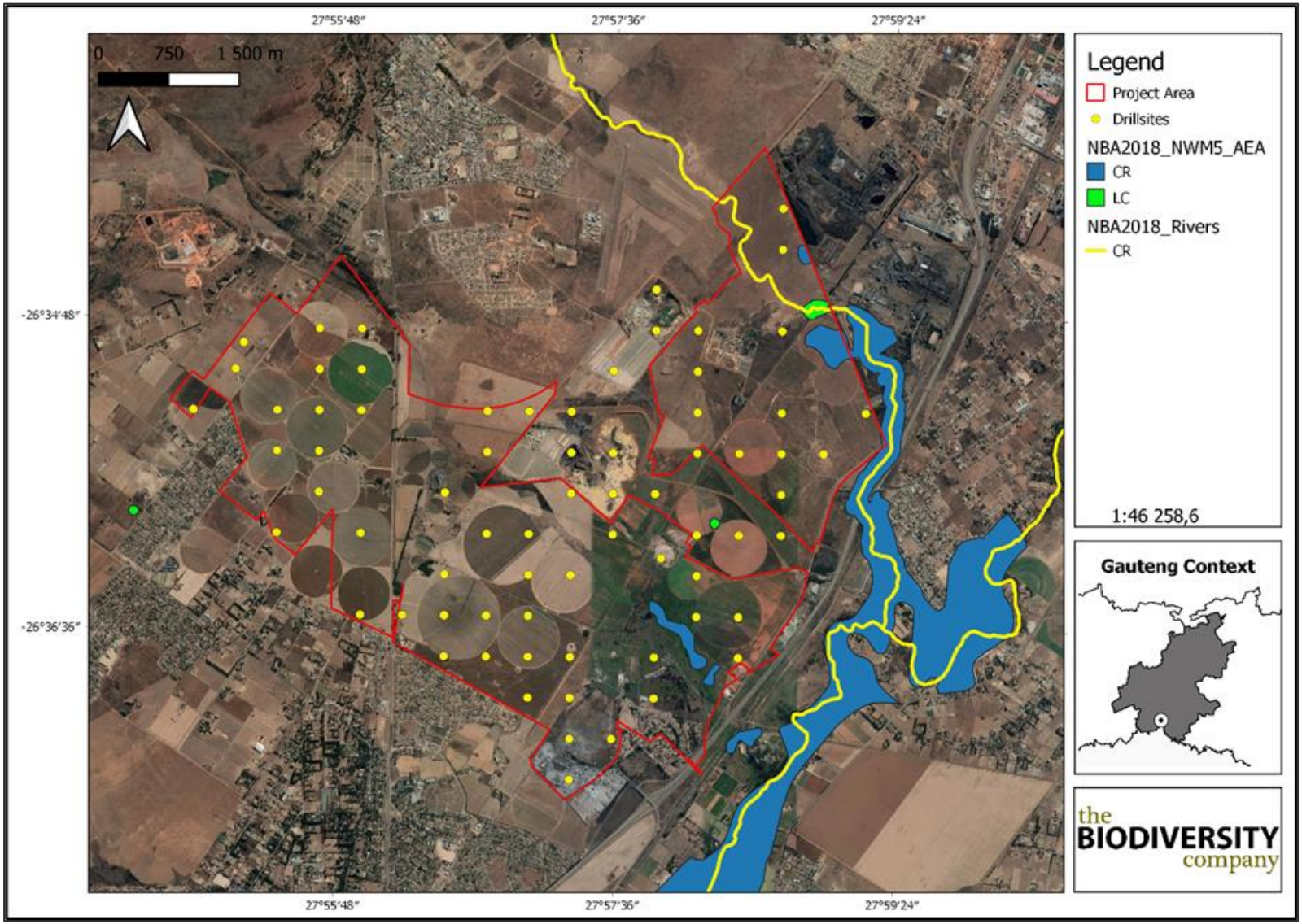


Figure 17: The project area in relation to the threat status of the wetland (NBA, 2018).

6.4.2.14 **CULTURAL AND HERITAGE**

The heritage impact assessment and desktop palaeontological impact assessment identified various heritage resources within the study area, including burial grounds and graves, historical structures, palaeontological resources and archaeological resources that could be impacted during project activities.

6.4.2.14.1 BURIAL GROUNDS AND GRAVES

The Heritage Impact Assessment (HIA) identified six graves and burial grounds that could have been impacted due to activities associated with the drill site establishment. Mitigation measures would include avoidance of these sites and associated buffer zones with the drill sites being moved to areas of no sensitivity.

The pre-mitigation Environmental Risk impact significance is rated as Medium negative, and with the implementation of the required mitigation measures, the post-mitigation ER impact would become Low negative. The overall Environmental significance will be Low to Medium negative

6.4.2.14.2 HISTORICAL STRUCTURES

The HIAS study identified five sites containing historical structures within the Kookfontein study area. Mitigation measures would include avoidance of these sites with a buffer of at least 50m (especially site KF008) (Figure 18).

The pre-mitigation Environmental Risk impact significance is rated as Medium negative, and with the implementation of the required mitigation measures the post-mitigation ER impact will be Low. The overall Environmental significance would be Medium negative.

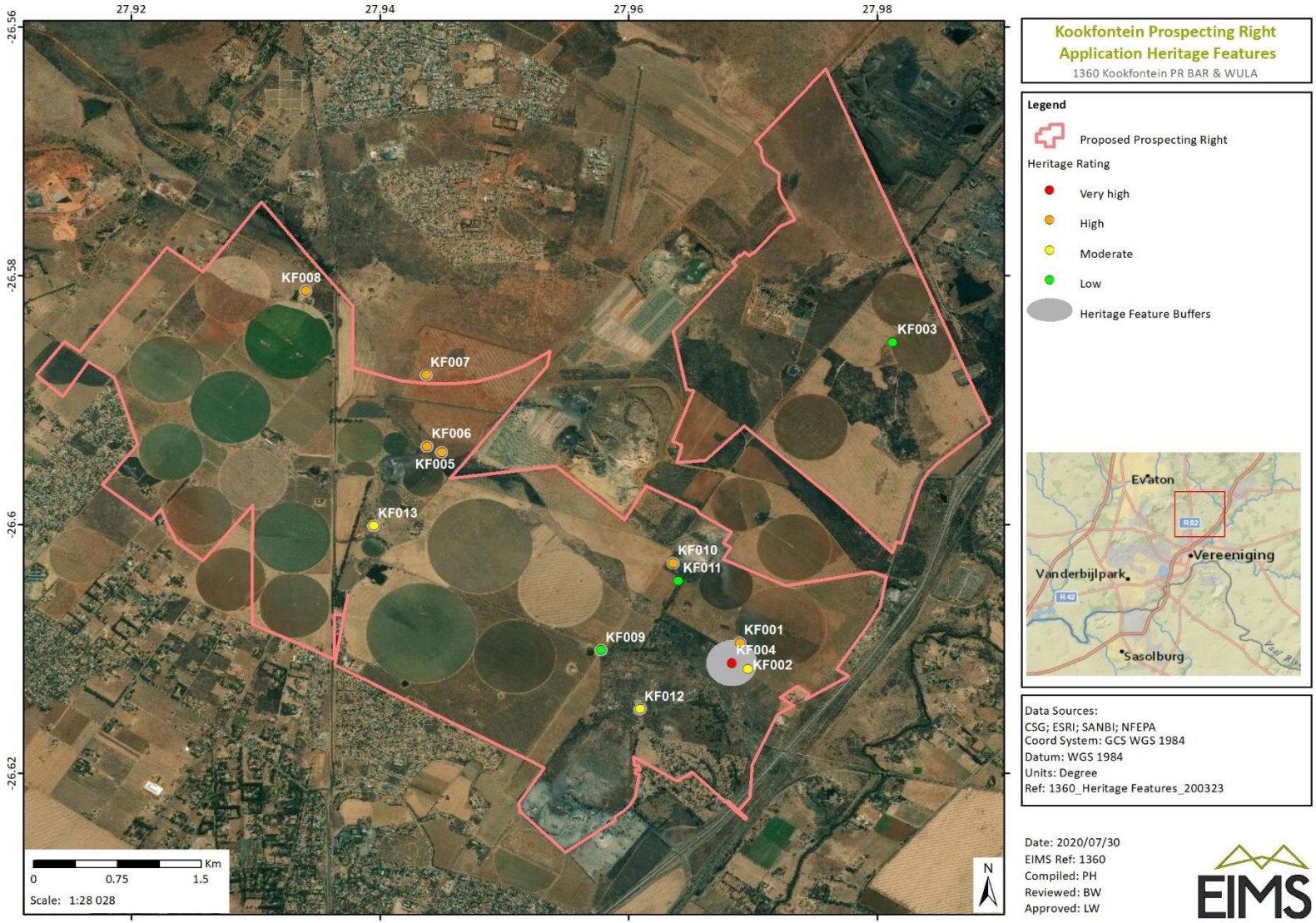


Figure 18: Map showing heritage sensitivity rating of identified heritage resources

6.4.2.14.3 PALAEONTOLOGY

The geological map of the study area overlain on the SAHRIS palaeo-sensitivity map (Figure 19), indicates that the majority of the geological formations underlying the study area have a High to Very High palaeontological sensitivity (red/orange colour). This indicates that there is a Very High possibility of finding fossils in the Vryheid Formation while the possibility of finding fossils in the Malmani and Quaternary deposits is High. It is therefore recommended that a field assessment and protocol for finds is required to be undertaken.

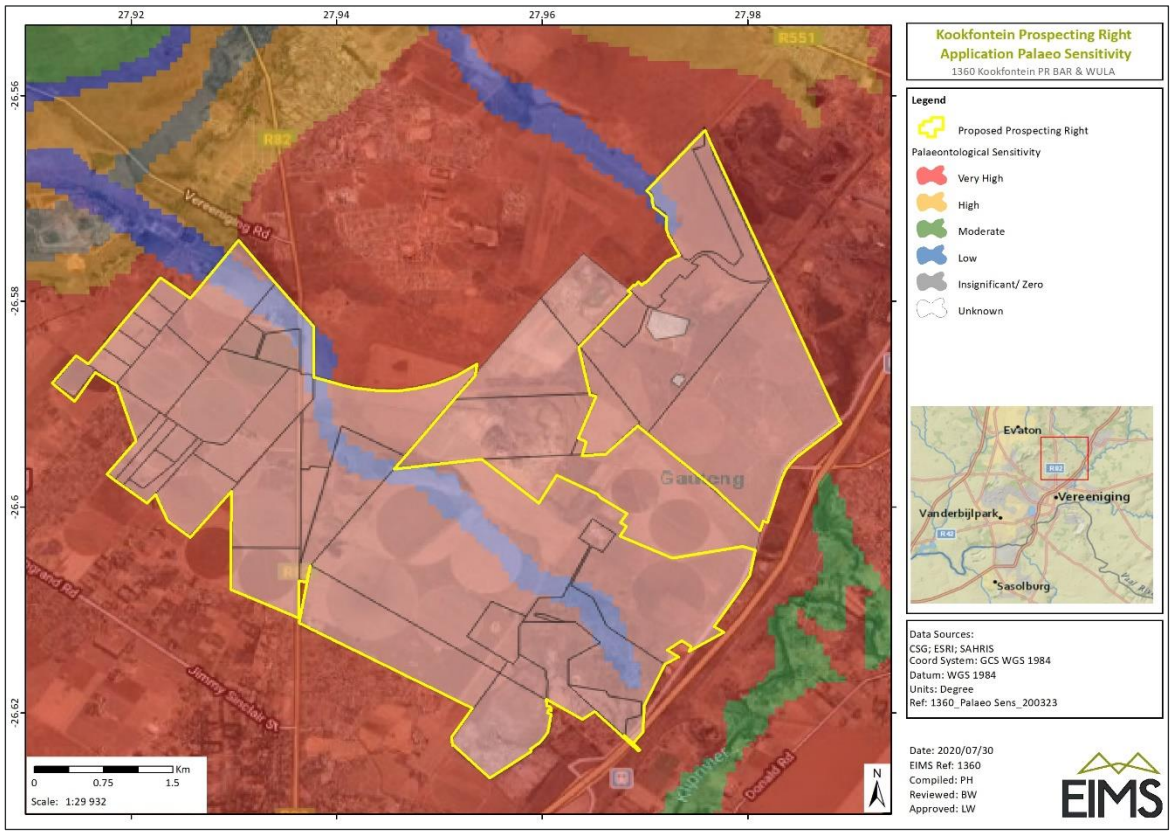


Figure 19: Extract of the 1: 250 000 SAHRIS Palaeo-sensitivity Map (Kookfontein Application Area)

Colour	Sensitivity	Required Action
Red	Very High	Field assessment and protocol for finds is required
Orange/Yellow	High	Desktop study is required and based on the outcome of the desktop study, a field assessment is likely
Green	Moderate	Desktop study is required
Blue	Low	No palaeontological studies are required however a protocol for finds is required
Grey	Insignificant/Zero	No palaeontological studies are required
White/Clear	Unknown	These areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

6.4.2.14.4 ARCHAEOLOGY

There is one known formally protected archaeological site (Redan rock engraving site) located within the study area and at least one archaeological find spot that was identified in a previous study. This site should be demarcated as a "no go" area with a buffer zone of at least 200m.

The pre-mitigation Environmental Risk impact significance for the Provincial Heritage Site (Redan) is rated as High negative, and with the implementation of the required mitigation measures the post-mitigation ER impact will be Low negative. The overall Environmental significance would be Medium negative.

6.4.3 DESCRIPTION OF CURRENT LAND USES

The proposed properties are situated west of the R59 tar road that passes the project area from Vereeniging to Meyerton. Several farm roads and servitude gravel roads cross these properties. Existing power lines and a randwater pipeline is also situated across these properties.

The proposed properties are expected to be generally flat (refer to Figure 3 and Figure 4), with a few drainage lines across most of the properties. The area is predominantly characterised by intensive agriculture and grazing, agricultural smallholdings and farmsteads, with some mining activities, residential urban development and industrial development.

6.4.4 DESCRIPTION OF SPECIFIC ENVIRONMENTAL FEATURES AND INFRASTRUCTURE ON SITE

The most notable infrastructure located within the application area includes the following:

- Households;
- Industries;
- Mining areas;
- Power Lines;
- Randwater Pipeline;
- A Landfill;
- Roads; and
- Waste Treatment Works;

6.5 IMPACTS AND RISKS IDENTIFIED

In order to calculate the significance of an impact the probability, duration, extent and magnitude will be assessed. The pre- and post-mitigation scores will provide an indication of the extent to which an impact can be successfully mitigated.

Potential impacts that may occur as a result of the proposed prospecting activities are:

- Job Creation;
- Temporary disturbance of wildlife due to increased human presence and possible use of machinery and/or vehicles;
- Destruction of, and fragmentation of, portions of the vegetation community;
- Irreplaceable loss of resources;
- Loss of CBA and ESA and sections of area classed as moderate and highest biodiversity importance;
- Introduction of alien species, especially plants;

- Erosion due to storm water runoff and wind;
- Displacement of faunal community due to habitat loss, direct mortalities and disturbance (road collisions, noise, light, dust, rock chips, vibration and poaching;
- Potential leaks, discharges, pollutant from drilling machines and storage leaching into the surrounding environment;
- Continued encroachment of an indigenous and EN vegetation community by alien invasive plant species as well as erosion due to disturbed soils;
- Continued displacement and fragmentation of the faunal community (including threatened or protected species) due to ongoing anthropogenic disturbances (noise, dust and vibrations) and habitat degradation/loss (litter, road mortalities and/or poaching);
- Loss of indigenous vegetation;
- Impact on potential burial grounds and graves;
- Impact on structures older than 60 years (heritage structures);
- Impact on archaeological resources;
- Impact on palaeontological resources;
- Noise;
- Pollution of Soils;
- Air Quality;
- Deterioration and damage to existing access roads and tracks;
- Safety and security risks to landowners and lawful occupiers;
- Interference with existing land uses;
- Generation and disposal of waste; and
- Erosion due to improper rehabilitation.

6.6 THE IMPACT ASSESSMENT METHODOLOGY

The impact significance rating methodology, as provided by EIMS, is guided by the requirements of the NEMA EIA Regulations, 2014. The broad approach to the significance rating methodology is to determine the environmental risk (ER) by considering the consequence (C) of each impact (comprising Nature, Extent, Duration, Magnitude, and Reversibility) and relate this to the probability/ likelihood (P) of the impact occurring. This determines the environmental risk. In addition, other factors, including cumulative impacts, public concern, and potential for irreplaceable loss of resources, are used to determine a prioritisation factor (PF) which is applied to the ER to determine the overall significance (S).

The significance (S) of an impact is determined by applying a prioritisation factor (PF) to the environmental risk (ER). The environmental risk is dependent on the consequence (C) of the particular impact and the probability (P) of the impact occurring. Consequence is determined through the consideration of the Nature (N), Extent (E), Duration (D), Magnitude (M), and reversibility (R) applicable to the specific impact.

For the purpose of this methodology the consequence of the impact is represented by:

$$\boldsymbol{C = \frac{(E + D + M + R) * N}{4}}$$

Each individual aspect in the determination of the consequence is represented by a rating scale as defined in Table 12.

Table 12: Criteria for determination of impact consequence

Aspect	Score	Definition
Nature	- 1	Likely to result in a negative/ detrimental impact
	+1	Likely to result in a positive/ beneficial impact
Extent	1	Activity (i.e. limited to the area applicable to the specific activity)
	2	Site (i.e. within the development property boundary),
	3	Local (i.e. the area within 5 km of the site),
	4	Regional (i.e. extends between 5 and 50 km from the site
	5	Provincial / National (i.e. extends beyond 50 km from the site)
Duration	1	Immediate (<1 year)
	2	Short term (1-5 years),
	3	Medium term (6-15 years),
	4	Long term (the impact will cease after the operational life span of the project),
	5	Permanent (no mitigation measure of natural process will reduce the impact after prospecting).
Magnitude/ Intensity	1	Minor (where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected),
	2	Low (where the impact affects the environment in such a way that natural, cultural and social functions and processes are slightly affected),
	3	Moderate (where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way),
	4	High (where natural, cultural or social functions or processes are altered to the extent that it will temporarily cease), or
	5	Very high / don't know (where natural, cultural or social functions or processes are altered to the extent that it will permanently cease).
Reversibility	1	Impact is reversible without any time and cost.
	2	Impact is reversible without incurring significant time and cost.

Aspect	Score	Definition
	3	Impact is reversible only by incurring significant time and cost.
	4	Impact is reversible only by incurring prohibitively high time and cost.
	5	Irreversible Impact

Once the C has been determined the ER is determined in accordance with the standard risk assessment relationship by multiplying the C and the P. Probability is rated/scored as per Table 13.

Table 13: Probability scoring

Probability	1	Improbable (the possibility of the impact materialising is very low as a result of design, historic experience, or implementation of adequate corrective actions; <25%),
	2	Low probability (there is a possibility that the impact will occur; >25% and <50%),
	3	Medium probability (the impact may occur; >50% and <75%),
	4	High probability (it is most likely that the impact will occur- > 75% probability), or
	5	Definite (the impact will occur),

The result is a qualitative representation of relative ER associated with the impact. ER is therefore calculated as follows:

ER= C x P

Table 14: Determination of environmental risk

Consequence						
	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
		Probability				

The outcome of the environmental risk assessment will result in a range of scores, ranging from 1 through to 25. These ER scores are then grouped into respective classes as described in Table 15.

Table 15: Significance classes

Environmental Risk Score

Value	Description
< 10	Low (i.e. where this impact is unlikely to be a significant environmental risk),
≥ 10; < 20	Medium (i.e. where the impact could have a significant environmental risk),
≥ 20	High (i.e. where the impact will have a significant environmental risk).

The impact ER will be determined for each impact without relevant management and mitigation measures (pre-mitigation), as well as post implementation of relevant management and mitigation measures (post-mitigation). This allows for a prediction in the degree to which the impact can be managed/ mitigated.

In accordance with the requirements of Appendix 1 3. (1) of the EIA Regulations, 2014, and further to the assessment criteria presented above it is necessary to assess each potentially significant impact in terms of:

- Cumulative impacts; and
- The degree to which the impact may cause irreplaceable loss of resources.

In addition, it is important that the public opinion and sentiment regarding a prospective development and consequent potential impacts is considered in the decision-making process.

In an effort to ensure that these factors are considered, an impact prioritisation factor (PF) will be applied to each impact ER (post-mitigation). This prioritisation factor does not aim to detract from the risk ratings but rather to focus the attention of the decision-making authority on the higher priority / significance issues and impacts. The PF will be applied to the ER score based on the assumption that relevant suggested management/ mitigation impacts are implemented.

Table 16: Criteria for the determination of prioritisation

Public response (PR)	Low (1)	Issue not raised in public response.
	Medium (2)	Issue has received a meaningful and justifiable public response.
	High (3)	Issue has received an intense meaningful and justifiable public response.
Cumulative Impact (CI)	Low (1)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.
	Medium (2)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.
	High (3)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is highly probable/definite that the impact will result in spatial and temporal cumulative change.
Irreplaceable loss of resources (LR)	Low (1)	Where the impact is unlikely to result in irreplaceable loss of resources.
	Medium (2)	Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.

	High (3)	Where the impact may result in the irreplaceable loss of resources of high value (services and/or functions).

The value for the final impact priority is represented as a single consolidated priority, determined as the sum of each individual criteria represented in Table 16. The impact priority is therefore determined as follows:

$$\text{Priority} = PR + CI + LR$$

The result is a priority score which ranges from 3 to 9 and a consequent PF ranging from 1 to 2 (refer to Table 17).

Table 17: Determination of prioritisation factor

Priority	Ranking	Prioritisation Factor
3	Low	1
4	Medium	1.17
5	Medium	1.33
6	Medium	1.5
7	Medium	1.67
8	Medium	1.83
9	High	2

In order to determine the final impact significance, the PF is multiplied by the ER of the post mitigation scoring. The ultimate aim of the PF is to be able to increase the post mitigation environmental risk rating by a full ranking class, if all the priority attributes are high (i.e. if an impact comes out with a medium environmental risk after the conventional impact rating, but there is significant cumulative impact potential, significant public response, and significant potential for irreplaceable loss of resources, then the net result would be to upscale the impact to a high significance).

Table 18: Environmental Significance Rating

Value	Description
< -10	Low negative (i.e. where this impact would not have a direct influence on the decision to develop in the area).
≥ -10 < -20	Medium negative (i.e. where the impact could influence the decision to develop in the area).
≥ -20	High negative (i.e. where the impact must have an influence on the decision process to develop in the area).
0	No impact
< 10	Low positive (i.e. where this impact would not have a direct influence on the decision to develop in the area).

Value	Description
≥ 10 < 20	Medium positive (i.e. where the impact could influence the decision to develop in the area).
≥ 20	High positive (i.e. where the impact must have an influence on the decision process to develop in the area).

6.7 THE POSITIVE AND NEGATIVE IMPACTS THAT THE PROPOSED ACTIVITY AND ALTERNATIVES WILL HAVE ON THE ENVIRONMENT AND THE COMMUNITY THAT MAY BE AFFECTED

The proposed prospecting activities to be undertaken include the use of both invasive and non-invasive prospecting techniques that could result in negative impacts. Therefore, a negative impact will be the physical disturbance to the application area. This disturbance will be limited to the identified borehole sites and not the entire application area. Another negative impact of the proposed activity would be the potential interference with landowners or communities and the existing land uses if not adequately mitigated Due to the limited area set to be impacted by invasive work the disturbance caused by invasive work will be minimal

One of positive impact of the proposed activity is the discovery of an economically viable mineral resource within the Emfuleni and Midvaal Local Municipalities.

It should be noted that this report has been made available to I&AP's for review and comment and their comments and concerns will be taken into account in the final BAR. Refer to Section 6.6 for the Methodology used in determining and ranking the nature, significance, consequence, extent, duration and probability of potential environmental impacts and risks.

The following section provides a description and assessment of the potential impacts identified in the impact assessment process. Refer to Appendix F for the full impact scoring calculations. The following impacts have been identified:

- The topographical and geophysical surveys will see an increase in the use of existing access tracks by vehicles driving around the site;
- The access roads may, over time and with increased use, deteriorate and become damaged.
- The potential exists for an increase in crime as the project could attract migrant workers into the area which could result in criminal activity. However, the impact will be minimal as people on site will be limited to the Applicant and associated contractors.
- The HIA identified thirteen heritage resources within the Kookfontein study area, including six informal burial grounds and possible grave sites, five sites containing historical structures and one known archaeological site which is a Provincial Heritage site (Redan Rock Engravings), some of which could be impacted during invasive prospecting activities should the prescribed buffers not be adhered to. The identified heritage resources are allocated a sensitivity buffer based on the recognised management buffers accepted by SAHRA. There are no regulations in the NHRA that provides guidelines on buffer zones. In the case of heritage sensitivity, a buffer of 30 – 50 meters is proposed based on the type of heritage resource. In the case of burial grounds and graves (BGG) a buffer of 50 meters is generally proposed and 30 meters for a heritage structure such as ruins and other built structure;
- The geology of the proposed Kookfontein Prospecting Project is primarily underlain by the Vryheid Formation (Ecca Group, Undifferentiated Karoo), and by Precambrian dolomites and associated marine sedimentary rocks that are allocated to the Malmani Subgroup (Chuniespoort Group, Transvaal

Supergroup). According to the PalaeoMap of South African Heritage Resources Information System the Palaeontological Sensitivity of the Vryheid Formation (Ecca Group, Undifferentiated Karoo) is "Very High" while that of the and Malmani Subgroup is High and Quaternary deposits is "High" (Almond and Pether 2008, SAHRIS website).Groenewald and Groenewald 2014 allocated a High Sensitivity to the Malmani Subgroup. He noted that in addition to the stromatolites, potentially fossiliferous Late Caenozoic Cave breccias within the "Transvaal dolomite" outcrop area could be present. These breccias are not individually mapped on geological maps. It is thus recommended that an EIA level palaeontology report must be conducted to assess the value and prominence of fossils in the development area and the effect of the proposed development on the palaeontological heritage.;

- Approximately 2.85ha of vegetation (including access roads) will be cleared during prospecting activities, however, care will be taken to be ensure that any protected species identified are relocated outside the footprint of the prospecting activities.;
- The proposed prospecting activity may lead to the loss and destruction of habitats, direct mortalities and displacement of fauna and flora;
- The removal of natural vegetation to accommodate the drill holes and their associated access roads may reduce the habitat available for faunal species and may reduce animal populations and species compositions within the area, at least temporarily;
- Access to the application area for the topographical and geophysical survey and drilling will be required which may interrupt the existing land uses, such as grazing and residential developments. However, this impact will be minimal as it is of short duration. Provisions have been made for the rehabilitation of all areas disturbed during prospecting, including access tracks.
- The prospecting activities will generate general waste during the operational phase. This waste must be collected during site visits to be disposed of at appropriate landfill sites.

A summary of the positive and negative impacts of the proposed activity are provided in Table 19.

Table 19: Positive and Negative Impacts of The Proposed Activity

Impact	Positive or Negative	Phase
Job Creation	Positive	Planning and Construction
Temporary disturbance of wildlife due to increased human presence and possible use of machinery and/or vehicles;	Negative	Planning, Construction
Destruction of, and fragmentation of, portions of the vegetation community;	Negative	Construction / Operational
Destruction, further loss and fragmentation of the vegetation community;	Negative	Construction / Operational
Irreplaceable loss of flora and/ or fauna resources;	Negative	Construction / Operational
Loss of CBA and ESA and sections of area classed as moderate and highest biodiversity importance	Negative	Construction / Operational

Impact	Positive or Negative	Phase
as well as portions of an area classified as a protected area.;		
Introduction of alien species, especially plants;	Negative	Construction / Operational
Erosion due to storm water runoff and wind;	Negative	Construction / Operational
Displacement of faunal community due to habitat loss, direct mortalities and disturbance (road collisions, noise, light, dust, rock chips, vibration and poaching;	Negative	Construction / Operational
Potential leaks, discharges, pollutant from drilling machines and storage leaching into the surrounding environment;	Negative	Construction / Operational
Continued encroachment of an indigenous and EN vegetation community by alien invasive plant species as well as erosion due to disturbed soils;	Negative	Decommissioning and Rehab/Closure
Continued displacement and fragmentation of the faunal community (including threatened or protected species) due to ongoing anthropogenic disturbances (noise, dust and vibrations) and habitat degradation/loss (litter, road mortalities and/or poaching);	Negative	Decommissioning and Rehab/Closure
Impact on potential burial grounds and graves;	Negative	Construction
Impact on structures older than 60 years (heritage structures);	Negative	Construction
Impact on archaeological resources;	Negative	Construction
Impact on palaeontological resources;	Negative	Construction
Noise	Negative	Construction
Impact on Air Quality (Dust);	Negative	Construction

Impact	Positive or Negative	Phase
Deterioration and damage to existing access roads and tracks;	Negative	Construction
Safety and security risks to landowners and lawful occupiers;	Negative	Construction
Interference with existing land uses;	Negative	Construction
Pollution of Soils	Negative	Construction and Decommissioning
Generation and disposal of waste; and	Negative	Construction
Erosion due to improper rehabilitation.	Negative	Rehab/Closure

6.8 THE POSSIBLE MITIGATION MEASURES THAT COULD BE APPLIED AND THE LEVEL OF RISK

The following sections provide a description and assessment of the mitigation measures for each potential impact identified in the impact assessment process. The impact scores below are reflective of the impacts before the implementation of mitigation measures. A second score indicating the final significance of each potential impact is also reflected below. This score indicates the degree of potential loss of irreplaceable resources, the cumulative nature of the impact, as well as the degree of public concern regarding the impact. It should be noted that this report will be made available to I&AP's for review and comment and their comments and concerns will be addressed in the final report to be submitted to the DMRE for adjudication. Furthermore, it should be noted that the impact scores themselves will include the results of the aforementioned public response and comment. The results of the public consultation will be used to update the impact scores upon completion of the public review period, where after the finalised report will be submitted to the DMRE for adjudication. Please refer to Appendix F for the full impact scoring calculations.

The mitigation hierarchy proposed by Macfarlane et al., (2016) was considered for this study (Figure 20)

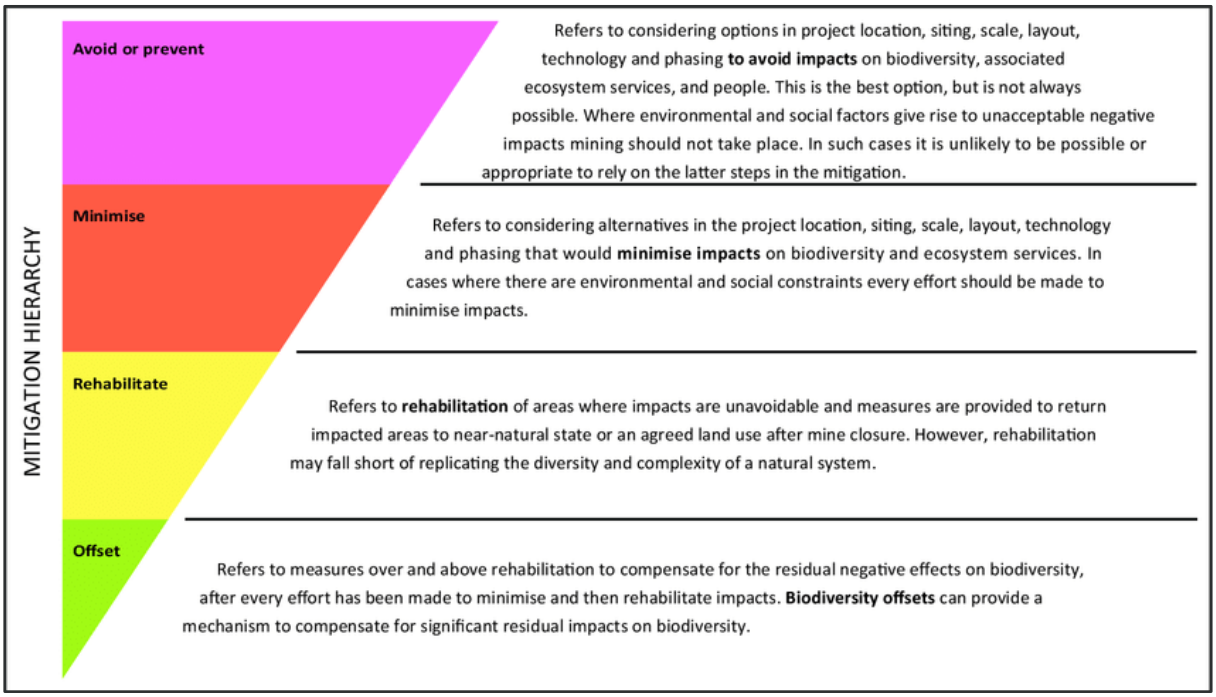


Figure 20: Mitigation hierarchy (Research Gate, 2019)

Please refer to Section 8 for the detailed mitigation measures associated with each aspect and impact. The Pre-mitigation significance and final significance for each impact are identified in Table 20 below.

Table 20: Pre- Mitigation Significance and Final Significance

Impact	Positive or Negative	Pre-mitigation Significance	Final Significance
Damage/destruction of graves: Burial Grounds and Graves (KF001, KF002, KF005. KF006, KF007, KF010)	Negative	-12	-7.56
Damage/destruction to structures: Historical structures – Klip Power and Springfield Colliery (KF009, KF011, KF012, KF013)	Negative	-10.5	-6.25
Damage/destruction to structures: Historical Structures: Farmstead (KF008)	Negative	-11.25	-10
Destruction of site: Redan Archaeological Site (KF004)	Negative	-16	-9.75
Temporary disturbance of wildlife due to increased human presence and possible use of machinery and/or vehicles	Negative	-15	-4.50
Destruction, further loss and fragmentation of the vegetation community	Negative	-17	-7.50
Loss of CBA and ESA, sections of area classed as moderate and highest	Negative	-25.25	-6.19

Impact	Positive or Negative	Pre-mitigation Significance	Final Significance
biodiversity importance as well as portions of an area classified as a protected area.			
Introduction of alien species, especially plants	Negative	-14	-5.00
Erosion due to storm water runoff and wind	Negative	-14	-9.38
Displacement of faunal community due to habitat loss, direct mortalities and disturbance (road collisions, noise, light, dust, rock chips, vibration and poaching).	Negative	-16	-8.44
Potential leaks, discharges, pollutant from drilling machines and storage leaching into the surrounding environment	Negative	-14	-5.00
Continued encroachment of an indigenous and EN vegetation community by alien invasive plant species as well as erosion due to disturbed soils	Negative	-15	-8.44
Continued displacement and fragmentation of the faunal community (including threatened or protected species) due to ongoing anthropogenic disturbances (noise, dust and vibrations) and habitat degradation/loss (litter, road mortalities and/or poaching).	Negative	-15	-8.44
Job Creation	Positive	+4.50	+4.50
Air Quality (Dust)	Negative	-4.5	-2.50
Noise	Negative	-4.5	-3.00
Safety and security risks to landowners and lawful occupiers	Negative	-6	-4
Interference with existing land uses	Negative	-7	-5.85
Erosion due to improper rehabilitation	Negative	-11	-8.75

It is noted that the project is likely to have a negative impact on fossil heritage during both the prospecting and operational phase of the project. The palaeontological specialist has identified the impact on fossil heritage as long term and irreversible and therefore recommends that a full Palaeontological study be conducted.

6.9 MOTIVATION WHERE NO ALTERNATIVE SITES WERE CONSIDERED

The development footprint is expected to be a fraction (2.84 ha) of the application area size, which is estimated to be 2949.7522 hectares. The geology is the primary driver in determining the location of the prospecting activities. The area is located approximately 4km South of Meyerton and 7km North of Vereeniging. It should be noted that specific areas have been identified as highly sensitive in terms of the surface environmental as well as heritage and paleontological features. These environmental and heritage features include burial grounds and graves; historical structures; the Redan archaeological site; and wetlands. The final list of drill sites has been

adjusted from the initial 71 sites down to 54 sites to address these sensitive areas as well as the removal of certain properties from the original prospecting right area.

As such, the main alternative (only alternative assessed further in this document) for this project will be the avoidance (no-go areas) of invasive prospecting activities within these areas. It should be noted that the final locations of the drill sites can only be established once the non-invasive prospecting activities have been completed (land survey; remote sensing and geophysical survey) and the necessary agreements are in place with the respective landowners.

For remaining areas, mitigation measures have been recommended as per the sections below and these should be adhered to. Please refer to Section 10.2 below for a detailed composite map showing the areas of high sensitivity.

6.10 STATEMENT MOTIVATING THE ALTERNATIVE DEVELOPMENT LOCATION WITHIN THE OVERALL SITE

As discussed above, the proposed application area has been selected due to the geology of the site and the anticipated favourable tectono-stratigraphic setting of the prospecting area and therefore the preferred location is the only location assessed. Each prospecting phase is dependent on the preceding phase and the results from that phase and therefore no alternative locations can be assessed. It should be noted that drill site locations may differ based on the results of the non-invasive phase of the project.

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

The impact assessment process is broken down as follows:

1. Identification of proposed prospecting activities including their nature and duration: Impacts were identified through various methods including a desktop analysis; specialist studies (Heritage, Palaeontological and Biodiversity) and the public participation process.
2. Screening of activities likely to result in impacts or risks;
3. Utilisation of the above mentioned EIMS methodology to assess and score preliminary impacts and risks identified. Refer to section 6.6 above for the full methodology used.
4. Inclusion of I&AP comments received through the public participation process regarding impact identification and assessment
5. Finalisation of impact identification and scoring.

8 IMPACT ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
Geophysics Surveys / Remote Sensing/ Land Survey	Interference with existing land uses	Site Access	Prospecting	-7.00	• Site access control, heritage impact assessment. • Consultation with Landowners.	-5.83
	Deterioration and damage to existing access roads and tracks	Transportation	Prospecting	-8.00	• Site access control. • Demarcation of access tracks to be used.	-5.00
	Temporary disturbance of wildlife due to increased human presence and possible use of machinery and/or vehicles.	Prospecting areas, Site Access	Prospecting	-15.00	• Reduce the amount of unnecessary people and restrict vehicle access as much as possible on the property • A qualified environmental control officer must be on site when prospecting begins to identify SCC that will be directly disturbed and to relocate fauna/flora that are found during the prospecting activities. • The area must be walked though prior to prospecting to ensure no faunal species remain in the habitat that could potentially get killed. Should animals not move out of the area on their own relevant specialists must be contacted to advise on how the species can be relocated. • Noise must be kept to an absolute minimum during the evenings and	-4.50

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					at night to minimize all possible disturbances to amphibian species and nocturnal mammals. • No trapping, killing, or poisoning of any wildlife is to be allowed. • The duration of the prospecting should be minimized to as short term as possible, to reduce the period of disturbance on fauna. • Outside lighting should be designed and limited to minimize impacts on fauna. All outside lighting should be directed away from highly sensitive areas such as the wetland. Fluorescent and mercury vapor lighting should be avoided and sodium vapor (yellow) lights should be used wherever possible. • All prospecting and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings and erosion is limited. • Schedule prospecting activities and operations during least sensitive periods, to avoid	

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					migration, nesting and breeding seasons. • The holes need to be sealed to ensure that no fauna species can fall in the drill hole.	
	Damage and Destruction of graves: Burial Grounds and Graves (KF001, KF002, KF005. KF006, KF007, KF010))	Prospecting Areas, Site area	Prospecting	-12.00	• Fencing of the identified graves and burial grounds and strict avoidance of these sites with a buffer zone of at least 50m.	-7.56
	Damage/destruction to structures: Historical structures- Klip Power & Springfield Colliery (KF009, KF011, KF012, KF013)	Prospecting Areas, Site area	Prospecting	-10.50	• Avoidance of these sites with a buffer zone of at least 50m.	-6.25
	Damage/destruction of structures: Farmstead (KF008)	Prospecting Areas, Site area	Prospecting	-11.25	• Avoidance of these sites with a buffer zone of at least 50m.	-10.00
	Damage/destruction of site: Redan Archaeological Site (KF004)	Prospecting Areas, Site area	Prospecting	-16.00	• Site should be flagged as a “no go” area and be demarcated with a buffer zone of at least 200m.	-9.75

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
Site establishment / de establishment	Damage and Destruction of graves: Burial Grounds and Graves (KF001, KF002, KF005. KF006, KF007, KF010))	Prospecting Areas, Site area	Prospecting / Rehabilitation and Closure	-16.00	• Fencing of the identified graves and burial grounds and strict avoidance of these sites with a buffer zone of at least 50m.	-7.56
	Damage/destruction to structures: Historical structures- Klip Power & Springfield Colliery (KF009, KF011, KF012, KF013)	Prospecting Areas, Site area	Prospecting / Rehabilitation and Closure	-14.00	• Avoidance of these sites with a buffer zone of at least 50m.	-6.25
	Damage/destruction of structures: Farmstead (KF008)	Prospecting Areas, Site area	Prospecting	-15.00	• Avoidance of these sites with a buffer zone of at least 50m.	-10.00
	Damage/destruction of site: Redan Archaeological Site (KF004)	Prospecting Areas, Site area	Prospecting	-20.00	• Site should be flagged as a “no go” area and be demarcated with a buffer zone of at least 200m.	-14.63
	Impact on Air quality from dust	Prospecting Areas, Site area	Prospecting / Rehabilitation and Closure	-4.50	• Dust-reducing mitigation measures must be put in place and must be strictly adhered to, for all roads and dumps especially. This includes wetting of exposed soft soil surfaces, adhering to speed limits and not conducting activities on windy days which will increase	-2.50

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					the likelihood of dust being generated.	
	Generation and disposal of waste	Prospecting Areas, Site area	Prospecting / Rehabilitation and Closure	-6.00	• Waste management must be a priority and all waste must be collected and stored effectively. • Litter, spills, fuels, chemicals and human waste must be avoided in and around the project area. • A minimum of one toilet must be provided per 10 persons. Portable toilets must be pumped dry to ensure the system does not degrade over time and spill into the surrounding area. • The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected shall be disposed of at a licensed disposal facility. • Where a registered disposal facility is not available close to the project area, the Contractor shall provide a method statement with regard to waste management. Under no circumstances may domestic waste be burned on site. • Refuse bins will be emptied and secured Temporary storage of domestic waste shall be in covered waste skips. Maximum domestic	-4.50

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					waste storage period will be 10 days.	
	Noise	Prospecting Areas, Site area	Prospecting / Rehabilitation and Closure	-4.50	• Noise must be kept to an absolute minimum during the evenings and at night to minimize all possible disturbances to amphibian species and nocturnal mammals.	-3.00
	Safety and security risks to landowners and lawful occupiers	Prospecting Areas, Site area	Prospecting / Rehabilitation and Closure	-6.00	• Strict site access control.	-4.00
	Interference with existing land uses	Prospecting Areas, Site area	Prospecting / Rehabilitation and Closure	-7.00	• Consultation with Landowners.	-5.85
	Deterioration and damage to existing access roads and tracks	Prospecting Areas, Site area	Prospecting / Rehabilitation and Closure	-8.00	• Strict Site access control. • Demarcation of access roads to be used.	-5.00
	Destruction, further loss and fragmentation of the vegetation community	Prospecting Areas, Site area	Prospecting / Rehabilitation and Closure	-17.00	• Reduce the amount of unnecessary people and restrict vehicle access as much as possible on the property • Areas of indigenous vegetation, even secondary vegetation communities, outside of the direct project footprint, should under no circumstances be fragmented or	-7.50

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					disturbed further. Clearing of vegetation should be minimized and avoided where possible. Maintain small patches of natural vegetation within the prospecting site to accelerate restoration and succession of cleared patches. • When vegetation is cleared, hand cutting techniques should be used as far possible in order to avoid the use of heavy machinery. • All prospecting and access vehicles and machinery must make use of the existing roads. • All laydown, chemical toilets etc. should be restricted to least concern sensitivity areas. • Any materials may not be stored for extended periods of time and must be removed from the project area once the prospecting/closure phase has been concluded. • No permanent structures should be permitted at drill sites. • Buildings should, preferably, be prefabricated or constructed of re-usable/recyclable materials. • No storage of vehicles or equipment will be allowed outside of the designated project areas.	

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					• Areas that are denuded during prospecting need to be re-vegetated with indigenous vegetation to prevent erosion during flood events. This will also reduce the likelihood of encroachment by alien invasive plant species. • All structure footprints to be rehabilitated and landscaped after prospecting is complete. • Rehabilitation of the disturbed areas as a result of prospecting activities the project area must be made a priority. • Topsoil must also be utilised, and any disturbed area must be re-vegetated with plant and grass species which are endemic to this vegetation type. • Progressive rehabilitation will enable topsoil to be returned more rapidly, thus ensuring more recruitment from the existing seedbank. • Any woody material removed can be shredded and used in conjunction with the topsoil to augment soil moisture and prevent further erosion.	

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					• It should be made an offence for any staff to /take bring any plant species into/out of any portion of the project area. No plant species whether indigenous or exotic should be brought into/taken from the project area, to prevent the spread of exotic or invasive species or the illegal collection of plants. • Any topsoil that is removed during prospecting must be appropriately removed and stored according to the national and provincial guidelines. This includes on-going maintenance of such topsoil piles so that they can be utilised during decommissioning phases and re-vegetation.	
	Loss of CBA and ESA, sections of area classed as moderate and highest biodiversity importance as well as portions of an area classified as a protected area.	Prospecting Areas, Site area	Prospecting / Rehabilitation and Closure	-21.25	• Reduce the amount of unnecessary people and restrict vehicle access as much as possible on the property • Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should under no circumstances be fragmented or disturbed further. • Clearing of vegetation should be minimized and avoided where possible. Maintain small patches of	-6.19

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					natural vegetation within the prospecting site to accelerate restoration and succession of cleared patches. • When vegetation is cleared, hand cutting techniques should be used as far possible in order to avoid the use of heavy machinery. • All prospecting/operational and access must make use of the existing roads. • All laydown, chemical toilets etc. should be restricted to least concern sensitivity areas. • Any materials may not be stored for extended periods of time and must be removed from the project area once the prospecting/closure phase has been concluded. • No permanent structures should be permitted at drill sites. Buildings should preferably be prefabricated or constructed of re-usable/recyclable materials. • Areas that are denuded during prospecting need to be re-vegetated with indigenous vegetation to prevent erosion during flood events. This will also reduce the likelihood of	

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					encroachment by alien invasive plant species. • All structure footprints to be rehabilitated and landscaped after prospecting is complete. • Rehabilitation of the disturbed areas as a result of the prospecting activities in the project area must be made a priority. • Topsoil must also be utilized, and any disturbed area must be re-vegetated with plant and grass species which are endemic to this vegetation type. • Progressive rehabilitation will enable topsoil to be returned more rapidly, thus ensuring more recruitment from the existing seedbank • Any woody material removed can be shredded and used in conjunction with the topsoil to augment soil moisture and prevent further erosion. • It should be made an offence for any staff to /take bring any plant species into/out of any portion of the project area. No plant species whether indigenous or exotic should be brought into/taken from the project area, to prevent the	

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					spread of exotic or invasive species or the illegal collection of plants. • Any topsoil that is removed during prospecting must be appropriately removed and stored according to the national and provincial guidelines. This includes on-going maintenance of such topsoil piles so that they can be utilised during decommissioning phases and re-vegetation.	
	Introduction of alien species, especially plants	Prospecting Areas, Site area	Prospecting / Rehabilitation and Closure	-14.00	• Compilation of and implementation of an alien vegetation management plan. • The footprint area of the prospecting should be kept to a minimum. • The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas. • Waste management must be a priority and all waste must be collected and stored adequately. • It is recommended that all waste be removed from site on a weekly basis to prevent rodents and pests entering the site. • A pest control plan must be put in place and implemented; it is imperative that poisons not be	-5.00

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					used due to the likely presence of SCCs.	
	Erosion due to storm water runoff and wind	Prospecting Areas, Site area	Prospecting / Rehabilitation and Closure	-14.00	• Areas that are denuded during prospecting need to be re-vegetated with indigenous vegetation to prevent erosion during flood events. This will also reduce the likelihood of encroachment by alien invasive plant species. • Progressive rehabilitation will enable topsoil to be returned more rapidly, thus ensuring more recruitment from the existing seedbank • Any woody material removed can be shredded and used in conjunction with the topsoil to augment soil moisture and prevent further erosion. • All prospecting and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. • Speed limits must still be enforced to ensure that road killings and erosion is limited.	-9.38

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
	Displacement of faunal community due to habitat loss, direct mortalities and disturbance (road collisions, noise, light, dust, rock chips, vibration and poaching).	Prospecting Areas, Site area	Prospecting / Rehabilitation and Closure	-16.00	• A qualified environmental control officer must be on site when prospecting begins to identify SCC that will be directly disturbed and to relocate fauna/flora that are found during the prospecting activities. • The area must be walked though prior to prospecting to ensure no faunal species remain in the habitat and get killed. Should animals not move out of the area on their own relevant specialists must be contacted to advise on how the species can be relocated. • Noise must be kept to an absolute minimum during the evenings and at night to minimize all possible disturbances to amphibian species and nocturnal mammals. • No trapping, killing, or poisoning of any wildlife is to be allowed. • The duration of the prospecting should be minimized to as short term as possible, to reduce the period of disturbance on fauna. • Outside lighting should be designed and limited to minimize impacts on fauna. All outside lighting should be directed away	-8.44

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					from highly sensitive areas such as the wetland. • Fluorescent and mercury vapor lighting should be avoided and sodium vapor (yellow) lights should be used wherever possible. • All prospecting and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. • Speed limits must still be enforced to ensure that road killings and erosion is limited. • Schedule prospecting activities and operations during least sensitive periods, to avoid migration, nesting and breeding seasons. • The holes need to be sealed to ensure that no fauna species can fall in the drill hole.	
	Potential leaks, discharges, pollutants from drilling machines and storage leaching into the surrounding environment	Prospecting Areas, Site area	Prospecting / Rehabilitation and Closure	-14.00	• A spill management plan must be put in place to ensure that should there be any chemical spill out or over that it does not run into the surrounding areas. • The Contractor shall be in possession of an emergency spill	-5.00

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					kit that must always be complete and available on site. • Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use. • No servicing of equipment on site unless necessary. All contaminated soil / yard stone shall be treated in situ or removed and be placed in containers. • Leaking equipment and vehicles must be repaired immediately or be removed from project area to facilitate repair. • Storm Water run-off & Discharge Water Quality.	
	Pollution of Soils	Prospecting areas	Prospecting	-4.50	• A site plan of the camp must be provided indicating domestic waste areas, chemical storage areas, fuel storage area, site offices and placement of ablution facilities. • All hazardous substances (e.g. fuel, grease, oil, brake fluid, hydraulic fluid) must be handled, stored and disposed of in a safe and responsible manner so as to prevent pollution of the environment or harm to people or animals.	-2.50

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					• The Contractor should inform all site staff to the use of supplied ablution facilities and under no circumstances shall indiscriminate excretion and urinating be allowed other than in supplied facilities. • The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected shall be disposed of at a licensed disposal facility. • Where a registered disposal facility is not available close to the prospecting area, the Contractor shall provide a method statement with regard to waste management. • Under no circumstances may domestic waste be burned on site. • Any possible contamination of topsoil by hydrocarbons, concrete or concrete water must be avoided. • Appropriate measures must be implemented to prevent spillage and appropriate steps must be taken to prevent pollution in the event of a spill; and way that does not pose any danger of pollution even during times of high rainfall.	

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					• Adequate spill prevention and clean-up procedures should be developed and implemented during the prospecting activities. • No storage of vehicles or equipment will be allowed outside of the designated prospecting area. • Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use. • No servicing of equipment on site unless absolutely necessary. • Leaking equipment shall be repaired immediately or be removed from site to facilitate repair. • The Contractor shall be in possession of an emergency spill kit that must be complete and available at all times on site. • All vehicles and equipment must be well maintained to ensure that there are no oil or fuel leakages. • All contaminated soil / yard stone shall be treated in situ or removed and be placed in containers. • A specialist Contractor shall be used for the bio-remediation of contaminated soil where the	

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					required remediation material and expertise is not available on site. • Should any major spills of hazardous materials take place, such should be reported in terms of the Section 30 of the NEMA.	
Drilling	Damage and Destruction of graves: Burial Grounds and Graves (KF001, KF002, KF005. KF006, KF007, KF010))	Prospecting Areas, Site area, Drilling	Prospecting	-16.00	• Fencing of the identified graves and burial grounds and strict avoidance of these sites with a buffer zone of at least 50m.	-7.56
	Damage/destruction to structures: Historical structures- Klip Power & Springfield Colliery (KF009, KF011, KF012, KF013)	Prospecting Areas, Site area, Drilling	Prospecting	-14.00	• Avoidance of these sites with a buffer zone of at least 50m.	-6.25
	Damage/destruction of structures: Farmstead (KF008)	Prospecting Areas, Site area, Drilling	Prospecting	-15.00	• Avoidance of these sites with a buffer zone of at least 50m.	-10.00
	Damage/destruction of site: Redan Archaeological Site (KF004)	Prospecting Areas, Site area	Prospecting	-20.00	• Site should be flagged as a “no go” area and be demarcated with a buffer zone of at least 200m.	-14.63

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
	Impact on Air quality from dust due to vehicle movement and drilling	Prospecting Areas, Site area, Drilling	Prospecting	-4.50	• Dust-reducing mitigation measures must be put in place and must be strictly adhered to, for all roads and dumps especially. This includes wetting of exposed soft soil surfaces and not conducting activities on windy days which will increase the likelihood of dust being generated.	-2.50
	Generation and disposal of waste	Prospecting Areas, Site area, Drilling	Prospecting	-6.00	• Waste management must be a priority and all waste must be collected and stored effectively. • Litter, spills, fuels, chemicals and human waste in and around the project area. • A minimum of one toilet must be provided per 10 persons. Portable toilets must be pumped dry to ensure the system does not degrade over time and spill into the surrounding area. • The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected shall be disposed of at a licensed disposal facility • Where a registered disposal facility is not available close to the project area, the Contractor shall provide	-4.50

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					a method statement with regard to waste management. • Under no circumstances may domestic waste be burned on site. • Refuse bins will be emptied and secured Temporary storage of domestic waste shall be in covered waste skips. • Maximum domestic waste storage period will be 10 days.	
	Noise	Prospecting Areas, Site area, Drilling	Prospecting	-4.50	• Noise must be kept to an absolute minimum during the evenings and at night to minimize all possible disturbances to amphibian species and nocturnal mammals	-3.00
	Safety and security risks to landowners and lawful occupiers	Prospecting Areas, Site area, Drilling	Prospecting	-6.00	• Site access control.	-4.00
	Interference with existing land uses	Prospecting Areas, Site area, Drilling	Prospecting	-7.00	• Consultation with Landowners.	-5.85
	Deterioration and damage to existing access roads and tracks	Prospecting Areas, Site area, Drilling	Prospecting	-8.00	• Site access control. • Demarcation of access roads to be used.	-5.00

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
	Impact on fossil heritage	Drilling	Prospecting		• It is recommended that an EIA level palaeontology report will be conducted to assess the value and prominence of fossils in the development area and the effect of the proposed development on the palaeontological heritage. The purpose of the EIA Report is to elaborate on the issues and potential impacts identified during the scoping phase. A Phase 1 field-based assessment will be conducted and research in the site-specific study area as well as a comprehensive assessment of the impacts identified during the desktop assessment	
Temporary Storage of hydrocarbons (Diesel or chemicals for toilets)	Potential leaks, discharges, pollutant from drilling machines and storage leaching into the surrounding environment	Drilling	Prospecting / Rehabilitation and Closure	-14.00	• All laydown, chemical toilets etc. should be restricted to least concern sensitivity areas. • Any materials may not be stored for extended periods of time and must be removed from the project area once the prospecting/closure phase has been concluded. • No permanent structures should be permitted at drill sites. Buildings should preferably be prefabricated or constructed of re-usable/recyclable materials.	-5.00

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					• No storage of vehicles or equipment will be allowed outside of the designated project areas. • A minimum of one toilet must be provided per 10 persons. • Portable toilets must be pumped dry to ensure the system does not degrade over time and spill into the surrounding area. • A site plan of the camp must be provided indicating domestic waste areas, chemical storage areas, fuel storage area, site offices and placement of ablution facilities. • All hazardous substances (e.g. fuel, grease, oil, brake fluid, hydraulic fluid) must be handled, stored and disposed of in a safe and responsible manner so as to prevent pollution of the environment or harm to people or animals. • The Contractor should inform all site staff to the use of supplied ablution facilities and under no circumstances shall indiscriminate excretion and urinating be allowed other than in supplied facilities • Any possible contamination of topsoil by hydrocarbons, concrete	

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					or concrete water must be avoided. • The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected shall be disposed of at a licensed disposal facility. • Where a registered disposal facility is not available close to the prospecting area, the Contractor shall provide a method statement with regard to waste management. • Under no circumstances may domestic waste be burned on site. • The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected must be disposed of at a licensed disposal facility • Appropriate measures must be implemented to prevent spillage and appropriate steps must be taken to prevent pollution in the event of a spill; and way that does not pose any danger of pollution even during times of high rainfall. • Adequate spill prevention and clean-up procedures should be	

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					developed and implemented during the prospecting activities. • The Contractor must be in possession of an emergency spill kit that must be complete and available at all times on site. • No storage of vehicles or equipment will be allowed outside of the designated prospecting area. • Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use. • No servicing of equipment on site unless absolutely necessary. • Leaking equipment shall be repaired immediately or be removed from site to facilitate repair. • The Contractor shall be in possession of an emergency spill kit that must be complete and available at all times on site. • All vehicles and equipment must be well maintained to ensure that there are no oil or fuel leakages. • All contaminated soil / yard stone shall be treated in situ or removed and be placed in containers.	

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					• A specialist Contractor shall be used for the bioremediation of contaminated soil where the required remediation material and expertise is not available on site. • Compacting of soil must be avoided as far as possible, and the use of heavy machinery must be restricted in areas outside of the proposed exploration sites to reduce the compaction of soils. • Should any major spills of hazardous materials take place, such should be reported in terms of the Section 30 of the NEMA.	
Temporary Fuel storage	Pollution and compacting of Soils	Drilling	Prospecting	-4.50	• The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected shall be disposed of at a licensed disposal facility. • Where a registered disposal facility is not available close to the prospecting area, the Contractor shall provide a method statement with regard to waste management. • Under no circumstances may domestic waste be burned on site. • Appropriate measures must be implemented to prevent spillage	-2.50

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					and appropriate steps must be taken to prevent pollution in the event of a spill; and way that does not pose any danger of pollution even during times of high rainfall. • Adequate spill prevention and clean-up procedures should be developed and implemented during the prospecting activities. • No storage of vehicles or equipment will be allowed outside of the designated prospecting area. • Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use; • No servicing of equipment on site unless absolutely necessary. • Leaking equipment shall be repaired immediately or be removed from site to facilitate repair. • The Contractor shall be in possession of an emergency spill kit that must be complete and available at all times on site. • All vehicles and equipment must be well maintained to ensure that there are no oil or fuel leakages.	

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
					• All contaminated soil / yard stone shall be treated in situ or removed and be placed in containers. • A specialist Contractor shall be used for the bio-remediation of contaminated soil where the required remediation material and expertise is not available on site. • Compacting of soil must be avoided as far as possible, and the use of heavy machinery must be restricted in areas outside of the proposed exploration sites to reduce the compaction of soils. • Should any major spills of hazardous materials take place, such should be reported in terms of the Section 30 of the NEMA.	
Undertake Decommissioning and closure and rehabilitation as per the annual and final rehabilitation plan	Damage and Destruction of graves: Burial Grounds and Graves (KF001, KF002, KF005. KF006, KF007, KF010))	Decommissioning	Rehabilitation and Closure	-16.00	• Fencing of the identified graves and burial grounds and strict avoidance of these sites with a buffer zone of at least 50m.	-7.56
	Damage/destruction to structures: Historical structures- Klip Power & Springfield Colliery	Decommissioning	Rehabilitation and Closure	-14.00	• Avoidance of these sites with a buffer zone of at least 50m	-7.56

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
	(KF009, KF011, KF012, KF013)					
	Damage/destruction of structures: Farmstead (KF008)	Decommissioning	Rehabilitation and Closure	-15.00	• Avoidance of these sites with a buffer zone of at least 50m.	-6.25
	Damage/destruction of site: Redan Archaeological Site (KF004)	Decommissioning	Rehabilitation and Closure	-20.00	• Site should be flagged as a "no go" area and be demarcated with a buffer zone of at least 200m.	-10.00
	Continued encroachment of an indigenous and EN vegetation community by alien invasive plant species as well as erosion due to disturbed soils Continued displacement and fragmentation of the faunal community (including threatened or protected species) due to ongoing anthropogenic	Decommissioning	Rehabilitation and Closure	-15.00	• Any topsoil that is removed during prospecting must be appropriately removed and stored according to the national and provincial guidelines. This includes on-going maintenance of such topsoil piles so that they can be utilised during decommissioning phases and re-vegetation. • Drill sites must be decommissioned and rehabilitated on completion of drilling each hole, and not left to be rehabilitated on completion of the drilling programme.	-8.44

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
	disturbances (noise, dust and vibrations) and habitat degradation/loss (litter, road mortalities and/or poaching).					
	Damage and Destruction of graves: Burial Grounds and Graves (KF001, KF002, KF005. KF006, KF007, KF010))	Prospecting Areas, Site area	Rehabilitation and Closure	-12.00	• Fencing of the identified graves and burial grounds and strict avoidance of these sites with a buffer zone of at least 50m.	--7.56
	Damage/destruction to structures: Historical structures- Klip Power & Springfield Colliery (KF009, KF011, KF012, KF013)	Prospecting Areas, Site area	Rehabilitation and Closure	-10.50	• Avoidance of these sites with a buffer zone of at least 50m.	-6.25
	Damage/destruction of structures: Farmstead (KF008)	Prospecting Areas, Site area	Rehabilitation and Closure	-11.25	• Avoidance of these sites with a buffer zone of at least 50m.	-10.00
	Damage/destruction of site: Redan Archaeological Site (KF004)	Prospecting Areas, Site area	Rehabilitation and Closure	-16.00	• Site should be flagged as a “no go” area and be demarcated with a buffer zone of at least 200m.	-9.75

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE IN WHICH IMPACT IS ANTICIPATED	SIGNIFICANCE IF NOT MITIGATED	MITIGATION TYPE	SIGNIFICANCE IF MITIGATED
Monitoring of rehabilitation efforts	Erosion due to improper rehabilitation	Closure and Rehabilitation	Rehabilitation and Closure	-11.00	• The post-prospecting monitoring and management period following decommissioning of prospecting activities must be implemented by a suitable qualified independent party for a minimum of one (1) year unless otherwise specified by the competent authority. • The monitoring activities during this period will include but not be limited to: • Biodiversity monitoring. • Removed vegetation should be preserved and replaced for rehabilitation of the drill sites. Rehabilitation should be completed for the closure of each hole, and not at the end of the drilling programme. • Provision must be made to monitor any unforeseen impact that may arise as a result of the proposed prospecting activities and incorporated into post closure monitoring and management. • Restoration success should be monitored through a follow-up site visit during the next growing season in order to identify remedial actions	-8.75

9 SUMMARY OF SPECIALIST REPORTS

Specialist study undertaken	Recommendations of Specialist Report	Specialist Recommendations that have been included in the BA Report (Mark with X where applicable	Reference to the applicable section of the Report where Specialist recommendations have been included.
Heritage Impact Assessment	The HIA identified thirteen heritage resources within the Kookfontein study area, including six informal burial grounds and possible grave sites, five sites containing historical structures and one known archaeological site which is a Provincial Heritage site (Redan Rock Engravings), some of which could be impacted during invasive prospecting activities. Recommendations: • Burial Grounds and Graves: The impact would be damage to the six identified graves and burial grounds due to activities associated with the drill site establishment. Mitigation measures would include avoidance of these sites with a buffer of at least 50m. • Historical Structures: The HIAS study identified five sites containing historical structures within the Kookfontein study area. Mitigation measures would include avoidance of these sites with a buffer of at least 50m (especially site KF008). • Archaeological Site (Redan Engraving Site): There is one known formally protected archaeological site (Redan rock engraving site) located within the study area and at least one previously archaeological find spot was identified in a previous study. This site should be demarcated as a "no go" area with a buffer zone of at least 200m.	**X**	Sections 6.4 and 8
Palaeontological Impact Assessment	The geology of the proposed Kookfontein Prospecting Project is primarily underlain by the Vryheid Formation (Ecca Group, Undifferentiated Karoo), and by Precambrian dolomites and associated marine sedimentary rocks that are allocated to the Malmani Subgroup (Chuniespoort Group, Transvaal Supergroup). According to the PalaeoMap of South African Heritage Resources Information System the Palaeontological Sensitivity of the Vryheid Formation (Ecca Group, Undifferentiated Karoo) is Very High while that of the and Malmani Subgroup is High and Quaternary deposits is High (Almond and Pether 2008, SAHRIS website).Groenewald and Groenewald 2014 allocated a High Sensitivity to the Malmani Subgroup. He noted that additionally to the	X	Sections 6.4 and 8

	stromatolites, potentially fossiliferous Late Caenozoic Cave breccias within the "Transvaal dolomite" outcrop area could be present. These breccias are not individually mapped on geological maps. It is thus recommended that an EIA level paleontology report must be conducted to assess the value and prominence of fossils in the development area and the effect of the proposed development on the palaeontological heritage. The purpose of the EIA Report is to elaborate on the issues and potential impacts identified during the scoping phase. A Phase 1 field-based assessment would be conducted with research in the site-specific study area as well as a comprehensive assessment of the impacts identified during the		
Terrestrial and Wetland Assessment	It is anticipated that the following impacts will result from the main activities associated with the prospecting: • Clearing of vegetation for sumps and the drill entrance; • Laydown for drill rods, fuel and chemical storage chemical toilets; and • Earth sumps for water recycling; and • Drill site establishments may result in small volumes of hydrocarbons being stored on site. The following recommendations are provided: • It is recommended that all drill sites be located outside (or beyond) the 50m buffer zone for wetlands; • Drill sites must be decommissioned and rehabilitated on completion of drilling each hole, and not left to be rehabilitated on completion of the drilling programme; and • Existing access routes should be prioritised for the programme, with all newly required features adhering to the buffer zone	X	Sections 6.4 and 8

10 ENVIRONMENTAL IMPACT STATEMENT

10.1 SUMMARY OF KEY FINDINGS

A summary of the key findings of the environmental impact assessment as undertaken in this BAR is outlined below.

- Based on the desktop Biodiversity review and site assessment the main habitats:
    - secondary grasslands regarded as having a high sensitivity,
    - degraded grasslands regarded as areas of least concern,
    - transformed habitat used for commercial agricultural farms and existing urban infrastructure and includes houses, barns, feedlots, camps, roads, etc. regarded as an area of least concern sensitivity, and
    - Wetland and Riparian Areas that are slightly distributed due to grazing but are considered intact. This habitat is regarded as having a high sensitivity due to its importance within the landscape as a movement corridor for fauna, but also as a water resource within the local area.

A number of SCC's are expected to occur in the area. The project area falls across both a CBA: Important and an ESA classified area. The following further conclusions were reached based on the results of this desktop assessment:

- The project area was superimposed on the terrestrial ecosystem threat status. The project area is situated within an ecosystem that are listed as Vulnerable.
- The project area was superimposed on the ecosystem protection level map to assess the protection status of terrestrial ecosystems associated with the development. The terrestrial ecosystems associated with the development are rated as not protected for the entire project area. This means that these ecosystems are considered to be inadequately protected in areas such as national parks or other formally protected areas.
- Both a not protected and a poorly protected river and wetland can be found in the project area.
- The project area overlaps with two freshwater ecosystem priority areas (FEPA) wetlands and no FEPA rivers can be found in close proximately to the project area.
- The project area does overlap any protected area under the National Environmental Management Protected Areas Act (NEMPAA).
- The project area is characterised by the Ba 29 land type. The geology is described as quartzite, shale, slate, sandstone, diabase and lava of the Witwatersrand Supergroup; also, of the Black Reef Formation and Pretoria Group of the Transvaal Sequence; chert and dolomite of the Chuniespoort Group, Transvaal Sequence.
- According to the mining and biodiversity guidelines portions of the proposed prospecting area are classified as "highest biodiversity importance" and "moderate biodiversity importance";
- Based on the Plants of Southern Africa database, 361 plant species have the potential to occur in the prospecting area. Of the 361-plant species, 2 species are listed as being SCCs;
- Based on the South African Bird Atlas Project, Version 2 (SABAP2) database 273 bird species are expected to occur in the vicinity of the prospecting area of which 12 species are listed as SCC either on a regional scale or international scale;

- 79 mammal species are expected to occur within the proposed prospecting area of which 14 are SCCs,
- 57 reptile species are expected to occur and 1 of the species are SCC;
- Twenty-one amphibian species have the potential to occur in the project area. No amphibian SCCs are expected to occur in the project area.
- Majority of the impacts had a medium rating prior to mitigations, which were then decreased to low- negative once mitigations are implemented.

- The HIA identified thirteen heritage resources within the Kookfontein study area, including six informal burial grounds and possible grave sites, five sites containing historical structures and one known archaeological site which is a Provincial Heritage site (Redan Rock Engravings).
- It is recommended that an EIA level palaeontology report must be conducted to assess the value and prominence of fossils in the development area and the effect of the proposed development on the palaeontological heritage, if prospecting shows favourable mining conditions.

Key findings for the socio-economic environment

- The proposed prospecting activity has the potential to affect current land uses such as intensive agriculture and existing industries and mining.
- Consultation with the community and landowners will be conducted in order to capture any comments or concerns regarding the proposed activities and to ensure the community and landowners are kept informed and allowed to raise issues. The concerns raised will be included in the final BAR.
- The potential exists for a group of migrant workers to enter the project area during the prospecting activities. This impact could potentially affect the local communities; however, the impact will be minimal as people on site will be limited to the Applicant and associated contractors.
- The main economic activity within the Emfuleni LM is manufacturing. Manufacturing contributes 36.5 % of the municipalities gross value add (GVA, approximately R16.9 billion) and 87% of the SDM total manufacturing output. Of the 202 543 economically active people (employed and unemployed but looking for work), 34.7% (107555) are unemployed. 20145 people are classified as discouraged work-seekers. Of the 85594 economically active youth (aged 15 – 35), 45% are unemployed.
- The main economic activities within the Midvaal LM are manufacturing, finance, government, community and social services and wholesale and retail trade. Of the LM economic activities manufacturing contributes 27.6 %, finance contributes 24.1%, government, community and social services contributes 23.6% and wholesale and retail trade contribute 15.1%. Cumulatively, these activities contribute to 90.4% to the local economy. Of the 45956 economically active people (employed and unemployed but looking for work), 18.8% (8620) are unemployed. 1939 people are classified as discouraged work-seekers.
- According to Nimbargo Resources PWP, the amount required to finance the Work Programme would amount to R16 260 000. This investment would have a positive impact in terms of stimulation of the local economy through job creation.

10.2 FINAL SITE MAP

The final composite map and sensitivity map showing the location of the sensitive areas is shown in Figure 21 and Figure 22 below. A detailed set of Composite Maps of the site sensitivities is included in Appendix C. A total of 13 drill sites have been discarded (12 sites fall outside of the final MR area and 1 drill site has a medium wetland sensitivity) while 58 drill sites remain in areas of no sensitivity. The requirement for a General Authorisation registration for the remaining 58 sites will be confirmed with the DHSWS in due course.

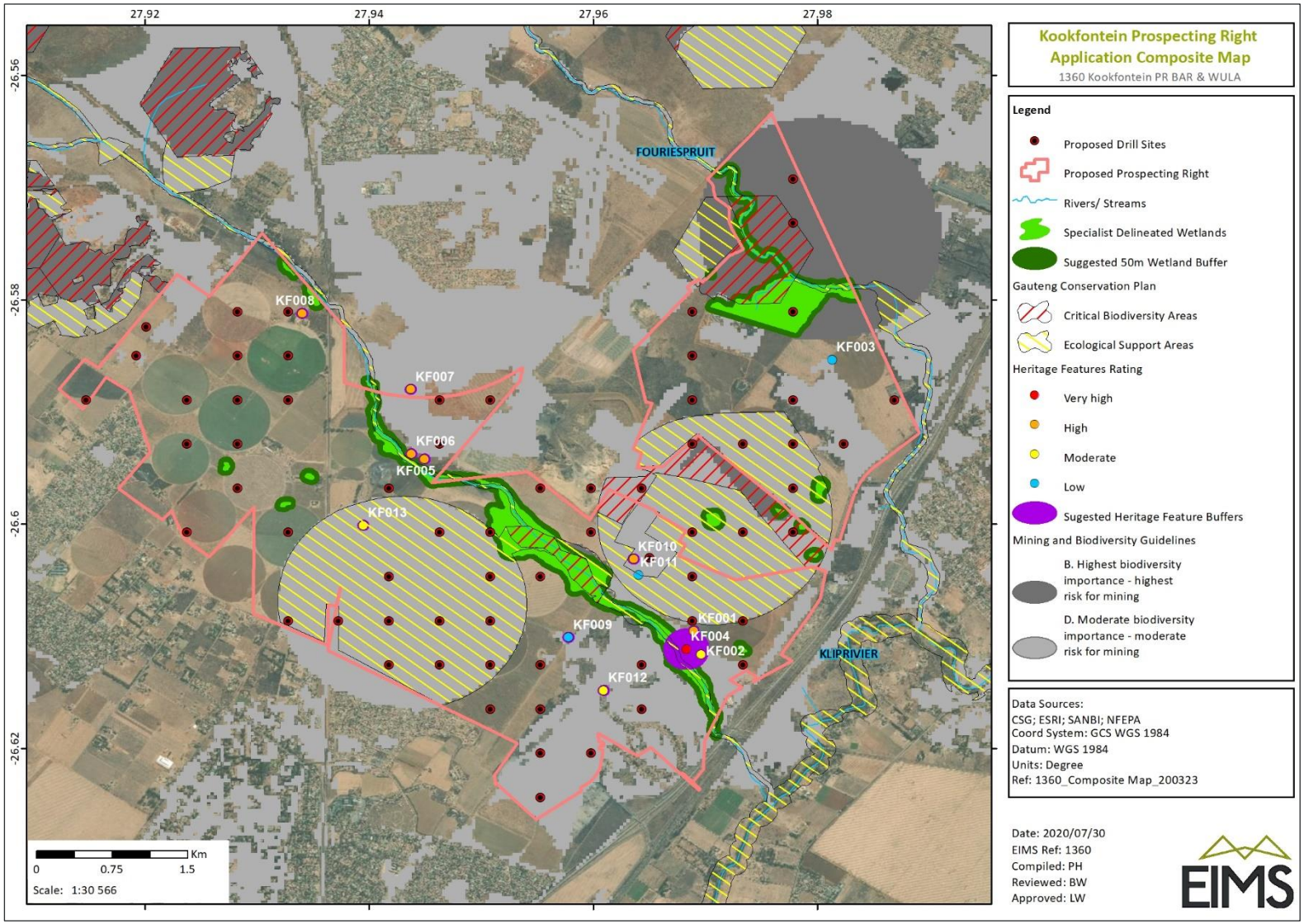


Figure 21: Final Composite Map

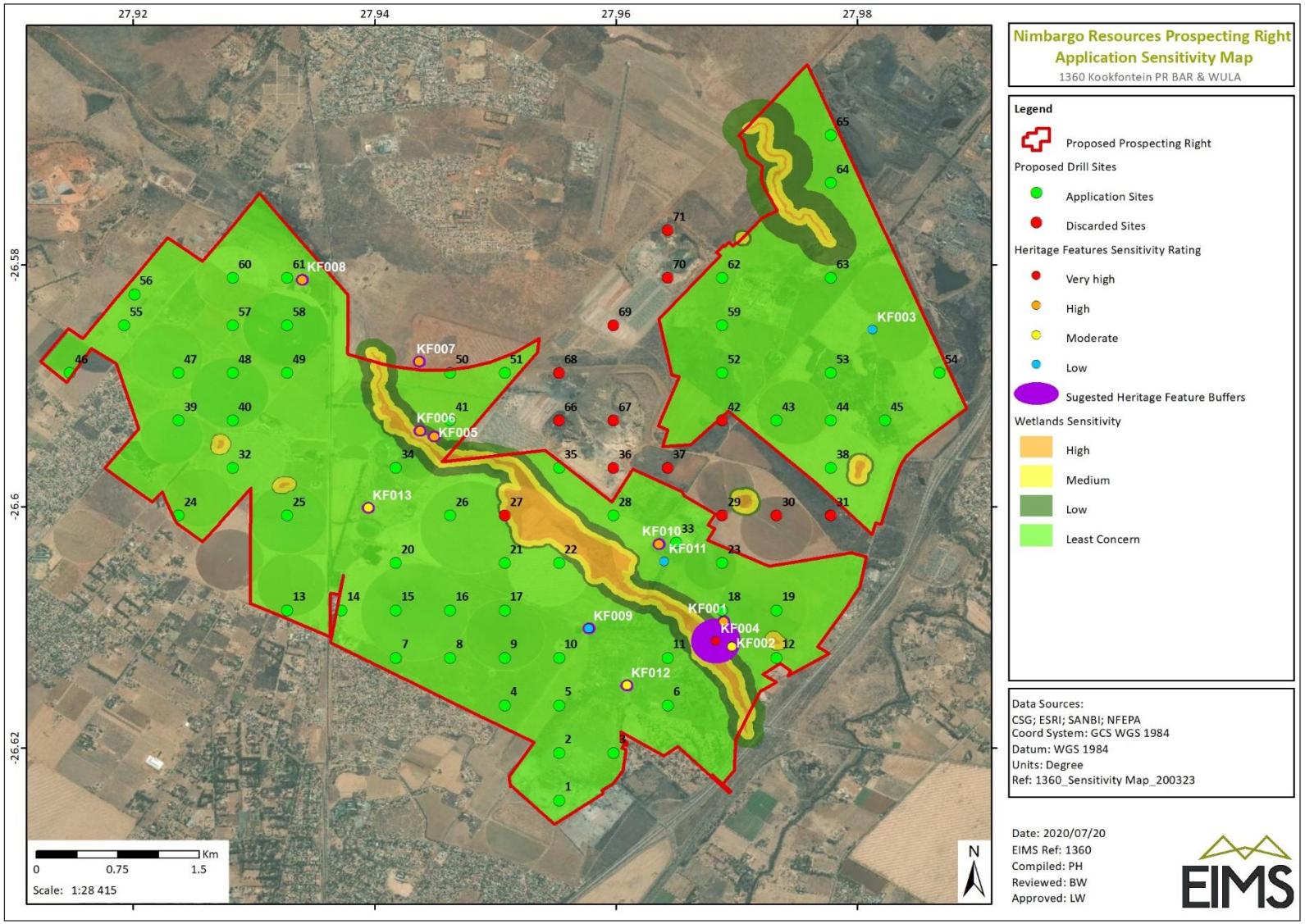


Figure 22: Final sensitivity map

10.3 SUMMARY OF POSITIVE AND NEGATIVE IMPLICATIONS AND RISKS

The positive implication of the Prospecting Right is the discovery of an economically viable mineral resource and stimulation of the economy through creation of jobs. The implementation of the proposed mitigation measure will ensure that the negative implications and risks of the project are reduced to a low level. The potential negative impacts are as follows:

- Damage/destruction of graves: Burial Grounds and Graves;
- Damage/destruction to structures: Historical structures;
- Damage/destruction of structures: Farmstead;
- Damage/destruction of site: Redan Archaeological Site;
- Temporary disturbance of wildlife due to increased human presence and use of machinery and/or vehicles;
- Destruction, further loss and fragmentation of, portions of the vegetation community;
- Loss of CBA and ESA and sections of area classed as high and highest biodiversity importance as well as portions of an area classified as a protected area;
- Introduction of alien species, especially plants;
- Erosion due to storm water runoff and wind;
- Displacement of faunal community due to habitat loss, direct mortalities and disturbance (road collisions, noise, light, dust, rock chips, vibration and poaching);
- Continued encroachment of indigenous and EN vegetation community by alien invasive plant species as well as erosion due to disturbed soils
- Continued displacement and fragmentation of the faunal community (including threatened or protected species) due to ongoing anthropogenic disturbances (noise, dust and vibrations) and habitat degradation/loss (litter, road mortalities and/or poaching).
- Potential leaks, discharges, pollutant from drilling machines and storage leaching into the surrounding environment
- Noise;
- Air Quality (dust);
- Deterioration and damage to existing access roads and tracks;
- Safety and security risks to landowners and lawful occupiers;
- Interference with existing land uses;
- Limited Job Creation;
- Impact on fossil heritage;
- Pollution of Soils
- Generation and disposal of waste; and
- Erosion due to improper rehabilitation.

Appropriate mechanisms for avoidance and mitigation of these negative impacts are included in the EMPr.

11 PROPOSED IMPACT MANAGEMENT OBJECTIVES AND OUTCOMES

The management objective is to minimise the socio-economic, cultural, heritage, biodiversity and palaeontological impacts of the proposed prospecting activity in terms of the perceptions and expectations of I&AP's. The outcome to be achieved is to lessen the impact through the following measures:

- Adhere to an open and transparent communication procedure with stakeholders at all times;
- Ensure that accurate information regarding the prospecting activities to be undertaken and the resultant lack of requirements for site access and labour is communicated to I&APs;
- Ensure that information is communicated in a manner which is understandable and accessible to I&APs;
- Prevent the unnecessary destruction of, and fragmentation, of the vegetation community (including portions of a CBA and ESA and a section classed as high and highest biodiversity importance);
- Prevent the loss of the faunal community (including potentially occurring species of conservation concern) associated with these vegetation communities;
- Limiting the prospecting to the defined prospecting areas and only impacting those areas where it is unavoidable to do so otherwise;
- Enhance project benefits and minimise negative impacts through consultation with stakeholders;
- To limit interference with existing land uses as far as possible during prospecting;
- To avoid damage to road infrastructure; and
- To maintain safety to communities.

12 ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION

The following conditions are recommended for inclusion in the Environmental Authorisation:

- All mitigation measures included in this report must be adhered to.
- Drill sites are to remain outside of high sensitive areas as delineated in the sensitivity map (Figure 21 of the BAR).
- Landowners should be consulted regarding the finalised locations of the drill sites.
- A detailed drill site layout plan should be submitted to the DMR and interested and affected parties once finalised.
- An Environmental Control Officer should be appointed for the proposed prospecting project.

13 DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

Certain assumptions, limitations, and uncertainties are associated with the BAR. This report is based on information that is currently available and, as a result, the following limitations and assumptions are applicable:

- The project scope and descriptions are based on project information provided by the client;
- The information presented in this report is based on the information available at the time of compilation of the report;

- It is assumed that all data and information supplied by the Specialist, Applicant or any of their staff or consultants is complete, valid and true; and
- The description of the baseline environment has been obtained from specialist studies.

Furthermore, certain assumptions, limitations, and uncertainties are associated with the BAR specialist studies and these are detailed for each aspect below.

- Biodiversity:
    - Only a single season survey was conducted, this would constitute an early dry season survey;
    - The wetlands within the PRA were the focus for the study, these systems were ground-truthed and further assessed. Wetland areas beyond the PRA but within the 500 m regulated area were only considered at a desktop level;
    - Access to some farm portions was restricted, these areas were only assessed at a desktop level;
    - The areas within (and especially surrounding drainage lines) the MRA have significantly been modified. This modification could lead to inaccuracies pertaining to delineations and identification of wetland indicators. The majority of wetland areas were covered in tailing material/silt which renders the dominant soil form in such an instance as a Witbank soil form. The latter mentioned according to (DWAF, 2005) is classified as a terrestrial soil as opposed to hydromorphic soils;
    - Some the delineated wetlands are characterised by artificial water inputs, which provides difficulties in identifying hydromorphic soils. Due to the extent of agricultural activities in the area, compounded by efforts to divert and drain areas the key consideration was in situ wetland identification and assessment; and
    - The GPS used for water resource delineations is accurate to within five meters. Therefore, the wetland delineation plotted digitally may be offset by at least five meters to either side.
- Heritage and Palaeontological
    - This Heritage report is only applicable to the proposed Kookfontein Prospecting Application area as depicted in Figure 1 above;
    - Most of the study area was accessible for the fieldwork survey, except for the Ocon Bricks property. Therefore, should any heritage features and/or objects be located or observed outside the identified heritage sensitive areas during the prospecting activities, a heritage specialist must be contacted immediately;
    - Such observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that the heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. This applies to graves and cemeteries as well.
    - When conducting a PIA several factors can affect the accuracy of the assessment. The focal point of geological maps is the geology of the area and the sheet explanations were not meant to focus on palaeontological heritage. Many inaccessible regions of South Africa have not been reviewed by palaeontologists and data is generally based on aerial photographs. Locality and geological information of museums and universities databases have not been kept up to date or data collected in the past have not always been accurately documented.
    - Comparable Assemblage Zones in other areas is used to provide information on the existence of fossils in an area which was not yet been documented. When similar Assemblage Zones and

geological formations for Desktop studies is used it is generally assumed that exposed fossil heritage is present within the footprint. A field-assessment is thus necessary to improve the accuracy of the desktop assessment.

14 REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

14.1 REASONS WHY THE ACTIVITY SHOULD BE AUTHORISED OR NOT

The impacts on the environment can be mitigated through open communication with the community, landowners, implementation of the proposed EMPr mitigation measures including the decommissioning, closure and rehabilitation plan, and limiting site access requirements. It is therefore the opinion of the EAP that the proposed activity should be authorised.

14.2 CONDITIONS THAT MUST BE INCLUDED IN THE AUTHORISATION

The following conditions should be included in the environmental authorisation:

- Stakeholder Engagement will continue throughout the prospecting activities to ensure the community and landowners are kept informed and allowed to raise issues. These issues will then be addressed through a grievance mechanism.
- Arrangements for financial provisions for the decommissioning, closure and rehabilitation must be made. It should be noted that the Financial Provisioning Regulations under the NEMA will only come into effect in February 2021, during which the project is anticipated to have commenced. The applicant must therefore update the financial provisions in line with the regulations when they come into effect as the current financial provision are based on the quantum rates.
- The applicant should adhere to the conditions of the EA, EMPR and the Specialist reports for this project.
- An independent Environmental Control Officer should be appointed for the proposed prospecting project to ensure compliance with the EMPR.

15 PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

The Environmental Authorisation is required for a minimum of five (5) years.

16 UNDERTAKING

It is confirmed that the undertaking required to meet the requirements of this section is provided at the end of the EMPR and is applicable to both the BAR and the EMPR.

17 FINANCIAL PROVISION

The preliminary estimate of the Rehabilitation Cost is (inclusive of contingencies and VAT): R 162 837.13

17.1 EXPLAIN HOW THE AFORESAID AMOUNT WAS DERIVED

The Regulations Pertaining to the Financial Provision for Prospecting, Mining or Production Operations promulgated under section 44(aE), (aF), (aG), (aH) read with sections 24(5)(b)(ix), 24(5)(d), 24N, 24P and 24R of the National Environmental Management Act, 1998 (Act No.107 of 1998) (20 November 2015) have been considered and this is anticipated to result in an increase in the rehabilitation costs estimated using above mentioned quantum.

A detailed Final Rehabilitation, Decommissioning and Closure Plan (FRDCP) has been compiled in terms of the requirements of Regulations Pertaining to the Financial Provision for Prospecting, Mining or Production Operations. This FRDCP has been included in Appendix D. Refer to Appendix D for a detailed description of the amount required to meet the objectives of the FRDCP.

17.2 CONFIRM THAT THIS AMOUNT CAN BE PROVIDED FOR FROM OPERATING EXPENDITURE

The rehabilitation and closure costs will be provided for in the operating expenditure.

18 SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

18.1 COMPLIANCE WITH THE PROVISIONS OF SECTIONS 24(4)(A) AND (B) READ WITH SECTION 24(3)(A) AND (7) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT 107 OF 1998) THE BAR REPORT MUST INCLUDE THE:

18.1.1 IMPACT ON THE SOCIO-ECONOMIC CONDITIONS OF ANY DIRECTLY AFFECTED PERSON

The potential impacts on the socio-economic conditions have the potential to include:

- Job creation:

  The proposed prospecting activity is anticipated to stimulate the economy of Emfuleni and Midvaal local municipality through the limited creation of employment opportunities during the planning, prospecting, closure & decommissioning and rehabilitation phases of the project. Furthermore, the local economy through the provision of secondary services and resources for the proposed project such as material for the temporary site establishment.

- Safety and security risks to landowners and lawful occupiers:

  The potential exists for a group of migrant workers to enter the project area during the prospecting activities. This impact could potentially affect the local communities; however, the impact will be minimal as people on site will be limited to the Applicant, and associated contractors Furthermore, landowner consent agreements will need to be agreed upon and signed by affected landowners prior to the commencement of the proposed prospecting.

- Potential interference with existing land uses:

  Access to the application area for the topographical and geophysical survey will be required which may interrupt the existing land uses, such as intensive agriculture. However, this impact is limited as equipment brought on site will be for a short duration and all necessary arrangements with the landowners will be made to minimise any potential interference with their operations.

- Noise Impacts:

  The proposed prospecting project has the potential to create a noise nuisance as a result of prospecting activities (ie drilling). A grievance mechanism must be developed, and details provided to all affected landowners. Site activities shall operate during daytime working hours (8:00am to 5:00pm) to avoid noise disturbances at night.

- The consultation process will allow directly affected parties to raise their concerns. Further to this, it must be noted that I&AP's, including directly affected parties such as landowners, have the opportunity

to review and comment on this report. The results of the public consultation will be included in the final report submitted to the department for adjudication.

18.1.2 IMPACT ON ANY NATIONAL ESTATE REFERRED TO IN SECTION 3(2) OF THE NATIONAL HERITAGE RESOURCES ACT

The heritage impact assessment identified various potential heritage resources within the study area, including burial grounds and graves, historical structures, palaeontological resources and archaeological resources that could be impacted during invasive prospecting activities. In total, thirteen heritage resources within the Kookfontein study area, including six informal burial grounds and possible grave sites, five sites containing historical structures and one known archaeological site which is a Provincial Heritage site (Redan Rock Engravings).

Table 21: Tangible heritage site in the study area

Name	Description	Legislative protection
Architectural Structures	Possibly older than 60 years	NHRA Sect 3 and 34
Burial grounds	Graves	NHRA Sect 3 and 36 and MP Graves Act
Archaeological finds	Such as stone age sites	NHRA Sect 35

Notice of the proposed Prospecting Right Application will be uploaded onto the South African Heritage Resources Agency's (SAHRA) website, South African Heritage Information System (SAHRIS).

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

Section 24(4) (A) and (B) refer to the "procedures for investigation, assessment and communication of the potential consequences or impacts of activities on the environment". The table below provides reference to where in the report section 24 (4) (A) and (B) is addressed.

Sub-Section Reference	Applicable legislation under section 24 (4)(A) and (B) of the NEMA	Reference Where Applied (i.e. where in this document has it been explained how the development complies section 24 (4)
24 (a) must ensure, with respect to every application for an environmental authorisation-		
24 (a) (i)	coordination and cooperation between organs of state in the consideration of assessments where an activity falls under the jurisdiction of more than one organ of state	Refer to Section 6.2 and Appendix B Both the Midvaal LM and Emfuleni LM were included on the I&AP database, notified and provided with an opportunity to review and comment on the BAR and associated appendices.

Sub-Section Reference	Applicable legislation under section 24 (4)(A) and (B) of the NEMA	Reference Where Applied (i.e. where in this document has it been explained how the development complies section 24 (4)
24 (a) (ii)	that the findings and recommendations flowing from an investigation, the general objectives of integrated environmental management laid down in this Act and the principles of environmental management set out in section 2 are taken into account in any decision made by an organ of state in relation to any proposed policy, programme, process, plan or project	Refer to Section 9 and Section 10 A summary of the specialist reports, including the recommendations is presented in Section 9. Section 10 presents a summary of the key findings.
24 (a) (iii)	that a description of the environment likely to be significantly affected by the proposed activity is contained in such application	Refer to section 6.4 Section 6.4 provides a summary of the environmental attributes for the proposed project area.
24 (a) (iv)	investigation of the potential consequences for or impacts on the environment of the activity and assessment of the significance of those potential consequences or impacts	Refer to sections 6.5, 6.6, 0 and 8. Sections 6.5, 6.6, 0 identifies potential impacts and risks, outlines the impact assessment methodology applied and presents the potential positive and negative impacts associated with the project respectively. Section 8 presents the impact assessment for the identified impacts.
24 (a) (v)	public information and participation procedures which provide all interested and affected parties, including all organs of state in all spheres of government that may have jurisdiction over any aspect of the activity, with a reasonable opportunity to participate in those information and participation procedures	Refer to Section 6.2 and Appendix B Section 6.2 provides a summary of the public participation process to be followed. The Public Participation Report and associated appendices is attached in Appendix B.
24 (b) must include, with respect to every application for an environmental authorisation and where applicable—		
24 (b) (i)	investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity	Refer to Section 6.9 and 6.10. Section 6.9 and 6.10 motivation as to why no alternative sites were considered and motivation for alternative site development respectively.
24 (b) (ii)	investigation of mitigation measures to keep adverse consequences or impacts to a minimum	Refer to Section 6.8. and Appendix E

Sub-Section Reference	Applicable legislation under section 24 (4)(A) and (B) of the NEMA	Reference Where Applied (i.e. where in this document has it been explained how the development complies section 24 (4)
		Section 6.8.provides possible mitigation measures for the potential impacts for each activity. Specialist Assessments are included in Appendix E The Possible Mitigation Measures That Could Be Applied and The Level of Risk
24 (b) (iii)	investigation, assessment and evaluation of the impact of any proposed listed or specified activity on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act	Refer to Appendix E and Section 8. Impacts in terms of the National Heritage Resources Act, 1999 are assessed in Section 8. The HIA is included in Appendix E.
24 (b) (iv)	reporting on gaps in knowledge, the adequacy of predictive methods and underlying assumptions, and uncertainties encountered in compiling the required information	Refer to Section 13. Assumptions, Uncertainties and Gaps in Knowledge are included in Section 13.
24 (b) (v)	Investigation and formulation of arrangements for the monitoring and management of consequences for or impacts on the environment, and the assessment of the effectiveness of such arrangements after their implementation	Refer to Sections 21.4 and 21.5 of the Environmental Management Programme for proposed mitigation measures and Section 23 for details regarding monitoring compliance.
24 (b) (vi)	consideration of environmental attributes identified in the compilation of information and maps contemplated in subsection (3);	Refer to Appendix C for maps.
24 (b) (vii)	provision for the adherence to requirements that are prescribed in a specific environmental management Act relevant to the listed or specified activity in question	Refer to Section 3 for the policy and legislative context.

In terms of Section 24(4)(b)(i) of the NEMA, the Environmental Impact Assessment Regulations (2014, as amended), requires the application to identify alternatives for the proposed project in terms of:

- Location of the development
- The type of activity to be undertaken
- Design or layout of the development
- The technology to be used

- The operational aspects of the activity; and
- The option of not implementing the activity.

The proposed project involves prospecting activities to determine if the target minerals are present and to determine if the resources are the economic viable. The proposed prospecting will involve both non-invasive and invasive methods. It is proposed that prospecting occurs at 58 drill sites. The following alternative assessment was conducts:

Location of development: No location alternatives were identified as the proposed location for the prospecting activities is based on the potential presence of mineral resources. It is noted that the locations of 58 drill sites are somewhat flexible and will only be finalised upon completion of the non-invasive prospecting activities. Furthermore, the drill site locations will be selected based on the environmental sensitivities as outlined in this report.

Type of activity: No alternative type of activity was assessed. The proposed project is for prospecting activities to determine if the targeted minerals are presented and the economic viability of the resources. If the prospecting activity yield a positive result, a new environmental application process will need to be undertaken should the applicant wish to proceed with mining of the target minerals.

Design or Layout: It is not possible, at this stage, to locate exactly where drilling will be carried out as this will be determined by the results of geophysical and geological work carried out in Phase 1 of the prospecting programme. Its assumed that a drill hole as per Figure 2 will be located in intervals of 500 meters (indicated resource as per SAMREC code) with no more than 2 holes being actively drilled at any given time. The layout of the drill sites will also consider the environmental sensitives as outline in this report.

Technology: The technologies that have been selected are proven effective in the determination of resource viability within the proposed prospecting area. Some of the techniques employed in the non-invasive prospecting will include desktop studies, spatial database compilation, land survey and remote sensing. Invasive prospecting will involve testing the target sites using diamond drilling, reverse circulation drilling or percussions drilling. The PWP anticipates that a combination of HQ (63.4mm) and NQ (47.63mm) drilling cores will be used to drill target sites. No alternatives were assessed.

Operational Aspects: Operational aspects that have been considered for the effective implementation of the PWP include financial arrangements and availability of appropriate equipment and technical skills. Nimbargo Resources (Pty) Ltd, the applicant, has ensured that technical personnel are available to execute the prospecting work program.

"No-go" Option: If the prospecting right is not granted, the potential to identify viable mineral resources could be lost. Historical prospecting and mining activities have taken place in the vicinity of the proposed prospecting right area and as such the proposed prospecting activities represent a continuation of surrounding land uses. Should the applicant not be granted the prospecting right and environmental authorisation, the no -go alternative would result in no social, cultural and environmental impacts.

Part B: Environmental Management Programme

20 EMPR INTRODUCTION

20.1 DETAILS OF THE EAP

The details and expertise of the EAP are detailed in Section 1 above as required.

20.2 DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

A description of the aspects of the activity covered by the EMPR below is included in Section 2 above.

20.3 COMPOSITE MAP

Please refer to Section 10.2 above and Appendix C.

21 DESCRIPTION OF IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

21.1 DETERMINATION OF CLOSURE OBJECTIVES

The vision, and consequent objective and targets for rehabilitation, decommissioning and closure, aim to reflect the local environmental and socio-economic context of the project, and to represent both the corporate requirements and the stakeholder expectations.

The receiving environment within which the prospecting activities will be undertaken include the following key land-uses:

- Intensive agriculture;
- Mining and quarrying; and
- Industrial activities.

With reference to Section 6.2 above, concerns raised by the stakeholders consulted during the public participation process for the basic assessment will be taken into consideration and included in the final BAR and EMPr which will be submitted to the DMRE.

In practice the post closure land-use will depend on the pre-prospecting land-use applicable to the specific location of the invasive prospecting activities. Considering that the exact locations of the planned prospecting have been identified and assessed, it can be said that the closure plan will sufficiently address the objectives for the preferred alternative. This EMP does, however, aim to address the key closure objectives which are likely to remain consistent for the majority of the prospecting activities.

The EMPR includes a rehabilitation plan. The plan shall outline the closure objectives which are aimed at re-instating the landform, land use and vegetation units to the same as before prospecting operations took place unless a specific, reasonable alternate land use is requested by the landowner. As such, the intended end use for the disturbed prospecting areas and the closure objectives will be defined in consultation with the relevant landowner. Proof of such consultation will be submitted together with the Application for Closure Certificate. The overall aim of the rehabilitation plan is to rehabilitate the environment to a condition as close as possible to that which existed prior to prospecting. This shall be achieved with a number of specific objectives.

- **Making the area safe.** i.e. Decommission prospecting activities so as to ensure that the environment is safe for people and animals. This entails refilling excavations, sealing boreholes, etc.

- **Recreating a free draining landform.** This entails earthworks infilling, reshaping, levelling, etc. to recreate as close as possible the original topography and to ensure a free draining landscape.
- **Re-vegetation.** This involves either reseeding or allowing natural succession depending on the area, climate etc.
- **Storm water management and erosion control.** Management of stormwater and prevention of erosion during rehabilitation. E.g. cut off drains, berms etc. and erosion control where required.
- Verification of rehabilitation success. Entails monitoring of rehabilitation.
- **Successful closure.** Obtain closure certificate.

21.2 VOLUMES AND RATE OF WATER USE REQUIRED FOR THE OPERATION

The prospecting activities involve drilling to a maximum of 20m deep. As such, the volume of water required for each drill hole is in the order of 2-5m^3.

21.3 HAS A WATER USE LICENCE BEEN APPLIED FOR?

No water use licencing is required for water abstraction. A general authorisation registration process is underway for the drill site proximity to watercourses.

21.4 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

Table 22: Impacts to Be Mitigated

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
Site clearance	Prospecting	0.5 ha, short term and localized	• Demarcation of sensitive areas in consultation with relevant specialists and ECO; • Utilise local labour if possible; • Minimise removal of vegetation as far as possible; • Identification and relocation of protected species by a qualified ecologist (and application or the relevant biodiversity permits where required); • When vegetation is cleared, hand cutting techniques should be used as far possible in order to avoid the use of heavy machinery; • Minimize dust generation; • It should be made an offence for any staff to /take bring any plant species into/out of any portion of the project area. No plant species whether indigenous or exotic should be brought into/taken from the project area, to prevent the spread of exotic or invasive species or the illegal collection of plants; • Limit vehicle access; • Implement alien vegetation management; • Ongoing identification of risks and impacts; • Emergency preparedness;	NEMA MPRDA NEMBA NEMAQA Dust regulations NWA DWAF Best Practice Guidelines	Throughout prospecting

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			• A qualified environmental control officer must be on site when prospecting begins to identify SCC that will be directly disturbed and to relocate fauna/flora that are found during the prospecting activities; • The area must be walked though prior to prospecting to ensure no faunal species remain in the habitat and get killed. Should animals not move out of the area on their own relevant specialists must be contacted to advise on how the species can be relocate; • Fencing of the identified graves and burial grounds and strict avoidance of these sites with a buffer zone of at least 50m; • Avoidance of historical sites with a buffer zone of at least 50m; • Archaeological Site (Redan Engraving site) to be marked as a no-go area with at least a 200m buffer; and • Avoid disturbance of fauna as much as possible, especially bird nesting sites.		
Site access	Prospecting	2949.7522Ha, short term and localized	• All employees and visitors to the site must undergo a site induction which shall include basic environmental awareness and site-specific environmental requirements (e.g. site sensitivities and relevant protocols/procedures). This induction should be presented or otherwise facilitated by the Contractors EO/Mine EO wherever possible; • Landowners/lawful occupiers must be notified prior to accessing properties. A date and time that is suitable to landowners/lawful occupiers	NEMA OHS and MHSA	Throughout prospecting

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			and is reasonable to the applicant should be negotiated and agreed upon; • The number, identity of workers, work location and work to be done must be provided to the landowner/lawful occupier prior to going on site; and • Consideration must be taken by the applicant and/or contractors when on site not to interfere with the existing land uses and practices.		
Establishment of site infrastructure	Prospecting	0.5 ha, short term and localized	• Minimise physical footprint of prospecting; • Ensure prospecting is consistent with occupational health and safety requirements; • Ensure proper and adequate drainage; • Minimise waste and control waste disposal; • Fencing of all drill sites with security access control and warning signs; • Establish waste storage areas for recycling; • Ensure adequate containment of waste to prevent pollution; • Minimise dust generation; • All laydown, chemical toilets etc. should be restricted to least concern sensitivity areas. • Any materials may not be stored for extended periods of time and must be removed from the project area once the prospecting/closure phase has been concluded; • No permanent structures should be permitted at drill sites. Buildings should preferably be prefabricated or constructed of re-usable/recyclable materials;	NEMA MPRDA NEMBA NEMAQA Dust regulations NWA DWAF Best Practice Guidelines	Throughout prospecting

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			• No storage of vehicles or equipment will be allowed outside of the designated project areas; • All prospecting/operational and access must make use of the existing roads; • Limit vehicle access to approved access roads; • Prepare contingency plans for spillage and fire risks; • A qualified environmental control officer must be on site when prospecting begins to identify SCC that will be directly disturbed and to relocate fauna/flora that are found during the prospecting activities; • The area must be walked though prior to prospecting to ensure no faunal species remain in the habitat and get killed. Should animals not move out of the area on their own relevant specialists must be contacted to advise on how the species can be relocated; and • The footprint area of the prospecting should be kept to a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas.		
Storage of prospecting vehicles	Prospecting	0.05ha, short term and localized	• Any equipment that may leak, and does not have to be transported regularly, must be placed on watertight drips trays to catch any potential spillages of pollutants. The drip trays must be of a size that the equipment can be placed inside it; • Drip trays must be cleaned regularly and shall not be allowed to overflow;	NWA DWAF BPG	Throughout prospecting

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			• All spilled hazardous substances must be collected and adequately disposed of at a suitably licensed facility; • Compacting of soil must be avoided as far as possible, and the use of heavy machinery must be restricted in areas outside of the proposed exploration sites to reduce the compaction of soils; and • No storage of vehicles or equipment will be allowed outside of the designated project areas.		
Transportation/ access to and from drill sites	Prospecting	short term and localized	• Where possible, drill sites should be located along existing access roads to reduce the requirement for additional access roads; • All prospecting/operational and access must make use of the existing roads; • Prior to accessing any portion of land, the Applicant must enter into formal written agreements with the affected landowner. This formal agreement should additionally stipulate landowners' special conditions which would form a legally binding agreement; • All farm gates must be closed immediately upon entry/exit; • Under no circumstances may the contractor damage any farm gates, fences, etc.; • On-site vehicles must be limited to approved access routes and areas on the site so as to minimize excessive environmental disturbance to the soil and vegetation on site, and to minimize disruption of traffic (where relevant); • All prospecting and vehicles using public roads must be in a roadworthy condition and their	NEMA NEMBA CARA NEMAQA Dust Regulations Road Traffic Act	Throughout prospecting

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			loads secured. They must adhere to the speed limits and all local, provincial and national regulations with regards to road safety and transport; • Damage caused to public roads as a result of the prospecting activities must be repaired in consultation with the relevant municipal authorities; and • All measures should be implemented to minimize the potential of dust generation.		
Storage of hazardous substances	Prospecting	Short term and localized	• All hazardous substances (e.g. fuel, grease, oil, brake fluid, hydraulic fluid) must be handled, stored and disposed of in a safe and responsible manner so as to prevent pollution of the environment or harm to people or animals. Appropriate measures must be implemented to prevent spillage and appropriate steps must be taken to prevent pollution in the event of a spill; and way that does not pose any danger of pollution even during times of high rainfall. • Hazardous substances must be confined to specific and secured areas, and stored at all time within bunded areas; • A spill management plan must be put in place to ensure that should there be any chemical spill out or over that it does not run into the surrounding areas; • The Contractor shall be in possession of an emergency spill kit that must always be complete and available on site;	NWA NEMWA DWAF BPG NEMA	Throughout prospecting

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			• Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use; • No servicing of equipment on site unless necessary. All contaminated soil / yard stone shall be treated in situ or removed and be placed in containers; and • Should any major spills of hazardous materials take place, such should be reported in terms of the Section 30 of the NEMA.		
Waste management	Prospecting	Short-medium term, localized	• Waste generated on site must be recycled as far as possible. Recyclable waste must not be stored on site for excessive periods to reduce risk of environmental contamination; • Waste management must be a priority and all waste must be collected and stored adequately; • It is recommended that all waste be removed from site on a weekly basis; to prevent rodents and pests entering the site; • The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected shall be disposed of at a licensed disposal facility; • Where a registered disposal facility is not available close to the project area, the Contractor shall provide a method statement with regard to waste management; • Under no circumstances may domestic waste be burned on site; • Refuse bins will be emptied and secured; • Temporary storage of domestic waste shall be in covered waste skips;	DWAF Minimum requirements for waste disposal NEMWA	Throughout prospecting

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			• Maximum domestic waste storage period will be 10 days. • A Waste Management System must be implemented and provide for adequate waste storage (in the form of enclosed containers) waste separation for recycling, and frequent removal of non-recyclable waste for permanent disposal at an appropriately licensed waste disposal facility; and • No waste material is to be disposed of on site.		
Prospecting boreholes: **58 sites, with a maximum of 20 m in depth.**	Prospecting	40m^2, short term	• Drill sites must be limited to areas regarded as least concern sensitivity as depicted in the sensitivity map; • All high sensitivity areas must be avoided and declared "No-go" areas; • Fencing of the identified graves and burial grounds and strict avoidance of these sites with a buffer zone of at least 50m; • Avoidance of historical sites with a buffer zone of at least 50m; • Archaeological Site (Redan Engraving site) to be marked as a no-go area with at least a 200m buffer; • Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should under no circumstances be fragmented or disturbed further; • Clearing of vegetation should be minimized and avoided where possible; • Maintain small patches of natural vegetation within the prospecting site to accelerate restoration and succession of cleared patches;	SANS 10103 ECA Noise Regulations NEMAQA Dust Regulations NWA	Throughout prospecting and decommissioning

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			• Dust-reducing mitigation measures must be put in place and must be strictly adhered to, for all roads and dumps especially. This includes wetting of exposed soft soil surfaces and not conducting activities on windy days which will increase the likelihood of dust being generated; • Local residents should be notified of any potentially noisy activities or work and these activities should be undertaken at reasonable times of the day. These works should not take place at night or on weekends; • Noise must be kept to an absolute minimum during the evenings and at night to minimize all possible disturbances to amphibian species and nocturnal mammals; • Outside lighting should be designed and limited to minimize impacts on fauna; • All outside lighting should be directed away from highly sensitive areas such as the wetland. Fluorescent and mercury vapor lighting should be avoided and sodium vapor (yellow) lights should be used wherever possible; • When working near to a potential sensitive area, the contractor must limit the number of simultaneous activities to the minimum; • Schedule prospecting activities and operations during least sensitive periods, to avoid migration, nesting and breeding seasons; • The holes need to be sealed to ensure that no fauna species can fall in the drill hole; • Ensure proper storage of fuels;		

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			• On-site vehicles must be limited to approved access routes and areas on the site so as to minimize excessive environmental disturbance to the soil and vegetation on site, and to minimize disruption of traffic; • Workforce should be kept within defined boundaries and to agreed access routes; • No invasive prospecting activities to be undertaken within 50m of a watercourse; • Should any watercourse be affected, then the necessary water use licences should be obtained from the Department of Water and Sanitation; and • No ablution or site laydown areas are to be located within 150m of a watercourse.		
Prospecting	Prospecting	2949.7522Ha	• Workers must be easily identifiable by clothing and ID badges. Workers should carry with them, at all times a letter from the applicant stating their employment, title, role and manager contact details.	OHS and MHSA	Throughout prospecting
Resource definition drilling	Prospecting	40m^2, short term	• Local residents (landowners and directly adjacent landowners) should be notified of any potentially noisy activities or work and these activities should be undertaken at reasonable times of the day. This work should not take place at night or on weekends; • The contractor must attempt to restrict noisy activities as far as is possible to times and locations whereby the potential for noise nuisance is reduced; • Noise must be kept to an absolute minimum during the evenings and at night to minimize all	MPRDA Regulations GN R527 SANS 10103 ECA Noise Regulations NEMAQA	Planning Phase Throughout prospecting

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			possible disturbances to amphibian species and nocturnal mammals; • Schedule prospecting activities and operations during least sensitive periods, to avoid migration, nesting and breeding seasons; • The duration of the prospecting should be minimized to as short term as possible, to reduce the period of disturbance on fauna; • Dust-reducing mitigation measures must be put in place and must be strictly adhered to, for all roads and dumps especially. This includes wetting of exposed soft soil surfaces and not conducting activities on windy days which will increase the likelihood of dust being generated; • Any spills of hydrocarbons or fluids used during operation, must be cleaned up immediately; • Any topsoil that is removed during prospecting must be appropriately removed and stored according to the national and provincial guidelines. This includes on-going maintenance of such topsoil piles so that they can be utilised during decommissioning phases and re-vegetation; • All prospecting/operational and access must make use of the existing roads; • Workforce should be kept within defined boundaries and to agreed access routes; • Fencing of the identified graves and burial grounds and strict avoidance of these sites with a buffer zone of at least 50m; • Avoidance of historical sites with a buffer zone of at least 50m;	Dust Regulations NWA DWAF BPG NHRA	

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			• Archaeological Site (Redan Engraving site) to be marked as a no-go area with at least a 200m buffer; • Should any chance finds be uncovered during the prospecting phase, these must be handled in accordance with the requirements of the National Heritage Resources Act, 1999 (Act 25 of 1999) (NHRA): o If a possible heritage site (including graves or artefacts) is discovered during prospecting, all operations in the vicinity of the discovery (at least 30 m buffer) should stop and a qualified specialist contracted to evaluate and recommend appropriate actions. Depending on the type of site that can include initiating a grave relocation process, documentation of structures or archaeological excavations. o 38(4)c(i) – If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt 021 462 5402) must be alerted as per section 35(3) of the NHRA. Non-compliance with section of the NHRA is an offense in		

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			terms of section 51(1)e of the NHRA and item 5 of the Schedule; ○ 38(4)c(ii) – If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule; ○ If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA;		
Refuelling	Prospecting	Short term and localized	• Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use; • No servicing of equipment on site unless necessary; • All contaminated soil / yard stone shall be treated in situ or removed and be placed in containers; and	NWA DWAF BPG	Throughout prospecting

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			• Drip trays should be utilized in relevant locations (inlets, outlets, points of leakage, etc.) during transfer so as to prevent such spillage or leakage. Any accidental spillages must be contained and cleaned up promptly.		
Maintenance and repair	Prospecting	Short term and localized	• Leaking equipment and vehicles must be repaired immediately or be removed from project area to facilitate repair; and • Accidental hydrocarbon spillages must be reported immediately, and the affected soil should be removed, and rehabilitated or if this is not possible, disposed of at a suitably licenced waste disposal facility.	NWA DWAF BPG NEMA	Throughout prospecting
Borehole Closure	Decommissioning and Closure	Short term and localized	• Progressive rehabilitation will enable topsoil to be returned more rapidly, thus ensuring more recruitment from the existing seedbank; • Any woody material removed can be shredded and used in conjunction with the topsoil to augment soil moisture and prevent further erosion; • All structure footprints to be rehabilitated and landscaped after prospecting is complete; • Rehabilitation of the disturbed areas existing in the project area must be made a priority; • Topsoil must also be utilised, and any disturbed area must be re-vegetated with plant and grass species which are endemic to this vegetation type; • Areas that are denuded during prospecting need to be re-vegetated with indigenous vegetation to prevent erosion during flood events. This will	NWA DWAF BPG	Throughout Decommissioning and Closure

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			also reduce the likelihood of encroachment by alien invasive plant species; and • A fire management plan needs to be complied and implemented to restrict the impact fire might have on the rehabilitated areas.		
Removal of surface infrastructure	Decommissioning	Short term and localized	• All infrastructure, equipment, and other items used during prospecting will be removed from the site.	MPRDA Rehab Plan	Decommissioning
Removal of waste	Decommissioning	Small scale and localized	• Waste management must be a priority and all waste must be collected and stored effectively; • Litter, spills, fuels, chemicals and human waste in and around the project area; • A minimum of one toilet must be provided per 10 persons; • Portable toilets must be pumped dry to ensure the system does not degrade over time and spill into the surrounding area; • The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected shall be disposed of at a licensed disposal facility; • Where a registered disposal facility is not available close to the project area, the Contractor shall provide a method statement with regard to waste management. Under no circumstances may domestic waste be burned on site; • Refuse bins will be emptied and secured Temporary storage of domestic waste shall be in covered waste skips;	NWA DWAF BPG	Decommissioning

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			• Maximum domestic waste storage period will be 10 days.		
Rehabilitation	Rehabilitation	All disturbed areas	• Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should under no circumstances be fragmented or disturbed further; • Clearing of vegetation should be minimized and avoided where possible; • Maintain small patches of natural vegetation within the prospecting site to accelerate restoration and succession of cleared patches; • Areas that are denuded during prospecting need to be re-vegetated with indigenous vegetation to prevent erosion during flood events. This will also reduce the likelihood of encroachment by alien invasive plant species; • All structure footprints to be rehabilitated and landscaped after prospecting is complete. Rehabilitation of the disturbed areas existing in the project area must be made a priority; • Topsoil must also be utilised, and any disturbed area must be re-vegetated with plant and grass species which are endemic to this vegetation type; • Progressive rehabilitation will enable topsoil to be returned more rapidly, thus ensuring more recruitment from the existing seedbank; • Any woody material removed can be shredded and used in conjunction with the topsoil to augment soil moisture and prevent further erosion;	MPRDA Rehab Plan NEMA	Rehabilitation

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			• A fire management plan needs to be complied and implemented to restrict the impact fire might have on the rehabilitated areas; • All debris and contaminated soils must be removed and suitably disposed of; • All surface infrastructure on site must be removed; and • Sites must be monitored by the ECO (including relevant specialist's inputs if, necessary) for adequate rehabilitation until the desired rehabilitation objectives have been achieved.		
Consultation	Planning Phase Prospecting	Medium term, local	• Stakeholder engagement will continue throughout the prospecting activities to ensure the community and landowners are kept informed and allowed to raise issues; and • The Applicant shall attend applicable community meetings with the affected communities. Any issues raised will then be addressed through a grievance mechanism.	NEMA OHS and MHSA	Planning Phase Throughout Prospecting
Monitoring	Post-Closure	All rehabilitated areas	• The post-closure monitoring and management period following decommissioning of prospecting activities must be implemented by a suitable qualified party for a minimum of one (1) year unless otherwise specified by the competent authority; and • The monitoring activities during this period will include but not be limited to: o Vegetation cover and composition; • Re-vegetation of disturbed areas where required; and • Provision must be made to monitor any unforeseen impact that may arise as a result of	MPRDA Rehab Plan	Post-operation

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			the proposed prospecting activities and incorporated into post closure monitoring and management.		

21.5 IMPACT MANAGEMENT ACTIONS AND OUTCOMES

Table 23: Summary of Impact Management Actions and Outcomes

Activity	Potential Impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
Site clearance	Deterioration and damage to existing access roads and tracks; Dust generation; Clearance of vegetation; Invasion by alien species; Erosion; Impact on Fauna; Drilling impact on heritage resources Loss of fossil heritage.	Topography; Soil; Air Quality; Surface Water; Groundwater; Transportation	Prospecting	Avoid and control through implementation of EMP mitigation measures (e.g. speed limit enforcement, vehicle maintenance)	NEMA NEMBA CARA Threatened or Protected Species (TOPS) regulations NEMAQA Dust regulations NWA DWAF best Practice Guidelines
Establishment of base camps and access	Interference with existing land uses;	Topography; Landform;	Prospecting	Avoidance and control through preventative	NEMA MPRDA

Activity	Potential Impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
	Safety and security risks to landowners and lawful occupiers; Deterioration and damage to existing access roads and tracks; Dust generation; Clearance of vegetation; Pollution of soils	Soil disturbance; Fauna and Flora; Air Quality; Socioeconomics		measures (e.g. communication with landowners, site access control) Remedy through application of mitigation measures in EMP	NEMBA CARA Threatened or Protected Species (TOPS) regulations NEMAQA Dust regulations DWAF best Practice Guidelines
Storage of prospecting vehicles	Pollution of surface and groundwater resources from potential hydrocarbon spills	Soils	Prospecting	Avoid through implementation of EMP mitigation measures (e.g. communication with landowners) Control through implementation of ESMS	Protected Species (TOPS) regulations NEMAQA Dust regulations NWA DWAF best Practice Guidelines
Transportation to and from drill sites	Disturbance and Loss of fauna and flora;	Fauna and Flora;	Prospecting	Avoid and control through implementation of EMP mitigation	NEMA NEMBA

Activity	Potential Impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
	Wear and tear of existing roads; and Dust generation from increased traffic.	Air quality.		measures (e.g. speed limit enforcement, vehicle maintenance)	CARA Threatened or Protected Species (TOPS) regulations NEMAQA Dust regulations NWA DWAF best Practice Guidelines
Storage of hazardous substances	Potential hydrocarbon spills that could cause pollution	Pollution	Prospecting	Avoid and control through implementation of EMP mitigation measures (e.g. speed limit enforcement, vehicle maintenance)	NEMA NEMBA NWA DWAF best Practice Guidelines
Waste management	Pollution of habitats and surrounding areas.	Pollution	Prospecting	Avoid and control through implementation of EMP mitigation measures (e.g. speed limit enforcement, vehicle maintenance)	DWAF minimum requirement for waste disposal

Activity	Potential Impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
Prospecting boreholes	Vegetation clearance; Removal of topsoil; Land use conflict; Dust generation; Disturbance of wildlife and communities in close vicinity; Damage to local roads; Disturbance or damage of palaeontological resources; Influx of people; Wastewater discharge; Spillage and leaks of hydrocarbons; and Waste disposal.	Ecology; Topography; Access/footprint; Soil disturbance; Noise; Air Quality; Socioeconomics; Groundwater	Prospecting	Control through implementation of EMPR mitigation measures	SANS10103 ECA Noise Regulations NEMAQA Dust regulations NWA
Refuelling	Potential hydrocarbon spills that could result in pollution.	Pollution	Prospecting	Control through implementation of EMPR mitigation measures	NWA DWAF best Practice Guidelines
Maintenance and repair	Potential hydrocarbon spills that could result in pollution.	Pollution;	Prospecting	Control through implementation of EMPR mitigation measures	NWA
Borehole closure	Erosion due to removal of vegetation and topsoil. .	Erosion	Rehabilitation and Closure	Control through implementation of	NWA

Activity	Potential Impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
				EMPR mitigation measures	
Removal of surface infrastructure	Pollution of soil and surrounding vegetation.	Landform; Topography; Soils.	Rehabilitation and Closure	Control through implementation of EMPR mitigation measures	MPRDA In accordance with Rehabilitation plan
Rehabilitation	Erosion; Loss of habitat; and Disturbance to wildlife and communities in close vicinity	Topography Land use Soil disturbance Ecology	Rehabilitation	Control through implementation of EMPR mitigation measures	MPRDA In accordance with Rehabilitation plan
Monitoring of rehabilitated sites	Erosion; and Disturbance to wildlife; and communities in close vicinity.	Topography Land use Soil disturbance Ecology	Post-closure	Control through adhering to monitoring requirements	MPRDA and regulations

22 FINANCIAL PROVISION

On 20th November 2015 the Minister of The Department of Environmental Affairs (now referred to as the Department of Environment, Forestry and Fisheries) promulgated the Financial Provisioning Regulations under the NEMA, which will come into effect in 2021. The regulations aim to regulate and determine and calculation of financial provision as contemplated in the NEMA, for the costs associated with the undertaking of management, rehabilitation and remediation of environmental impacts from prospecting,, mining or production operations through the lifespan of such operations and latent or residual environmental impacts that may become known in the future. These regulations provide for, inter alia:

- Determination of financial provision: An applicant or holder of a right or permit must determine and make financial provision to guarantee the availability of sufficient funds to undertake rehabilitation and remediation of the adverse environmental impacts of prospecting, prospecting, mining or production operations, as contemplated in the Act and to the satisfaction of the Minister responsible for mineral resources.
- Scope of the financial provision: Rehabilitation and remediation; decommissioning and closure activities at the end of operations; and remediation and management of latent or residual impacts.
- Regulation 6: Method for determining financial provision – An applicant must determine the financial provision through a detailed itemisation of all activities and costs, calculated based on the actual costs of implementation of the measures required for:
    - Annual rehabilitation – annual rehabilitation plan
    - Final rehabilitation, decommission and closure at end of life of operations – rehabilitation, decommissioning and closure plan; and
    - Remediation of latent defects.
- Regulation 10: An applicant must-
    - Ensure that a determination is made of the financial provision and the plans contemplated in regulation 6 are submitted as part of the information submitted for consideration by the Minister responsible for mineral resources of an application for environmental authorisation, the associated environmental management programme and the associated right or permit in terms of the Mineral and Petroleum Resources Development Act, 2002; and
    - Provide proof of payment or arrangements to provide the financial provision prior to commencing with any prospecting, prospecting, mining or production operations.
- Regulation 11: Requires annual review, assessment and adjustment of the financial provision. The review of the adequacy of the financial provision including the proof of payment must be independently audited (annually) and included in the audit of the EMPR as required by the EIA regulations.

Appendix 4 of the Financial Provisioning Regulations provides the minimum content of a final rehabilitation, decommissioning and closure plan (FRDCP). A detailed FRDCP has been compiled and included as Appendix E.

22.1 OTHER GUIDELINES

The following additional guidelines which relate to financial provisioning and closure have been published in the South African context:

- Best Practice Guideline G5: Water Management Aspects for Mine Closure: This guideline was prepared by the DHSWS and aims to provide a logical and clear process that can be applied by mines and the competent authorities to enable proper mine closure planning that meets the requirements of the relevant authorities. This guideline is aimed primarily at larger scale mines and does not specifically address closure issues related to closure of prospecting activities, however certain principles related to

closure and water management are relevant. The following technical factors which should be considered during closure, and which are likely to relate to prospecting activities, have been considered:

- Land use plan: directly interlinked with water management issues insofar as water is required to support the intended land use- in this regard the surrounding communities and the land uses implemented rely on available ground and surface water to be sustained. Management of water quality and quantity has been identified as an aspect to be covered in the FRDCP (Appendix D).
- Public participation and consultation: consultation is fundamental to closure and there is a need for full involvement of stakeholders in the development of the final closure plans, and in the agreement of closure objectives- in this regard this FRDCP has been made available through the Basic Assessment public participation process for comment by relevant stakeholders.

- Guideline for the Evaluation of the Quantum of Closure Related Financial Provision Provided by a Mine: The objectives of the guideline include the need to improve the understanding of the financial and legal aspects pertaining to the costing of remediation measures as a result of mining activities. Whilst this guideline predates the recent NEMA Financial Provisioning Regulations, it does contain certain principles and concepts that remain valid and have been considered in the FRDCP (Appendix D).

22.2 DESCRIBE THE CLOSURE OBJECTIVES AND THE EXTENT TO WHICH THEY HAVE BEEN ALIGNED TO THE BASELINE ENVIRONMENT DESCRIBED UNDER THE REGULATION

Considering the relatively limited impact of the proposed prospecting activities, the closure objectives are aimed at re-instating the landform, land use and vegetation units to the same as before prospecting operations take place unless a specific, reasonable alternate land use is requested by the landowner. As such, the intended end use for the disturbed prospecting areas and the closure objectives will be defined in consultation with the relevant landowner. Proof of such consultation will be submitted together with the Application for Closure Certificate. The overall aim of the rehabilitation plan is to rehabilitate the environment to a condition as close as possible to that which existed prior to prospecting. This shall be achieved with a number of specific objectives.

1. **Making the area safe.** i.e. Decommission prospecting activities so as to ensure that the environment is safe for people and animals. This entails refilling excavations, sealing boreholes, etc.
2. **Recreating a free draining landform.** This entails earthworks infilling, reshaping, levelling, etc. to recreate as close as possible the original topography and to ensure a free draining landscape.
3. **Re-vegetation.** This involves either reseeding or allowing natural succession depending on the area, climate etc.
4. **Storm water management and erosion control.** Management of stormwater and prevention of erosion during rehabilitation. E.g. cut off drains, berms etc. and erosion control where required.
5. Verification of rehabilitation success. Entails monitoring of rehabilitation.
6. **Successful closure.** Obtain closure certificate.

22.3 CONFIRM SPECIFICALLY THAT THE ENVIRONMENTAL OBJECTIVES IN RELATION TO CLOSURE HAVE BEEN CONSULTED WITH LANDOWNER AND INTERESTED AND AFFECTED PARTIES

The Public Participation Process (PPP) is a requirement of several pieces of South African Legislation and aims to ensure that all relevant Interested and Affected Parties (I&AP's) are consulted, involved and their opinions are taken into account and a record included in the reports submitted to Authorities. The process ensures that all stakeholders are provided this opportunity as part of a transparent process which allows for a robust and comprehensive environmental study. The PPP for the as part of the prospecting right application needs to be managed sensitively and according to best practises in order to ensure and promote:

- Compliance with national legislation;
- Establish and manage relationships with key stakeholder groups; and
- Encourage involvement and participation in the environmental study and authorisation/ approval process.

As such, the purpose of the PPP and stakeholder engagement process is to:

- Introduce the proposed project;
- Explain the environmental authorisations required;
- Explain the environmental studies already completed and yet to be undertaken (where applicable);
- Determine and record issues, concerns, suggestions, and objections to the project;
- Provide opportunity for input and gathering of local knowledge;
- Establish and formalise lines of communication between the I&AP's and the project team;
- Identify all significant issues for the project; and
- Identify possible mitigation measures or environmental management plans to minimise and/or prevent negative environmental impacts and maximize and/or promote positive environmental impacts associated with the project.

Landowners and interested and affected parties have been consulted and provided an opportunity to comment on this Basic Assessment Report, EMPR including all decommissioning, closure and rehabilitation plans.

22.4 REHABILITATION PLAN

22.4.1 INTEGRATED REHABILITATION AND CLOSURE PLAN

The main aim in developing this rehabilitation plan is to mitigate the impacts caused by the prospecting activities and to restore land back to a satisfactory standard. It is best practice to develop the rehabilitation plan as early as possible so as to ensure the optimal management of rehabilitation issues that may arise. It is important that the project's closure plan is defined and understood from before starting the process and is complementary to the rehabilitation goals. Rehabilitation and closure objectives need to be tailored to the project at hand and be aligned with the EMPR. The overall rehabilitation objectives for this project are as follows:

- Maintain and minimise impacts to the ecosystem within the study area;
- Re-establishment of the pre-developed land capability to allow for a suitable post-mining land use;
- Prevent soil, surface water and groundwater contamination;
- Comply with the relevant local and national regulatory requirements; and

- Maintain and monitor the rehabilitated areas.

Successful rehabilitation must be sustainable, and requires an understanding of the basic baseline environment, as well as project management to ensure that the rehabilitation program is a success.

It is noted that a separate application for environmental authorisation must be submitted for closure in accordance with EIA Regulations, 2014 Listing Notice 1 Activity 22:

"The decommissioning of any activity requiring –

- a closure certificate in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002); or
- A prospecting right, mining permit, production right or exploration right, where the throughput of the activity has reduced by 90% or more over a period of 5 years excluding where the competent authority has in writing agreed that such reduction in throughput does not constitute closure."

22.4.2 PHASE 1: MAKING SAFE

In line with the DWAF (2008). Best Practice Guideline A6: Water Management for Underground Mines all prospecting boreholes that will not be required for later monitoring or other useful purposes should be plugged and sealed with cement to prevent possible cross flow and contamination between aquifers. Cement and liquid concrete are hazardous to the natural environment on account of the very high pH of the material, and the chemicals contained therein. As a result, the contractor shall ensure that:

- Concrete shall not be mixed directly on the ground;
- The visible remains of concrete, either solid, or from washings, shall be physically removed immediately and disposed of as waste, (Washing of visible signs into the ground is not acceptable); and
- All excess aggregate shall also be removed.

22.4.3 PHASE 2: LANDFORM DESIGN, EROSION CONTROL AND REVEGETATION

Landform, erosion control and re-vegetation is an important part of the rehabilitation process. Landform and land use are closely interrelated, and the landform should be returned as closely as possible to the original landform. Community expectations, compatibility with local land use practices and regional infrastructure, or the need to replace natural ecosystems and faunal habitats all support returning the land as closely as possible to its original appearance and productive capacity. This requires the following:

- Shape, level and de-compact the final landscape after removing all the project infrastructure, dress with topsoil and, where necessary, vegetate with indigenous species. Commission specialists to assist in planning re-vegetation and the management of environmental impact, as required.
- Promote re-vegetation through the encouragement of the natural process of secondary succession.
- Natural re-vegetation is dependent on de-compaction of subsoils and adequate replacement of the accumulated reserves of topsoil (for example, over the borehole sites), so as to encourage the establishment of pioneer vegetation.
- Remove alien and/or exotic vegetation.
- Undertake a seeding programme only where necessary, and as agreed with the re-vegetation specialist.

22.4.4 PHASE 3: MONITORING AND MAINTENANCE

The post-operational monitoring and management period following decommissioning of prospecting activities must be implemented by a suitable qualified party for a minimum of one (1) year unless otherwise specified by the competent authority.

The monitoring activities during this period will include but not be limited to:

- Re-vegetation of disturbed areas where required.

Provision must be made to monitor any unforeseen impact that may arise as a result of the proposed prospecting activities and incorporated into post closure monitoring and management.

22.4.5 POST-CLOSURE MONITORING AND MAINTENANCE

Prior to decommissioning and rehabilitation activities, a monitoring programme shall be developed and submitted to the relevant authority for approval, as a part of the Final Rehabilitation Plan. The programme is to include proposed monitoring during and after the closure of the prospecting borehole sites and related activities. It is recommended that the post-closure monitoring include the following:

- Confirmation that any waste, wastewater or other pollutants that is generated as a result of decommissioning will be managed appropriately, as per the detailed requirements set out in the Final Rehabilitation Plan,
- Confirmation that all de-contaminated sites are free of residual pollution after decommissioning.
- Confirmation that acceptable cover has been achieved in areas where natural vegetation is being re-established. 'Acceptable cover' means re-establishment of pioneer grass communities over the disturbed areas at a density similar to surrounding undisturbed areas, non-eroding and free of invasive alien plants.
- Confirmation that the prospecting borehole sites are safe and are not resulting in a pollution hazard.

Annual environmental reports will be submitted to the Designated Authority and other relevant Departments for at least one-year post-decommissioning. The frequency and duration of this reporting period may be increased to include longer term monitoring, at intervals to be agreed with the Designated Authority.

The monitoring reports shall include a list of any remedial action necessary to ensure that infrastructure that has not been removed remains safe and pollution free and that rehabilitation of project sites are in a stable, weed and free condition.

22.5 EXPLAIN WHY IT CAN BE CONFIRMED THAT THE REHABILITATION PLAN IS COMPATIBLE WITH THE CLOSURE OBJECTIVES

The rehabilitation plan is compatible with the closure objectives in that is seeks to ensure that negative impacts on the receiving environment that could not be prevented or mitigated during prospecting are rehabilitated. The use of indigenous species during re-vegetation will ensure that ecosystem restoration is initiated and prevent invasion by alien species, the capping of boreholes will prevent future environmental issues related to fluid leakage or lateral movement through the borehole, as well as protect water resources. The appropriate disposal of waste will ensure that land is usable, in alignment with surrounding land uses and that no hazardous materials are left on site post-prospecting.

22.6 CALCULATE AND STATE THE QUANTUM OF THE FINANCIAL PROVISION REQUIRED TO MANAGE AND REHABILITATE THE ENVIRONMENT IN ACCORDANCE WITH THE APPLICABLE GUIDELINE

The preliminary estimate of the Rehabilitation Cost is (inclusive of contingencies and VAT): R 162 837.13. For a detailed description of the financial provision, please refer to Appendix D for the Final Rehabilitation, Decommissioning and Closure Plan.

22.7 CONFIRM THAT THE FINANCIAL PROVISION WILL BE PROVIDED AS DETERMINED.

Financing of the proposed work plan will be sourced from the Nimbargo Resources prospecting budget. Arrangements to provide the financial provision detailed in Appendix D prior to commencing with any prospecting operations will be made.

23 MECHANISMS FOR MONITORING COMPLIANCE

Source Activity	Impacts Requiring Monitoring Programmes	Functional Requirements for Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency and Time Periods for Implementation
Desktop Study: Literature Survey / Review / acquisition of data	None	None	None	None
Geological field mapping	All Impacts Identified in the EMP	Site inspections and checklists; Complaints register	Contractors Environmental Representative; ECO	Weekly inspections and checklists
Remote sensing and Geophysical Surveys	All Impacts Identified in the EMP	Site Inspections and checklists	Contractors Environmental Representative	Weekly inspections and checklists
Site Clearance:	Possession of permits for relocation of protected species Alien vegetation management; and Implement the recommendations of the heritage specialist report and the Heritage Management Plan (See Appendix E)	Document Control Site Inspections and checklists Report review and Development of actions plans	Contractors Environmental Representative; Environmental specialist, ECO; and Senior Environmental Management	Once-off control of documents, site visit and reporting; Monthly site visits; and Monthly Reports Annual Performance Assessment
Target Prospecting Boreholes: **58 drill sites, each site covering a total area of 40m^2**	Alien vegetation management Noise (if any complaints are registered by residents) Air quality (if complaints are registered)	Site Inspections and checklists; Report review and development of corrective action plans Inspection of surface water features	Contractors Environmental Representative; Environmental specialist, ECO Senior Environmental Management; Geohydrologist (if required)	Once-off control of documents, site visit and reporting; Monthly site visits; Monthly Reports Annual Performance

	Surface and groundwater management Implement the recommendations of the heritage specialist report and the Heritage Management Plan (See Appendix F).	Survey of groundwater users and use within 5km of the invasive prospecting sites.		Prior to invasive prospecting activities and monitoring post-prospecting.
Environmental Screening by ECO	All Impacts Identified in the EMP	Site Inspections and checklists	Contractors Environmental Representative	Monthly inspections and checklists
Ablutions - Chemical Toilets	All Impacts Identified in the EMP	Site Inspections and checklists	Contractors Environmental Representative	Daily inspections and checklists
Access Route **(Existing roads to be utilised)**	All Impacts Identified in the EMP	Site Inspections and checklists	Contractors Environmental Representative	Monthly inspections and checklists
Temporary general waste storage **(General/domestic waste**	All Impacts Identified in the EMP	Site Inspections and checklists	Contractors Environmental Representative	Monthly inspections and checklists
Temporary hazardous waste storage **(Hazardous waste – Sealed Container)**	All Impacts Identified in the EMP	Site Inspections and checklists	Contractors Environmental Representative	Weekly inspections and checklists
Compilation of geological plans	None	None	None	None
Undertake decommissioning and rehabilitation as per the rehabilitation plan	Alien vegetation management; 1. Fire management plan;	Site Inspections and checklists;	Contractors Environmental Representative;	Monthly site visits;

400m^2 per site (Drill sites + Access roads)	Noise (if any complaints are registered by residents) Air quality (if complaints are registered)	Report review and development of corrective action plans	Environmental specialist, ECO Senior Environmental Management Surface water specialist	Monthly Reports and Annual Performance Assessments
Monitoring of rehabilitation efforts	All Impacts Identified in the EMP	Site Inspections and checklists	ECO; Independent Environmental Auditor	Monthly reports

24 INDICATE THE FREQUENCY OF THE SUBMISSION OF THE PERFORMANCE ASSESSMENT/ ENVIRONMENTAL AUDIT REPORT

The result of environmental monitoring and compliance to the approved EMPR will be undertaken every year and submitted to the DMRE in the form of an environmental performance assessment. Included in the report will be the following relevant information:

- The period when the performance assessment was conducted;
- The scope of the assessment;
- The procedures used for conducting the assessment;
- Interpreted information gained from monitoring the EMPR;
- Evaluation criteria used during the assessment;
- Results of the assessment are to be discussed and mention must be made of any gaps in the EMPR and how it can be rectified; and
- Yearly updated layout plans.

Any emergency or unforeseen impacts will be reported immediately to the DMRE and other relevant government departments.

25 ENVIRONMENTAL AWARENESS PLAN AND TRAINING

Training and environmental awareness is an integral part of a complete EMPR. The overall aim of the training will be to ensure that all site staff are informed of their relevant requirements and obligations pertaining to the relevant authorisations, licences, permits and the approved EMPR and protection of the environment.

The applicant and contractor must ensure that all relevant employees are trained and capable of carrying out their duties in an environmentally responsible and compliant manner and are capable of complying with the relevant environmental requirements. To obtain buy-in from staff, individual employees need to be involved in:

- Identifying the relevant risks;
- Understanding the nature of risks;
- Devising risk controls; and
- Given incentive to implement the controls in terms of legal obligations.

The applicant shall ensure that adequate environmental training takes place. All employees shall have been given an induction presentation on environmental awareness. Where possible, the presentation needs to be conducted in the language of the employees. All training must be formally recorded and attendance registers retained. The environmental training should, as a minimum, include the following:

- General background and definition to the environment;
- The importance of compliance with all environmental policies;
- The environmental impacts, actual or potential, of their work activities;
- Compliance with mitigation measures proposed for sensitive areas;
- The environmental benefits of improved personal performance;

- Their roles and responsibilities in achieving compliance with the environmental policy and procedures and with the requirement of the applicant's environmental management systems, including emergency preparedness and response requirements;
- The potential consequences (legal and/or other) of departure from specified operating procedures;
- The mitigation measures required to be implemented when carrying out their work activities;
- Discussions are required on sensitive environmental receptors within the project area to inform contractors and site staff of the presence of Red / Orange List species, their identification, conservation status and importance, biology, habitat requirements and management requirements of the Environmental Authorisation and within the EMPr; and
- All operational risks must be identified and processes established to mitigate such risk, proactively. Thus, the applicant needs to inform the employees of any environmental risks that may result from their work, and how these risks must be dealt with in order to avoid pollution and/or degradation of the environment.

In the case of new staff (including contract labour) the contractor / applicant shall keep a signed register of attendance for proof and record of adequate environmental induction training.

25.1 MANNER IN WHICH EMPLOYEES WILL BE INFORMED OF ENVIRONMENTAL RISKS

Environmental awareness could be fostered by induction course for all personnel on site, before commencing site visits. Personnel should also be alerted to particular environmental concerns associated with their tasks for the area in which they are working. Courses must be given by suitably qualified personnel and in a language and medium understood by personnel. The environmental awareness training programme will include the following:

1. Occupational Health and Safety Training (OHS); and
2. Environmental Awareness Training EMPR management actions.

Environmental awareness training will focus on the following specific aspects and be undertaken in "Tool box talk "topics prior to site access:

- Waste collection and disposal;
- Sensitive environmental receptors;
- Identification of Red/ Orange List species, conservation status and importance, biology, habitat requirements and management requirements of the environmental authorisation and EMPr; and
- EMPr management options and application.

25.2 MANNER IN WHICH RISKS WILL BE DEALT WITH TO AVOID POLLUTION OR DEGRADATION

The broad measures to control or remedy any causes of pollution or environmental degradation as a result of the proposed prospecting activities taking place are provided below:

- Contain potential pollutants and contaminants (where possible) at source;
- Handling of potential pollutants and contaminants (where possible) must be conducted in bunded areas and on impermeable substrates;
- Ensure the timeous clean-up of any spills;
- Implement a waste management system for all waste stream present on site;

- Investigate any I&AP claims of pollution or contamination as a result of mining activities; and
- Implement the impact management objectives, outcomes and actions, as described in Section 26 above.

It is of critical importance that the broad measures to control or remedy any causes of pollution or environmental degradation are applied during onsite prospecting activities.

26 SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

No additional information was requested or is deemed necessary.

27 UNDERTAKING

I, __Cheyenne Muthukarapan, declare under oath –

The correctness of the information provided in the reports;

The inclusion of comments and inputs from stakeholders and I&AP's;

The inclusion of inputs and recommendations from the specialist reports where relevant; and

That the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein.

Signature of the environmental assessment practitioner:

Name of company:

Environmental Impact Management Services (Pty) Ltd

Date: 2020/08/04

Signature of the Commissioner of Oaths

Date:

The Applicant herewith confirms

The person whose name and identity number is stated below is the person authorised to act as representative of the Applicant in terms of the resolution submitted with the application;

The applicant undertakes to execute the Environmental Management Programme as proposed.

Signature of the applicant / Signature on behalf of the applicant:

Nimbargo Resources Pty Ltd

Name of company (if applicable):

9108220229084

Identity Number of Applicant's Representative

Date: 2020/08/04

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