ENVIRONMENTAL & ENGINEERING

REPORT

VLAKFONTEIN COAL RUSH (PTY) LTD DRAFT

BASIC ASSESSMENT REPORT FOR PROSPECTING RIGHT APPLICATION – MP 30/5/1/1/2/15870PR

PROSPECTING RIGHT APPLICATION FOR COAL AND PSEUDOCOAL IN RESPECT OF PORTIONS 2, 3, 4, 10, 12, 13, 14, 15, 17, 19, 25, 26, 29 AND THE REMAINING EXTENT OF THE FARM LEGDAAR 78 IS SITUATED IN THE GERT SIBANDE DISTRICT MUNICIPALITY AND GOVAN MBEKI LOCAL MUNICIPALITY, MPUMALANGA PROVINCE.

VERSION AA

DATE: 28/07/2021

Document and Quality Control:

Document No:	21-1383-AUTH BAR			
AA – draft	27/07/2021	Vernon Siemelink		First draft for review / comments
BB – draft		Riana Panaino		Technical Review
CC– draft		Leoni le Roux		Quality review
Approved for Distribution:				
0.0				Final report

Quality Control by:

Nature of Signoff:	Responsible Person:	Role / Responsibility	Qualification
Author	Kelebone Sekonyela	Environmental Assessment Practitioner	MSc Environmental Management
Technical Reviewer	Riana Panaino	Environmental Assessment Practitioner	BSc Honns Biodiversity and Conservation
Technical Reviewer	Vernon Siemelink	Environmental Assessment Practitioner	M(EnvMan) UP – Senior Environmental Consultant
Quality Reviewer	Leoni le Roux	Project Administration	Professional Secretary and Personal Assistant

DISCLAIMER:

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

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

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

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

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

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

EXECUTIVE SUMMARY

BACKGROUND

Vlakfontein Coal Rush (Pty) Ltd (the applicant) applied for a prospecting right for coal and pseudocoal to the Regional Department of Mineral Resources ("DMR" Mpumalanga) in respect of portions 2, 3, 4, 10, 12, 13, 14, 15, 17, 19, 25, 26, 29 and the Remaining Extent of the farm Legdaar 78 IS Situated in the Gert Sibande District Municipality and Govan Mbeki Local Municipality, Mpumalanga Province. The proposed project that aims at determining if economically viable mineral deposits exist within the application area. In order to undertake prospecting activities Vlakfontein Coal Rush requires a Prospecting Right in terms of the Mineral and Petroleum Resources Development Act (MPRDA, Act No.28 of 2002). The Applicant is also required to obtain an Environmental Authorisation (EA) in terms of the National Environmental Management Act (NEMA, Act No. 107 of 1998) which involves the submission of a Basic Assessment Report (BAR).

Eco Elementum (Pty) Ltd (EcoElementum) has been appointed by Vlakfontein Coal Rush (Pty) Ltd to compile the BAR (this report) in support of the Prospecting Right application.

Table 1: Basic Assessment Timeline followed

Date	Basic Assessment timeline
N/A	Prospecting Right Application on SAMRAD.
12/04/2021	Acceptance received from DMR.
11/07/2021	Extension request of 50 days
28/07/2021-28/08/2021	30-day Public Participation started for the Basic Assessment Process.

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

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

PROJECT SCHEDULE

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

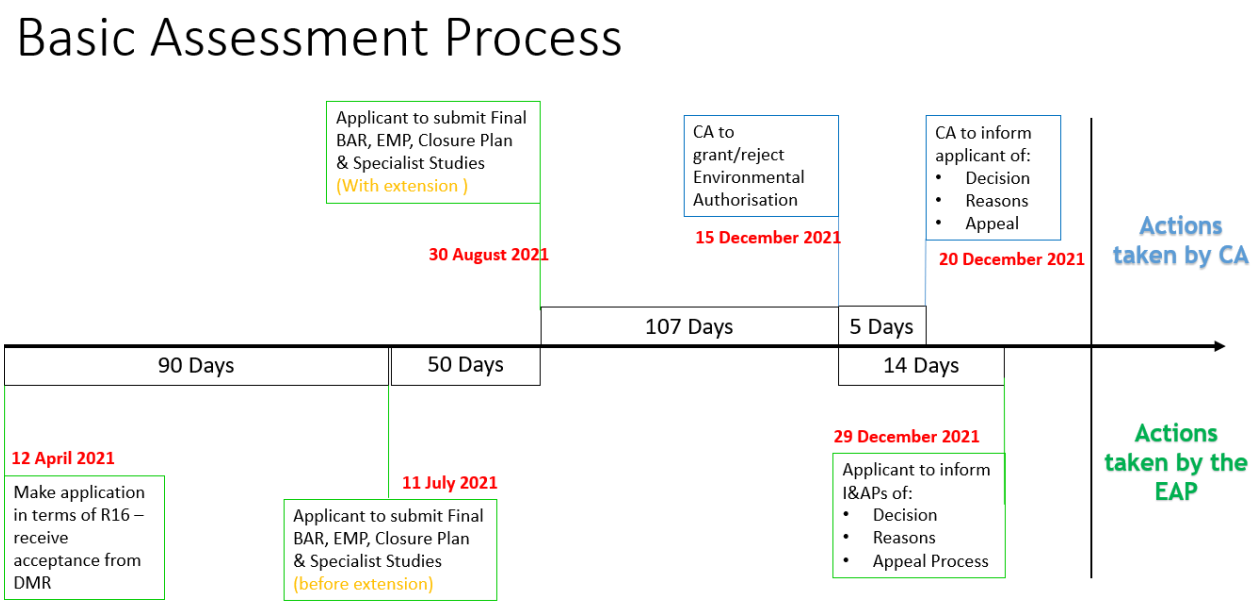

Figure 1: Basic Assessment Process- Timeline

REGISTERED LANDOWNER

The registered owners of the farms were listed as follows:

Table 2: Directly affected landowners

Landowner	Farm Portion
GROBLER BALTHAZER JOHANNES	in respect of portion 2 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 3 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 4 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 10 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 12 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 13 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 14 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 15 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
VOSBREET BOERDERY	in respect of portion 17 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 19 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.

Landowner	Farm Portion
GROBLER BALTHAZER JOHANNES	in respect of portion of 25the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 26 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 29 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect the remaining extent of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.

PROJECT DESCRIPTION

Table 3: Project description

<table>
<tr><th>Item</th><th>Detail</th></tr>
<tr><td>Type of mineral</td><td>Coal and pseudocoal.</td></tr>
<tr><td>Prospecting method</td><td>Diamond drilling to test defined targets.
Geotechnical drilling of 20 boreholes to an average depth of 100 - 150 meters.</td></tr>
<tr><td>Depth of the mineral below surface</td><td>To be established.</td></tr>
<tr><td>Geological formation</td><td>Ermelo Coalfield - Vryheid Formation (Ecca).</td></tr>
<tr><td>Mining Area Size</td><td>2143.43 hectares (ha).</td></tr>
<tr><td>Mineral Reserve</td><td>To be established.</td></tr>
<tr><td>Prospecting Right Properties</td><td>Portions 2, 3, 4, 10, 12, 13, 14, 15, 17, 19, 25, 26, 29 and the Remaining Extent of the farm Legdaar 78 IS Situated in the Gert Sibande District Municipality and Govan Mbeki Local Municipality, Mpumalanga Province of South Africa.</td></tr>
<tr><td>Property Applicable to current application (SG Codes)</td><td>
<table>
<tr><th>Property</th><th>Portion</th><th>Map Reference (1:50 000)</th><th>Lat (y)</th><th>Lon (x)</th><th>Total Extent (ha)</th></tr>
<tr><td>Legdaar 78 IS</td><td>RE/78</td><td>2629AD</td><td>-26.323406</td><td>29.464842</td><td rowspan="14">2143.43</td></tr>
<tr><td>Legdaar 78 IS</td><td>2/78</td><td>2629AD</td><td>-26.305963</td><td>29.432830</td></tr>
<tr><td>Legdaar 78 IS</td><td>RE/4/78</td><td>2629AD</td><td>-26.300253</td><td>29.465531</td></tr>
<tr><td>Legdaar 78 IS</td><td>10/78</td><td>2629AD</td><td>-26.311576</td><td>29.418250</td></tr>
<tr><td>Legdaar 78 IS</td><td>RE/12/78</td><td>2629AD</td><td>-26.309359</td><td>29.455604</td></tr>
<tr><td>Legdaar 78 IS</td><td>13/78</td><td>2629AD</td><td>-26.329814</td><td>29.465979</td></tr>
<tr><td>Legdaar 78 IS</td><td>RE/14/78</td><td>2629AD</td><td>-26.321280</td><td>29.459890</td></tr>
<tr><td>Legdaar 78 IS</td><td>15/78</td><td>2629AD</td><td>-26.326468</td><td>29.448208</td></tr>
<tr><td>Legdaar 78 IS</td><td>17/78</td><td>2629AD</td><td>-26.291366</td><td>29.440030</td></tr>
<tr><td>Legdaar 78 IS</td><td>19/78</td><td>2629AD</td><td>-26.319460</td><td>29.430260</td></tr>
<tr><td>Legdaar 78 IS</td><td>25/78</td><td>2629AD</td><td>-26.327789</td><td>29.457718</td></tr>
<tr><td>Legdaar 78 IS</td><td>26/78</td><td>2629AD</td><td>-26.320987</td><td>29.457983</td></tr>
<tr><td>Legdaar 78 IS</td><td>29/78</td><td>2629AD</td><td>-26.298533</td><td>29.461166</td></tr>
</table>
</td></tr>
<tr><td>Existing Authorisations</td><td>N/A</td></tr>
<tr><td>Life of mine</td><td>5 Years</td></tr>
</table>

LOCATION

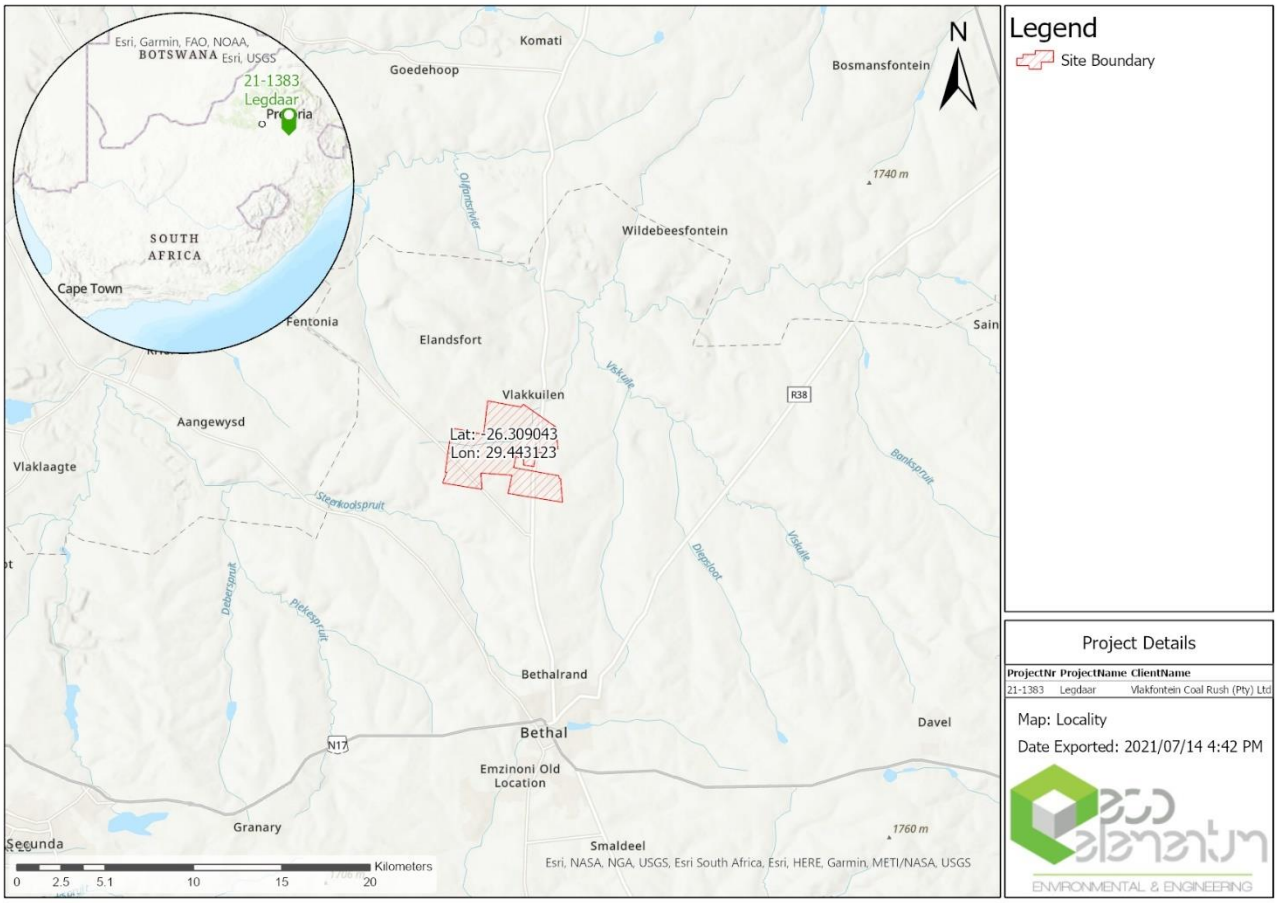

Figure 2: Locality Map

Table 4: Property location and coordinates

Property	Portion	Map Reference (1:50 000)	Lat (y)	Lon (x)	Total Extent (ha)
Legdaar 78 IS	RE/78	2629AD	-26.323406	29.464842	**2143.43**
Legdaar 78 IS	2/78	2629AD	-26.305963	29.432830	
Legdaar 78 IS	RE/4/78	2629AD	-26.300253	29.465531	
Legdaar 78 IS	10/78	2629AD	-26.311576	29.418250	
Legdaar 78 IS	RE/12/78	2629AD	-26.309359	29.455604	
Legdaar 78 IS	13/78	2629AD	-26.329814	29.465979	
Legdaar 78 IS	RE/14/78	2629AD	-26.321280	29.459890	
Legdaar 78 IS	15/78	2629AD	-26.326468	29.448208	
Legdaar 78 IS	17/78	2629AD	-26.291366	29.440030	
Legdaar 78 IS	19/78	2629AD	-26.319460	29.430260	
Legdaar 78 IS	25/78	2629AD	-26.327789	29.457718	
Legdaar 78 IS	26/78	2629AD	-26.320987	29.457983	
Legdaar 78 IS	29/78	2629AD	-26.298533	29.461166	

Bethal is located roughly 13 km to the south of the proposed prospecting area, while Kriel is located 16 km to the west-northwest and Hendrina 31 km to the northeast. The demarcated farm portions fall within the Govan Mbeki Local Municipality and the Gert Sibande District Municipality in the Mpumalanga Province. The R35 primary road runs in a north-south direction and intersects portions 25, 26 and 29 towards the east of the study area, while the R544 secondary road runs in a northwest-southeast direction and intersects portions 10 and 19 towards the southwest of the study area.

PUBLIC PARTICIPATION PROCESS FOLLOWED & OUTCOME OF CONSULTATION

Table 5: Public participation process followed

Date	Public Participation Process
N/A	Lodging of Prospecting Right Application.
12/04/2021	Acceptance received from DMR.
28/07/2021 - 30/08/2021	30-day Public Participation started for the Basic Assessment Process.
28/07/2021	Announcement phase - notification e-mails was sent, telephone calls to the I&AP.
28/07/2021	Draft Basic Assessment Report will be made available: - Eco Elementum Website. - Electronic copies sent via email on request.
28/07/2021	- Site notices was placed at various access points along the secondary road which transverses the site. - At the entrance of the proposed sites. - Bethal Town. - Bethal Public Library and - On the main access road towards the site.
TBA	An advert will be placed in due course. The advert will include a brief project description, location of the project, date of public meeting, methods to register as an IAP and review period of the BA report.
30 August 2021	Submission of the Final Basic Assessment Report.

PROSPECTING PROCESS

The mineral distribution in the prospecting area will be determined following the mineral exploration methods as outlined in the following text. At the end of each phase, a decision will be taken to proceed or to abandon the project.

Non-invasive prospecting

i. The first phase will be information gathering which includes detailed desktop studies and geological mapping. This will result in a geological map showing outcrops and any geological information that will be useful during the subsequent phases of exploration. Feasibility studies will also be conducted at the end of the exploration phases.

ii. No geochemical survey is planned.

iii. Geophysical survey might be conducted, or geophysical data will be procured from commercial sources and organizations that collect them. The information that will be acquired will be magnetic information of the area which will be aimed at delineating structures of higher or lower magnetic susceptibility than the surrounding country rocks. If the company conducts the observations, it will be airborne surveys conducted with the use of a contractor.

Invasive Prospecting

i. Drilling will be conducted using a diamond drill rig. The holes will be drilled to two different sizes (NQ, and BQ) determined by the formations. The core will be handled and logged in a designated area. Sampling will also take place in the same area. Samples will be sent to a laboratory for chemical analyses. Resource modelling will be undertaken using the geological data determined from the data collected.

ii. Trenching will not be necessary.

iii. No other excavations, bulk sampling or pitting is planned.

ALTERNATIVES AND PROJECT MOTIVATION

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

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

CONTENTS

APPENDIX

List of Figures

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Definition of Terms

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

Wetland	means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

Abbreviations

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

mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

DRAFT BASIC ASSESSMENT REPORT

AND

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

NAME OF APPLICANT: **Vlakfontein Coal Rush (Pty) Ltd**

TEL NO: 018 358 9832

FAX NO: 086 663 5033

POSTAL ADDRESS: Private Bag X 5, Braamfontein, 2017

PHYSICAL ADDRESS: Cnr. De Korte and De beers Street, 78 Mineralia Building, Braamfontein, 201

FILE REFERENCE NUMBER SAMRAD: MP 30/5/1/1/2/1/15870PR

1. IMPORTANT NOTICE

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

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

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

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

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

2. OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

a. determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;
b. identify the alternatives considered, including the activity, location, and technology alternatives;
c. describe the need and desirability of the proposed alternatives,
d. through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine:

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

v. the degree to which these impacts—

aa. can be reversed;
bb. may cause irreplaceable loss of resources; and
cc. can be managed, avoided or mitigated;

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

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

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

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

PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

3. CONTACT PERSON AND CORRESPONDENCE ADDRESS

3.1 A. DETAILS OF

i. Details of the EAP

Name of The Practitioner:	Mr. Vernon Siemelink / Ms. Kelebone Sekonyela
Tel No.:	012 807 0383
Fax No. :	086 714 5397
e-mail address:	vernon@ecoe.co.za ; kele@ecoe.co.za

ii. Expertise of the EAP.

(1) **The qualifications of the EAP**
(with evidence).

Name	Vernon
Surname	Siemelink
Company	Eco Elementum (Pty) Ltd
Position	Director – Senior Environmental Consultant
Location	361 Oberon Ave, Glenfield Office Park, Nikka Building, 1st Floor, Faerie Glen, Pretoria, 0081
Email	vernon@ecoe.co.za
Telephone Number	072 196 9928/ 012 348 5214
Education	**M (EnvMan) - Masters in Environmental Management** Master's Degree at University of Pretoria in Pretoria, South Africa (Gauteng) **BSSc. GeoScience - Honours in Geographical Science** Honours Degree at University of Pretoria in Pretoria, South Africa (Gauteng)
Professional skills	- Vernon Siemelink is a Director at Eco Elementum (Pty) Ltd Environmental and Project Management Professionals and has been involved in the field of environmental science and environmental management for the past 10 years. - Vernon is a SGS IRCA Certified EMS Lead Auditor and a SETA accredited assessor. He has also completed the CEM auditor conversion training for ISO 9001, ISO 14001 and OHSAS 18001 Integrated Management Systems. - Vernon Siemelink has been an environmental consultant and professional since 2008, specialising in the fields of: • Environmental Impact Assessments and Authorisations. • Water use license application. • Waste use license application. • Environmental Monitoring and Control. • Mine Closure and Rehabilitation. • Environmental Compliance and Audits. • Environmental Management Systems; and Specialist Impact Studies. - During this time, he has provided quality, environmental, and health and safety consulting and auditing services in nearly every industry sector. - Furthermore, Vernon holds a Master's Degree in Environmental Management and an Honours Degree in Geosciences from the University of Pretoria.

Please refer to the CVs attached in Appendix A.

(2) **Summary of the EAP's past experience**.
(In carrying out the Environmental Impact Assessment Procedure)

Table 6: Qualifications of EAP

Skills	- **Environmental Impact Assessments.** - **Basic assessments, WULA reports.** - **Water use license application.** - **Prospecting and Mining Right Authorizations.** - **Environmental Management Plans.** - **Public Participation.** - **Environmental Authorizations.** - **ISO 14001:2004 Environmental Management System Auditor.** - **FSC Forest Management Auditing.** - **Geographic Information System Support (ArcGISv9.2).** - **SETA Accredited Assessor.** - **EMSware software Administrator.** - **Integrated Management System Auditor.**
EAP Experience	Mr. Vernon Siemelink has been an Environmental Assessment Consultant for 10 years, during this time he has conducted S/EIA's, Basic Assessments, rehabilitation planning, developed EMPr (This includes conducting screening and scoping exercises, baseline studies, impact assessments, monitoring, and management planning and implementation) environmental legal assessments, ISO 14001:2004 management systems, due diligence, EMPr Performance Assessments and Integrated Water Use License Audits for clients in nearly every industry sector.

Name	Kelebone
Surname	Sekonyela
Company	Eco Elementum (Pty) Ltd
Position	Junior Environmental Practitioner (EAP)
Location	361 Oberon Ave, Glenfield Office Park, Nikka Building, 1st Floor, Faerie Glen, Pretoria, 0081
Email	kele@ecoe.co.za
Telephone Number	072 83 78813/ 012 348 5214
Education	**MSc(EnvMan) - Masters in Environmental Management** Master's Degree at University of Johannesburg in Johannesburg, South Africa (Gauteng) **BA. Geography - Honours in Geographical Science** Honours Degree at University of Johannesburg in Johannesburg, South Africa (Gauteng)
Professional skills	- Kelebone Sekonyela is an EAP at Eco Elementum (Pty) Ltd and has been involved in the field of environmental science and environmental management for about 4 years. - Kelebone Sekonyela has been an environmental consultant since 2018, focusing on the fields of: • Environmental Impact Assessments and Authorisations. • Water use license application. • Waste use license application. • Environmental Monitoring and Control. • Environmental Compliance and Audits. - During this time, she has provided quality, environmental, and auditing services in nearly every industry sector. - Furthermore, Kelebone holds a Master's Degree in Environmental Management from the University of Johannesburg.

3.2 B. LOCATION OF THE OVERALL ACTIVITY.

Table 7: Location of the activity

Farm Name:	**Portions 2, 3, 4, 10, 12, 13, 14, 15, 17, 19, 25, 26, 29 and the Remaining Extent of the farm Legdaar 78 IS.**
Application area (Ha)	2143.43 ha
Magisterial district:	Gert Sibande District Municipality and Govan Mbeki Local Municipality
Distance and direction from nearest town	Bethal is located roughly 13 km to the south of the proposed prospecting area, while Kriel is located 16 km to the west-northwest and Hendrina 31 km to the northeast.
21-digit Surveyor General Code for each farm portion	T0IS00000000007800002 T0IS00000000007800003 T0IS00000000007800004 T0IS00000000007800010 T0IS00000000007800012 T0IS00000000007800013 T0IS00000000007800014 T0IS00000000007800015 T0IS00000000007800017 T0IS0000000000780001 T0IS00000000007800000
Locality map	Attach a locality map at a **scale not smaller than 1:250 000 and attach as Appendix C.**
Description of the overall activity. (Indicate Mining Right, Mining Permit, Prospecting right, Bulk Sampling, Production Right, Exploration Right, Reconnaissance permit, Technical co-operation permit, Additional listed activity)	Prospecting right application for coal and pseudocoal in respect of Portions 2, 3, 4, 10, 12, 13, 14, 15, 17, 19, 25, 26, 29 and the Remaining Extent of the farm Legdaar 78 IS Situated in the Gert Sibande District Municipality and Govan Mbeki Local Municipality, Mpumalanga Province.

3.3 c. Locality Map

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

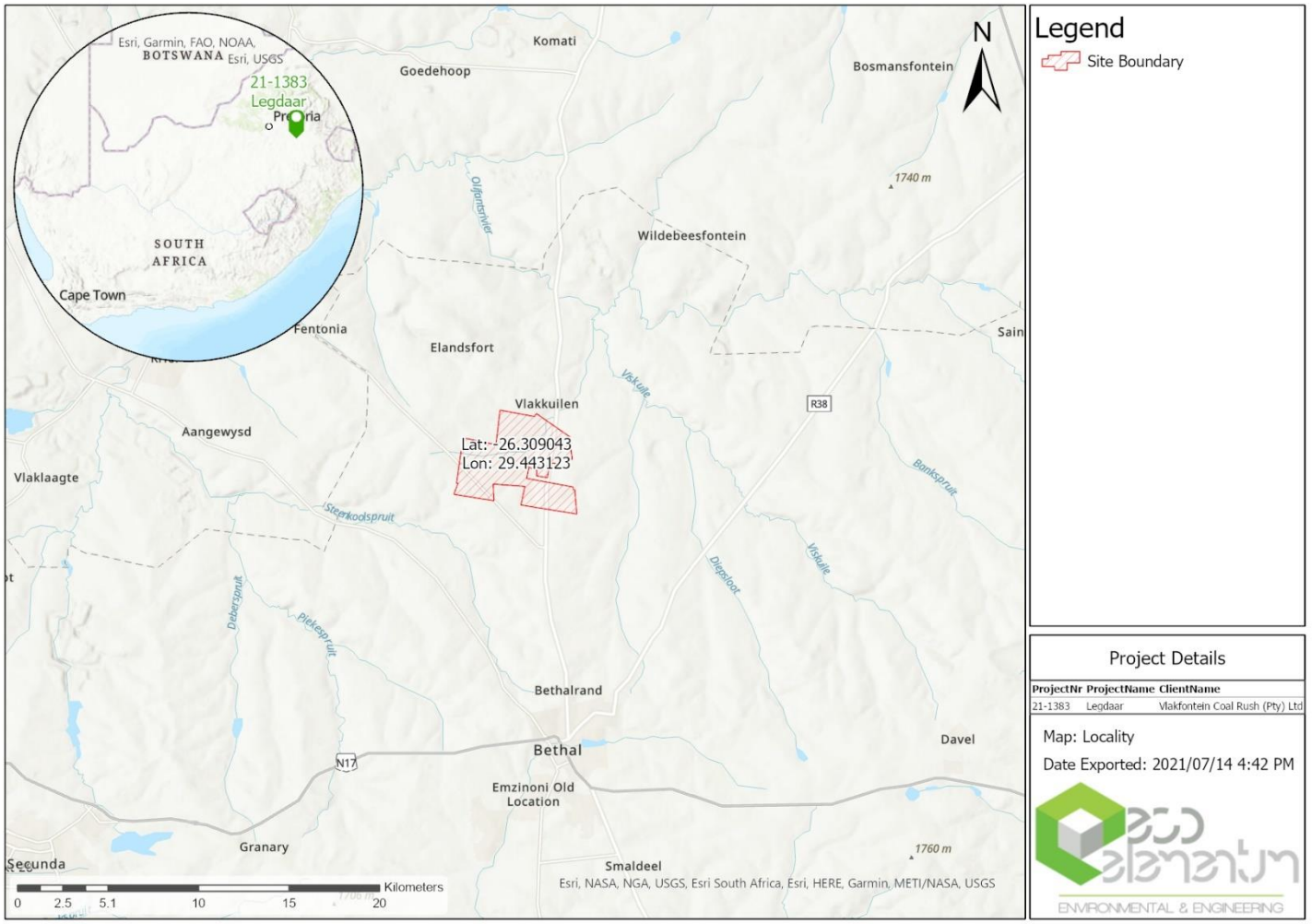

Figure 3: Closest towns

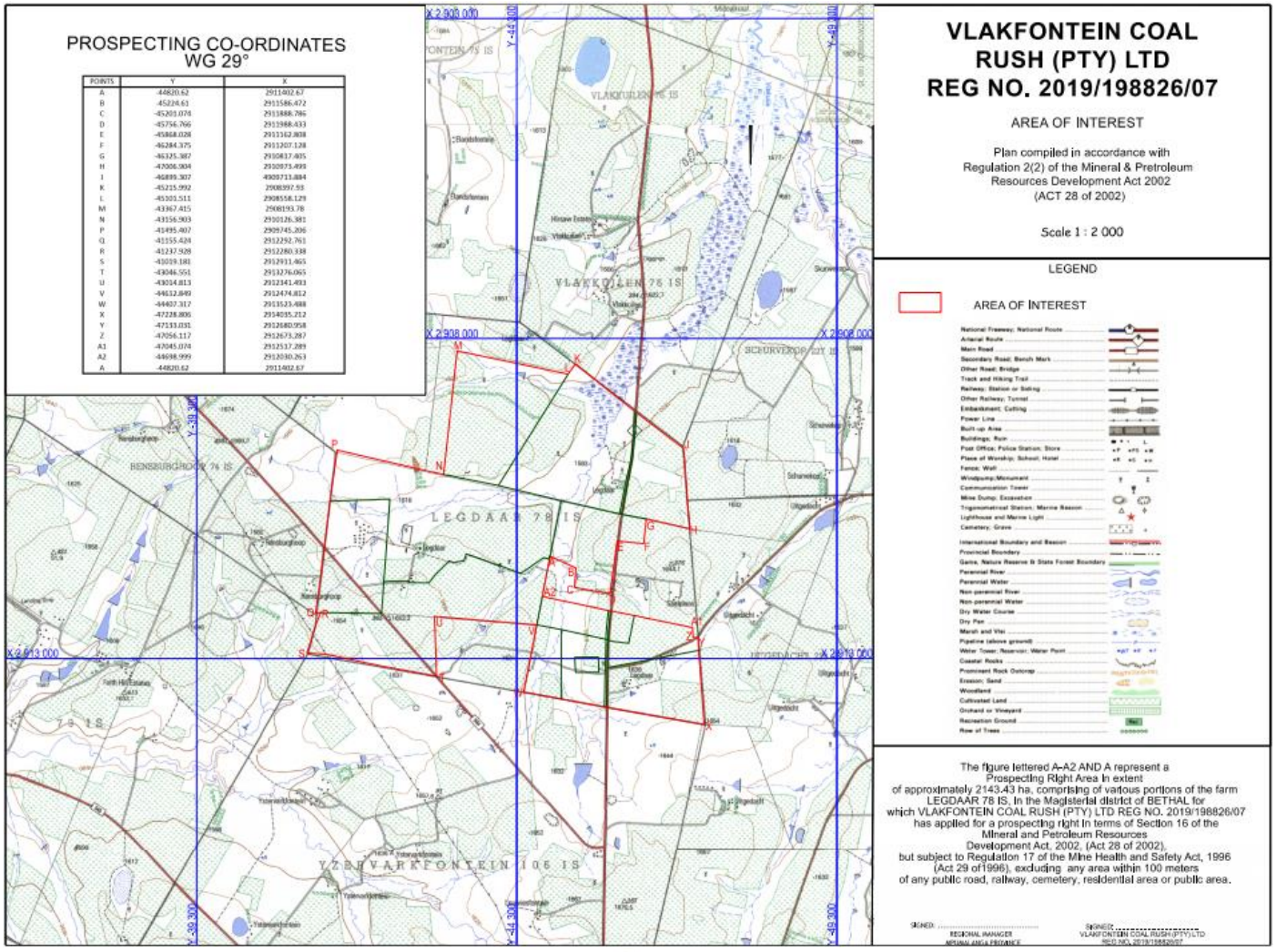

Figure 4: Regulation 2 (2) Map

4. DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY

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

i. The first phase will be information gathering which includes detailed desktop studies and geological mapping. This will result in a plan showing outcrops and any geological information that will be useful during the subsequent phases of exploration. Feasibility studies will also be conducted at the end of the exploration phases.

ii. No geochemical survey is planned.

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

iv. Drilling will be conducted using a diamond drill rig. The holes will be drilled to two different sizes (NQ, and BQ) determined by the formations. The core will be handled and logged in a designated area, sampling will also take place in the same area. Samples will be sent to a laboratory for chemical analyses. Resource modelling will be undertaken using the geological data determined from the data collected.

v. Trenching will be necessary in the outcropping areas and their locations will be determined by the availability of outcropping areas and the depth of the seams.

vi. No other excavations, bulk sampling or pitting is planned

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

The figure below depicts the current land cover and farm portions of the proposed prospecting area, the proposed areas of interest within the application area will be defined within the course of prospecting activities. It is anticipated that the invasive program will consist of 20 boreholes with a footprint of approximately 300 m^2 each. Vegetation will be cleared at the borehole locations within the application area. Minor access tracks will be created to access the proposed borehole sites where there are no existing roads. The total length of the access routes is anticipated to be 5 000 m and the approximate width is 3 m.

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

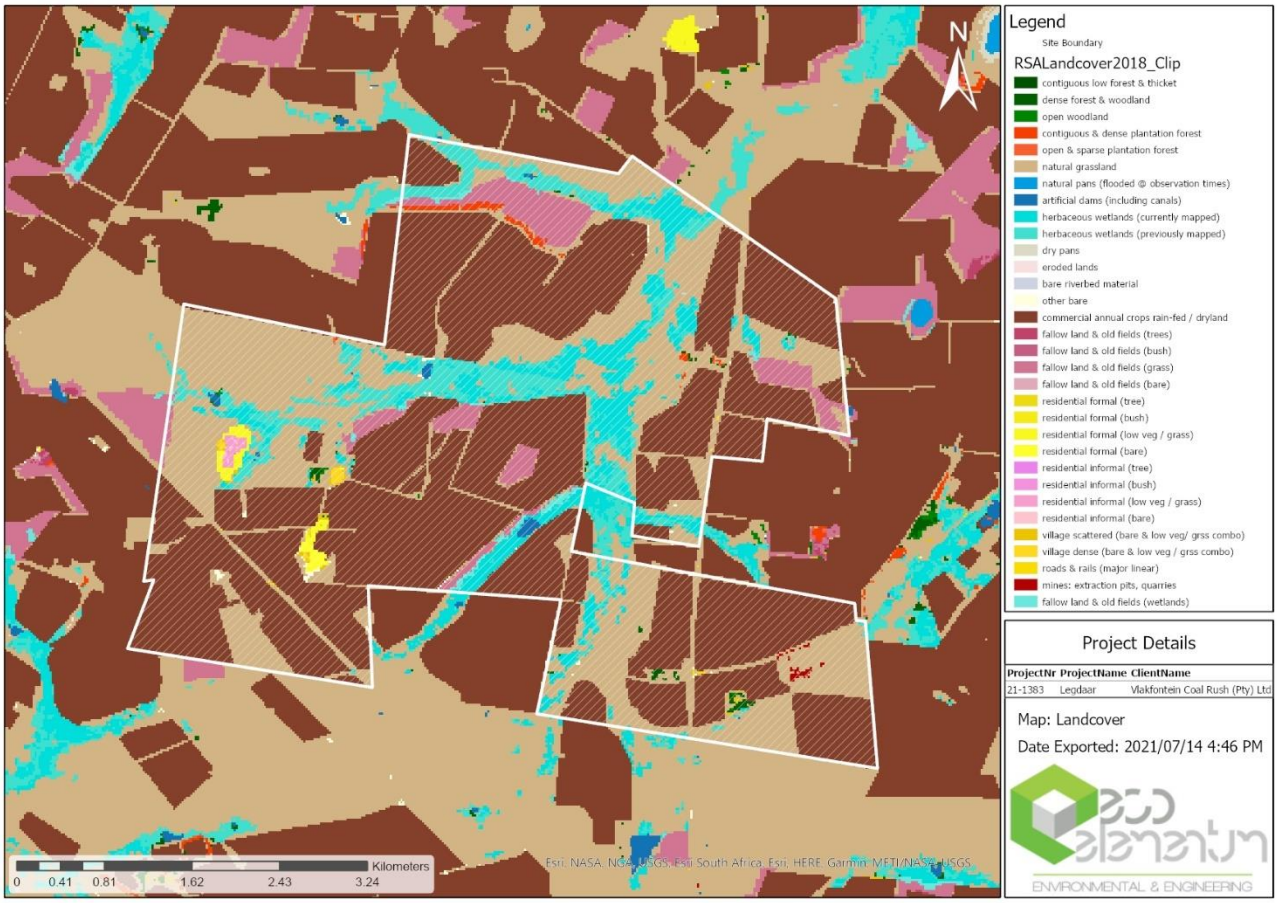

Figure 5: Current land cover Map – Farm portions

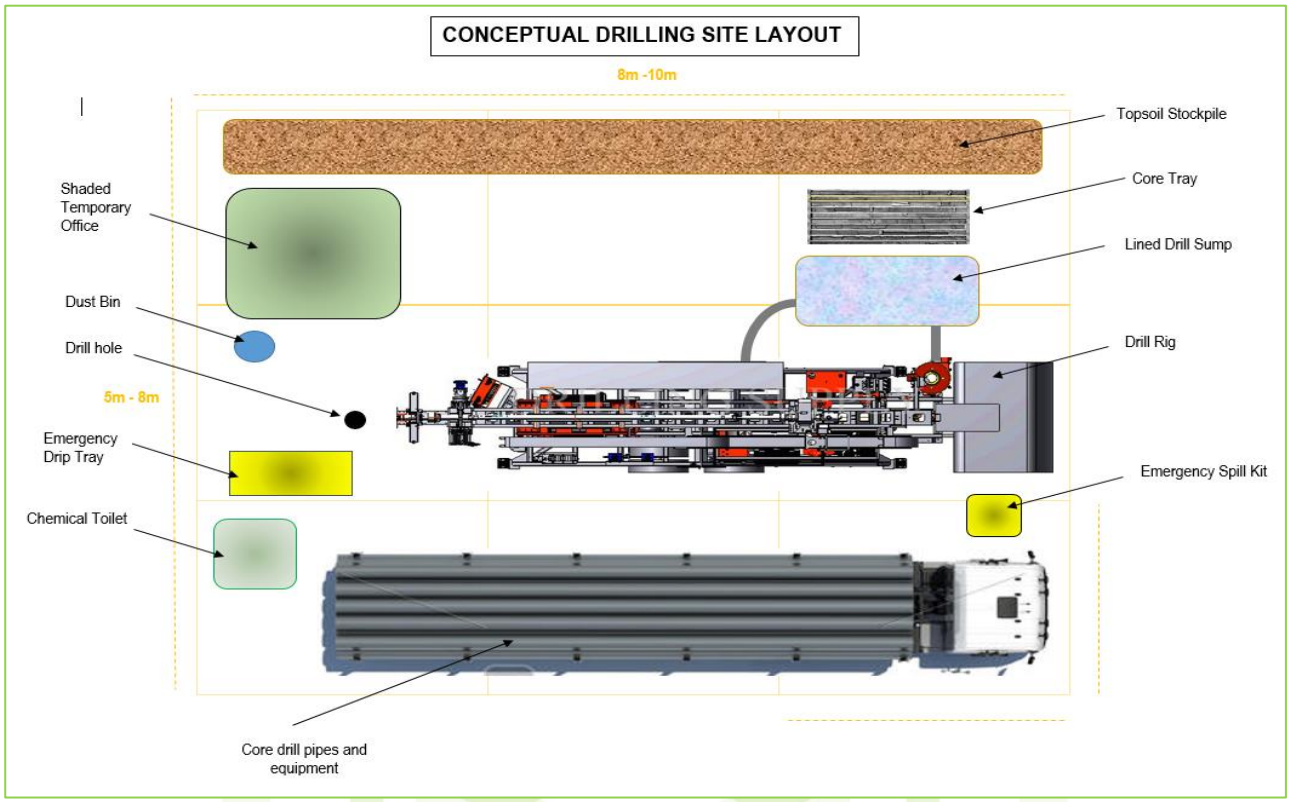

Figure 6: Conceptual drilling site layout

4.1 DESCRIPTION OF PLANNED NON-INVASIVE ACTIVITIES

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

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

Literature Study

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

Geological Mapping

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

Geophysical Survey

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

Interpretation of Information and decision making.

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

Sampling and resource modelling

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

During the non-invasive methods, additional information is gathered in the form of prefeasibility studies. This includes the determination of the suitable mining method and its costs. Other information that is gathered includes the macro and the microeconomics that will determine the feasibility of the project.

As is clear from the information provided above, each of the phases is dependent on the results of the preceding phase. The location and extent of possible drilling can therefore not be determined at this stage. Mapping of the prospecting activities could thus not be undertaken. For the purpose of this report, the overall prospecting area is presented in Figure 4 and 5. In the subsequent sections more details are provided in terms of each of the prospecting activities. The applicant must submit a plan indicating the location of drilling activities, once these areas have been finalized to at least all landowners, as well as the Department of Mineral Resources. Please refer to Section 6 of the PWP for further details on these methods. No bulk sampling work is to be carried out during this prospecting program.

4.2 DESCRIPTION OF PLANNED INVASIVE ACTIVITIES

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

Planned invasive prospecting methods entail conducting drilling to ascertain the existence of the expected minerals, its thickness and distribution. Samples will be taken and analysed. The number of boreholes planned is 20:

Drilling purpose	Number of boreholes
Reconnaissance drilling	6
Resource drilling	9
Feasibility drilling	5

The depths will be to a depth of approximately 50 meters. The exact depths of the boreholes will be determined while the drilling program is underway as influenced by the depths and dips measured in the previous boreholes.

Table 8: Timeframes each of the proposed activities

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

4.3 DESCRIPTION OF PRE-FEASIBILITY STUDIES

(Activities in this section includes but are not limited to initial, geological modelling, resource determination, possible future funding models, etc).

Feasibility studies will be conducted in two stages as pre-feasibility studies and feasibility studies where some commonly call it definitive feasibility studies. Information gathered during feasibility studies includes but is not limited to macro and microeconomics, mining methods, human resources, environmental, financial, metallurgical etc. in the prefeasibility studies, a series of mining methods are evaluated with the orebody and a most suitable one is chosen. Costs relative to the mining methods are estimated and financial models are built. In the feasibility studies, more information is gathered around the chosen mining method and again models are built to determine the feasibility of the project.

4.4 DESCRIPTION OF THE ACTIVITIES TO BE UNDERTAKEN

(Describe Methodology or technology to be employed, including the type of commodity to be prospected/mined and for a linear activity, a description of the route of the activity).

The mineral that will be prospected in the proposed site is coal. This section presents a detailed description of all the activities associated with the proposed prospecting application. Due to the nature of the Prospecting Works Programme, and the fact that the specific prospecting activities required are dependent on the preceding phase, assumptions are presented where required.

Access Roads

Access to the site will be required during mapping and drilling activities (Phase2). Access requirements can only be determined after Phase 1 has been concluded. A number of existing roads and tracks already traverse the proposed prospecting site and where practicable, these roads will be used. All access on farms will be conducted in terms of a written agreement with the landowner. In instances where no access roads are available to the site location a single track will be selected as the best alternative on the basis of least environmental impact with natural habitat considered the last option.

During mapping activities, vehicle access will be gained to site through the veld and the establishment of a track to gain repeated access to a mapping site will not be required.

Once the drill sites have been identified, temporary access roads may be established for repeated access to the prospecting site if the identified drill site cannot be accessed via existing roads and tracks.

Vegetation and topsoil stockpile areas (if required)

Vegetation and topsoil will only be stockpiled in instances where settling sumps are required i.e., core drilling. During the excavation process the topsoil and available vegetation will be placed adjacent to the sumps. This will also serve as a storm water diversion berm. The excavated material will be backfilled into the rehabilitated sumps on completion of the drilling process.

Water Supply

For the prospecting phase, several sites will be selected for geotechnical drilling. These boreholes and its associated activities will impact on a surface area of between 250 and 640 m². The full extent of the drill site will also be demarcated, and no drilling will be done outside of the boundary.

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

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

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

filter process in order to maintain a constant clean water source for the purpose of drilling. The plastic sheets will be removed, and sumps will be backfilled on completion of drilling. If required, the remaining sludge in sumps is to be treated with a suitable bio-remediation product prior to backfilling or disposal.

Additional water requirements relate to the potable water supply for employees and workers. A temporary 15 000 ℓ will be stored in tanks for drinking water and generalise by persons will be provided at the drill site. Additional facilities will include temporary portable toilets, berms on the upstream side of the mini pit to divert clean water around the pit.

Ablution

Ablution facilities at the drill site will involve the hiring of drum or tank type portable toilets.

Accommodation

No accommodation for staff and workers will be provided on- site. Workers will be transported to and from the prospecting site on a daily basis. No equipment will be stored onsite.

Storage of Dangerous Goods

During the diamond drilling activities limited quantities of diesel fuel, oil and lubricants will be used onsite, all chemicals and dangerous goods will be stored on the drilling trucks and be packed up at night and removed. The only dangerous goods that will be stored in any significant quantity is diesel fuel. A maximum amount of 60 m^3 will be stored in above ground diesel storage tanks located on an impermeable surface with bunds. Storage and use of hydrocarbons and other chemicals may only take place on impermeable surfaces with bunds to contain any accidental spills.

Hazardous material will be stored in appropriate containers and clearly marked. Drip trays and or impermeable surfaces with bunds must be placed under machinery that has the potential to leak. Material Safety Data Sheets will be available for all drilling and other chemicals kept on site.

Drill rig

In most cases, the drill rig will be a self-contained, truck-mounted unit that will be accompanied by a compressor and a generator. The drill rig will be driven to site and mobilised in the desired location, positioned over the hole site, and will be stabilised.

The footprint of disturbance for a prospecting rig and associated equipment is generally smaller than 25 - 64 m^2. Plastic sheets and trip trays will be placed underneath the rig for the duration of the drilling process at each site in order to avoid hydrocarbon spills and contamination. The full extent of the drill sites will be staked out and the drill crew will not operate beyond these boundaries. Depending on the locality, this perimeter may be fenced, marked with bunting or barricading. Please refer to Figure 6 for a layout plan of the drilling site.

Drill core storage area

During core drilling, a laydown area for the extracted core samples will be established within the footprint of the drill site. This area is usually 5 m × 2 m and is used to place the extracted core in sequence (according to depth) for later analysis by an appointed geologist. Core trays will be used to contain the core samples.

i. Listed and specified activities

Section 16 of the Mineral and Petroleum Resources Development Act, 200 2 (Act No. 28 of 2002) requires, upon request by the Minister that an Environmental Management Plan be submitted, and that the applicant must notify and consult with Interested and Affected Parties (I&APs). Section 24 of the NEMA requires that activities, which may impact on the environment must obtain an environmental authorisation from a relevant authority before commencing with the activities. Such activities are listed under Regulations Listing Notice 10 the proposed prospecting activity triggers:

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

Table 9: Listed and specific activities

NAME OF ACTIVITY (E.g., For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc... Etc... etc. E.g., for mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc... Etc... Etc.)	Aerial extent of the Activity Ha or m^2	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (GNR 983, GNR 984 or GNR 985)	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource, including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in Listing Notice 2 applies.	640 m^2	X	GNR 983 – Listing 1, Activity 20	n/a
Drill site clearing and establishment, mobile chemical ablution facility, drill rig equipment, return water lined sump, and sample storage trays.	640 m^2	X	GNR 983 – Listing 1, Activity 20	n/a
Soil Sampling Activities (A typical sampling site will be approximately 25 m^2). It is unlikely that more than 10 samples will be taken, however, this will be confirmed on site as part of the prospecting activities.	64 m^2 per prospecting drill site	X	GNR 985 – Listing 3, Activity 12	
Roads (roads will be temporary gravel roads, not exceeding 3,5 m in width).	Approx. 20 000 m^2	-	-	-
Temporary Camp Site	Approx. 100 m^2	-	-	-
Site Clearance	Less than 20 ha	X	GNR 983 – Listing 1, Activity 27	-
Hydrocarbon Storage	Less than 30 m^3	-	-	-

5. POLICY AND LEGISLATIVE CONTEXT

Table 10: Policy and legislative table

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLIY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT. (E.g. In terms of the National Water Act a Water Use License has/ has not been applied for)
Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)	The project requires a prospecting right authorisation from the Department of Mineral Resources.	A prospecting right was lodged with the DMR. The application was accepted by DMR on 24th of March 2021.
NEMA Environmental Impact Assessment (EIA) Regulations, as Amended 2017	This Basic Assessment and Environmental Management Plan to be conducted. Baseline environmental information of the project area will be assessed. Mitigation measures and recommendations where provided according to best practice standards.	An Application for Environmental Authorisation will be submitted to the Mpumalanga DMR with the prospecting right application lodgement on SAMRAD. The DMR also requested the submission of the updated NEMA application forms and PWP with 60 days of the approved application.
The South African Constitution **The South African Constitution (Act 108 of 1996) constitutes the supreme law of the country and guarantee the rights of all people in South Africa**	Applied at potential impacts identification as well as mitigation measures and public participation.	A public participation process will be followed, and consultations will be done regarding the proposed project. An EMPr and awareness plan will be designed according to the issues raised during this process.
National Environmental Management: Biodiversity Act , 2004	Presence of critically endangered species if permit is required. To be determined by ecologist prior to prospecting activities.	The EMP will regulate the applicant to apply for Tree Removal Permit from the Relevant authority prior to the potential removal of any sensitive and/or protected species.
National Environmental Management: Waste Act	Provisions of the waste act were consulted to determine whether a waste license was required for any aspect of the proposed development.	The project activities do not trigger a waste management license, but proper waste management measures will be addressed in the EMPr.
Section 38 of the National Heritage Resources Act (Act No. 25 of 1999)	Legislation consulted during the impact assessment process, to determine what legal requirements with regards to the management of national heritage resources were relevant to this application.	An upload of the BAR will be done on the SAHRIS online system for comment.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLIY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT. (E.g. In terms of the National Water Act a Water Use License has/ has not been applied for)
National Environmental Biodiversity Act The National Environmental Management Biodiversity Act (NEM:BA), 2004 (Act No.10 of 2004), provides for: (i) the management and conservation of South Africa`s biodiversity within the framework of the National Environmental Management Act, 1998; (ii) the protection of species and ecosystems that warrant national protection; (iii) the sustainable use of indigenous biological resources; (iv) the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources; (v) the establishment and functions of a South African National Biodiversity Institute;	Baseline review of the biodiversity.	Sections of the proposed prospecting right area falls under NEMBA Section 52 - Alien and Invasive Species Lists, 2014 (GN R599 in GG 37886 of 1 August 2014, updated 2016).
National Water Act The NWA (Act No. 36 of 1998)	Triggered activities will be identified according to the Section 21 of the NWA.	The department has been notified of the proposed project and comments will be addressed.
National Environmental Management: Air Quality Act, 2004 (Act no.39 of 2004);	Dust monitoring on site during the operation.	As part of the EMPr dust suppression methods will be used.
Mine Health and Safety Act, 1996 (Act No. 29 of 1996);	Health and Safety Policy.	Risk Impact Assessment to be conducted.
CBAs are terrestrial (land) and aquatic (water) features (e.g., vleis, rivers and estuaries) in the landscape that are critical for conserving biodiversity and maintaining ecosystem functioning in the long term (which is particularly important in the face of climate change). The desired management objective for CBAs is for them to remain in a natural or near- natural, i.e. to prevent further loss or degradation of natural habitat in these areas. Therefore, CBAs are biodiversity	Used to identify possible mitigation measures.	Specialists have been appointed to undertake studies to determine if the application area falls within any CBAs and recommend mitigation measures where applicable.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLIY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT. (E.g. In terms of the National Water Act a Water Use License has/ has not been applied for)
request priority that must be afforded special attention in assessing and evaluating impacts of prospecting or mining. Although CBAs have been identified at a very fine spatial scale in some provinces (Gauteng, Western Cape, KwaZulu-Natal), other areas they have been identified more at a broader scale (Eastern Cape, Northwest, Limpopo, and the Namakwa district of the Northern Cape). All CBAs require field verification, but this is particularly the case for broad scale CBAs where it is only in the intact areas of the CBA that mining should be prohibited. Over time, CBAs will be identified in the Free State, and remaining areas of the Northern Cape, and may be identified at a finer scale in additional provinces.		
Govan Mbeki Local Municipality SDF.	Source of background demographic and socio-economic information.	Utilized as a source of demographic and socio-economic information for the project. .

6. NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES.

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

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

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

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

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

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

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

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

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

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

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

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

8.1 Details of the Development Footprint Alternatives Considered.

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

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

   Portions 2, 3, 4, 10, 12, 13, 14, 15, 17, 19, 25, 26, 29 and the Remaining Extent of the farm Legdaar 78 IS situated in the Gert Sibande District Municipality and Govan Mbeki Local Municipality, Mpumalanga Province.

b. the type of activity to be undertaken;

The minerals that will be prospected in the proposed site are coal and pseudocoal. This section presents a detailed description of all the activities associated with the proposed prospecting application. Due to the nature of the Prospecting Works Programme, and the fact that the specific prospecting activities required are dependent on the preceding phase, assumptions are presented where required.

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

8.2 Prospecting process

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

- The first phase will be information gathering which includes detailed desktop studies and geological mapping. This will result in a plan showing outcrops and any geological information that will be useful during the subsequent phases of exploration. Feasibility studies will also be conducted at the end of the exploration phases.
- No geochemical survey is planned.
- Geophysical Survey – a decision will be taken to conduct geophysical observations or procure geophysical data from commercial sources and organizations that collect them. The information that will be acquired will be chiefly magnetic which will be aimed at delineating structures of higher or lower magnetic susceptibility than the surrounding country rocks. If the company conducts the observations, it will be airborne surveys conducted with the auspices of a contractor.
- Drilling will be conducted using a diamond drill rig. The holes will be drilled to two different sizes (NQ, and BQ) determined by the formations. The core will be handled and logged in a designated area; sampling will also take place in the same area. Samples will be sent to a laboratory for chemical analyses. Resource modelling will be undertaken using the geological data determined from the data collected.
- Trenching will be necessary in the outcropping areas and their locations will be determined by the availability of outcropping areas and the depth of the seams.
- No other excavations, bulk sampling or pitting is planned.

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

Figure 5 depicts the current land cover and farm portions of the proposed prospecting area, the proposed areas of interest within the application area will be defined within the course of prospecting activities. It is anticipated that the invasive program will consist of 20 boreholes with a footprint of approximately 300 m^2 each. Vegetation will be cleared at the borehole locations within the application area. Minor access tracks will be created to access the proposed borehole sites where there are no existing roads. The total length of the access routes is anticipated to be 5 000 m and the approximate width is 3 m.

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

8.2.1 Description of planned non-invasive activities

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

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

Literature Study

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

Geological Mapping

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

Geophysical Survey

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

Interpretation of Information and decision making.

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

Sampling and resource modelling

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

During the non-invasive method, additional information is gathered in the form of prefeasibility studies. This includes the determination of the suitable mining method and its costs. Other information that is gathered includes the macro and the microeconomics that will determine the feasibility of the project.

As is clear from the information provided above, each of the phases is dependent on the results of the preceding phase. The location and extent of possible drilling can therefore not be determined at this stage. Mapping of the prospecting activities could thus not be undertaken. For the purposes of this report, the overall prospecting area is presented in Figure 4 and 5. In the subsequent sections more details are provided in terms of each of the prospecting activities. The applicant must submit a plan indicating the location of drilling activities, once these areas have been finalized to at least all landowners, as well as the Department of Mineral Resources. Please refer to Section 6 of the PWP for further details on these methods. No bulk sampling work is to be carried out during this prospecting program.

8.2.2 Description of planned invasive activities

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

Planned invasive prospecting methods entail conducting drilling to ascertain the existence of the expected minerals, its thickness and distribution. Samples will be taken and analysed. The number of boreholes planned is 20:

Drilling purpose	Number of boreholes
Reconnaissance drilling	6
Resource drilling	9
Feasibility drilling	5

The depths will be to a depth of approximately 50 meters. The exact depths of the boreholes will be determined while the drilling program is underway as influenced by the depths and dips measured in the previous boreholes.

8.3 THE DESIGN OR LAYOUT OF THE ACTIVITY;

The location of activities will be determined based on the location of the prospecting activities, which will only be determined during Phase 1 of the Prospecting Works Programme.

Final borehole sites to be determined after phase one of the prospecting.

8.4 THE TECHNOLOGY TO BE USED IN THE ACTIVITY;

All equipment to be used will be provided by contractors.

1. Exploration Drilling

   After an anomaly or a presumed anomaly has been detected, it is necessary to define its limits and to determine mineral content of any ore present. After determination of these factors, it is necessary to evaluate the ore in terms of its physical characteristics for:

   - Mining operating parameters.
   - Geotechnical design, and
   - Metallurgical extraction.

   The type of drilling program required to evaluate the Rock is primarily dependent upon the depth of the Rock and the strength of the material to be drilled. Generally, shallow Rocks are sampled using:

   - Geotechnical drilling.
   - Pitting / trenching.

   Deep ore bodies are most commonly evaluated by diamond drilling techniques. The essential part of exploratory drilling and pitting is that material broken out of the borehole must be recovered for analysis.

8.5 THE OPERATIONAL ASPECTS OF THE ACTIVITY; AND

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

Water Supply

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

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

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

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

8.6 THE OPTION OF NOT IMPLEMENTING THE ACTIVITY.

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

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

8.7 Details of the Public Participation Process Followed

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

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

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

Each of the processes is described in detail in the sections below.

8.7.1 Identification of Interested and Affected Parties

The application area extends over approximately 2143.43hectares(ha) of rural farmland consisting of several properties. Background Information Documents (BIDs) were delivered to identified landowners.

Various landowners were identified within the project area as per the Commission of Restitution of Land Rights

The registered owners of the farms were listed as follows:

Table 11: Directly affected landowners

Landowner	Farm Portion
GROBLER BALTHAZER JOHANNES	in respect of portion 2 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 3 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 4 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 10 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 12 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 13 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 14 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 15 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.

Landowner	Farm Portion
VOSBREET BOERDERY	in respect of portion 17 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 19 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion of 25the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 26 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect of portion 29 of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.
GROBLER BALTHAZER JOHANNES	in respect the remaining extent of the farm Legdaar 78 IS, in the magisterial district of Gert Sibande, Mpumalanga Province of South Africa.

8.7.2 Interested and affected parties (IAPs) that were identified include the following: -

- Landowners and legal occupiers within the project area – as indicated in the table above.
- Govan Mbeki Local Municipality.
- Gert Sibande District Municipality.
- Bethal town.
- Organs of State:
    - Department of Mineral Resources Mpumalanga - Legal and Environmental Sections;
    - DARDLEA;
    - Department of Water & Sanitation – Mpumalanga;
    - Department of Rural Development & Land Reform;
    - South African Heritage Resources Agency & Mpumalanga Heritage Resources Agency; and
    - Land Claims Commission.

The details of all the IAPs were compiled into a database and are included as APPENDIX B following the Public Participation Phase.

8.7.3 Notification of Interested and Affected Parties

Eco Elementum notified IAPs by providing each person with an information letter (written notice) and Background Information Document (BID) that included a description of the project, the public participation process and how they can get involved in the process. The notification letter also included a comment sheet whereby all IAPs can respond with issues, concerns, or comments. Due to the rural nature of the project area, it was decided to provide physical and electronic methods of sending the notification letter as well as gathering responses. Letters were also delivered to the identified occupiers and/or landowners of the respective properties. Proof of the notification letters will be included as APPENDIX B following the Public Participation Phase.

Other forms of notification included the placement of Site Notices (as per the Regulation required size) at various locations. 4 x Site notices were placed at various access points along the secondary road which transverses the site.

The site notices are available during the PPP period whereby IAPs can register to be provided with more information on the project. Photos of the site notices will be included as APPENDIX B following the Public Participation Phase.

An advert will be placed in due course. The advert will include a brief project description, location of the project, date of public meeting, methods to register as an IAP and review period of the BA report. A copy and proof of the newspaper adverts will be included as APPENDIX B following the Public Participation Phase.

8.7.3.1 Public Information Meeting

Due to the 3rd wave of COVID-19 resulting in stricter lockdown restrictions, public consultation meeting will be undertaken in due course. The date of the public participation meeting (Public Open day) will be communicated two weeks prior to the meeting taking place.

8.7.3.2 Gathering Comments, Issues and Concerns from IAPs

IAPs have been provided with the opportunity to register as IAPs and raise issues and concerns from the of 28 July 2021 to 28 August 2021 to form part of the public consultation report.

8.7.3.3 Responding to Comments, Issues and Concerns from IAPs

All comments, issues and concerns will be compiled and responded by email or virtually.

8.7.3.4 Compilation of a Report on the Results of the Public Participation Process

The public consultation process is documented in accordance with the DMR standard template for results of public consultation.

8.7.3.5 Review and Commenting on the Basic Environmental Impact Assessment Report (BAR*)*

The draft BAR is available for review and comment from the 28 July 2021 – 28 August 2021. The IAPs were notified in the written notices and site notice that the BAR will be made available for review at the electronically on www.ecoelementum.co.za and a hard copy at the Breyten Public Library.

The table below summarises the issues and responses raised during the PPP to date.

8.7.4 Summary of issues raised by I&APs.

Table 12: Identified Interested & Affected Parties

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

Lawful occupier/s of the land				
GROBLER JOHANNES				
VOSBREET BOERDERY				
Landowners or lawful occupiers on adjacent properties				
Municipal councillor				
Municipality				
Govan Mbeki Local Municipality				
Gert Sibande District Municipality				
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA)				
National Roads Agency				
SANBI				

ESKOM				
Transnet Pipelines Mr. Thami Hadebe				
SAHRA				
Telkom				
SAN parks				
Mpumalanga Provincial Govt Officer				
DWS – working for water				
DEA Pollution and waste management directorate				
Department of Agriculture, Land Reform and Rural Development				
Mpumalanga Tourism and Park Agency Development				

Department and Co-Operative Governance and Traditional Affairs				
Communities				
Dept. Land Affairs				
Agri Mpumalanga				
Dept. Environmental Affairs				
Pollution and Waste Management Directorate				
Environmental Impact Management				

9. BASELINE ENVIRONMENT

a. Type of environment affected by the proposed activity.

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

Key aspects of the baseline environment that are likely to impact on the scope of the impact assessment and management measures that are implemented as well as project decisions regarding alternatives are listed below. The climate information was obtained from the (Climate-data.org accessed 03/02/2021) and extracted from the specialist studies undertaken as well as readily available information for the study area.

Table 13: Summary of Baseline Environment

Environmental Aspect	Environmental Variable	Description
CLIMATE (derived from climatic recordsof Breyten)	**TEMPERATURE**	• Summers warm to hot with a mean monthly maximumtemperature for January around 22°C. • Winters are cold with a mean monthly minimum temperatureof just below 0°C in July.
	RAINFALL	• 650 - 900 mm of rain per annum. • Majority of the rainfall during early to mid-summer. • Frequent thunderstorms during periods of rainfall.
	FROST	• Frequent and restricted to winter months.
SURROUNDING LAND USE		**ON-SITE AND NEARBY LAND-USES:** • Provincial Roads. • Agricultural. • Mines **CLOSEST** **TOWNS:** • Breyten (north-west). • Ermelo (south-west).
HISTORICAL VEGETATION	**Eastern Temperate Freshwater Wetlands VU**	These wetlands are found on flat or gently undulating landscapes orshallow depressions filled with (temporary) water bodies such as pans and periodically flooded vleis. Also included are edges of calmlyflowing rivers that support zoned systems of aquatic and hygrophilous vegetation where grasslands are temporarily flooded. Dominant or prominent taxa that can be expected in the different zones in wetlands include: **In Marshes:** Graminoids: *Cyperus congestus, Agrostis lachnantha, Carex acutiformis, Eleocharis palustris, Eragrostis plana, E. planiculmis, Fuirena pubescens, Helictotrichon turgidulum, Hemarthria altissima, Imperata cylindrica, Leersia hexandra, Paspalum dilatatum, P. urvillei, Pennisetum thunbergii, Schoenoplectus decipiens, Scleria dieterlenii, Setaria sphacelata, Andropogon appendiculatus, A.eucomus.* Herbs: *Centella asiatica, Ranunculus multifidus, Berkheya radula, B. speciosa, Berula erecta subsp. thunbergii, Centella coriacea, Chironia palustris, Equisetum ramosissimum, Falkia oblonga, Haplocarphalyrata, Helichrysum difficile, H. dregeanum, H. mundtii, Hydrocotyle sibthorpioides, H. verticillata, Lindernia conferta, Lobelia angolensis,*

9.1 Baseline Environmental Characteristics

A preliminary desktop study was conducted to focus on topology, surface water, wetlands, soils, land capability, noise, socio-economic and habitat availability for species of vegetation, mammals, and avifauna (birds) of the study area. The data was supplemented by previous surveys conducted in the area, literature investigations, specialist studies, personal records, and historic data.

The environment where the site is located can be described as predominantly rural; surrounding land cover includes:

Open areas dominated by natural veld, river, and wetland systems, but also large stands of alien invasive tree species;

- Agricultural fields (mostly dryland agriculture);
- Infrastructure including National, Provincial, and local roads, power lines, telephone lines and cell phone tower; and
- Existing and historic mining.

The Govan Mbeki Local Municipality's Spatial Development Framework (SDF) was obtained from their website (http://www.Govan Mbeki.gov.za/SDF.htm). The following details were obtained from a review of the SDF.

Figure 7: Mpumalanga Municipalities

Bethal is located roughly 13 km to the south of the proposed prospecting area, while Kriel is located 16 km to the west-northwest and Hendrina 31 km to the northeast. The demarcated farm portions fall within the Govan Mbeki Local Municipality and the Gert Sibande District Municipality in the Mpumalanga Province. The R35 primary road runs in a north-south direction and intersects portions 25, 26 and 29 towards the east of the study area, while the R544 secondary road runs in a northwest-southeast direction and intersects portions 10 and 19 towards the southwest of the study area.

9.1.1 Climate

- Methodology and Data Sources

The climate information was obtained from the (Climate-data.org accessed 03/02/2021) and extracted from the specialist studies undertaken as well as readily available information for the study area.

- Regional Description

The study area falls within the summer rainfall region and the average annual rainfall is roughly 756 mm per year. The average annual temperature is 14.4 ºC. The average summer temperature is 18.6 ºC, while the winter temperature averages 8 ºC (Climate-data.org accessed 03/02/2021).

- Sensitivities

There are no foreseen climatic sensitivities associated with the site or the proposed activity.

9.1.2 Geology and Soils

- Methodology and Data Sources

The geological information was obtained from the Prospecting works program.

- Regional Description.

Geologically, the prospecting right area is located in the Vryheid Formation (Ecca).

The Ermelo Coalfield is in the southeast Mpumalanga Province. It extends approximately 75 km east-west and 150 km north-south. The northern and the eastern boundaries of the Ermelo Coalfield are defined by the sub-outcrop of the coal bearing lithology onto the pre-Karoo basement.

The Ermelo Coalfield occurs as five distinct coal seams. They are named from E Seam at the base to the A Seam at the top of the sequence. The mining potential of the seams vary throughout the Coalfield, with the C Seam as the most prospective. In some parts of the Ermelo Coalfield the C and the B Seam split into Upper and Lower Seams.

The Seams are generally flat lying with a gradual southwest dip. There is major faulting associated in the Coalfield along with dolerite intrusions. These Dolerite sills displace the coal seams causing structural complications as well as devolatilisation of the coal in areas.

The coal seams which are considered as having economic potential are the B (B Lower), C Upper and C Lower Seams. The other coal seams tend to be thinly developed across the coalfield.

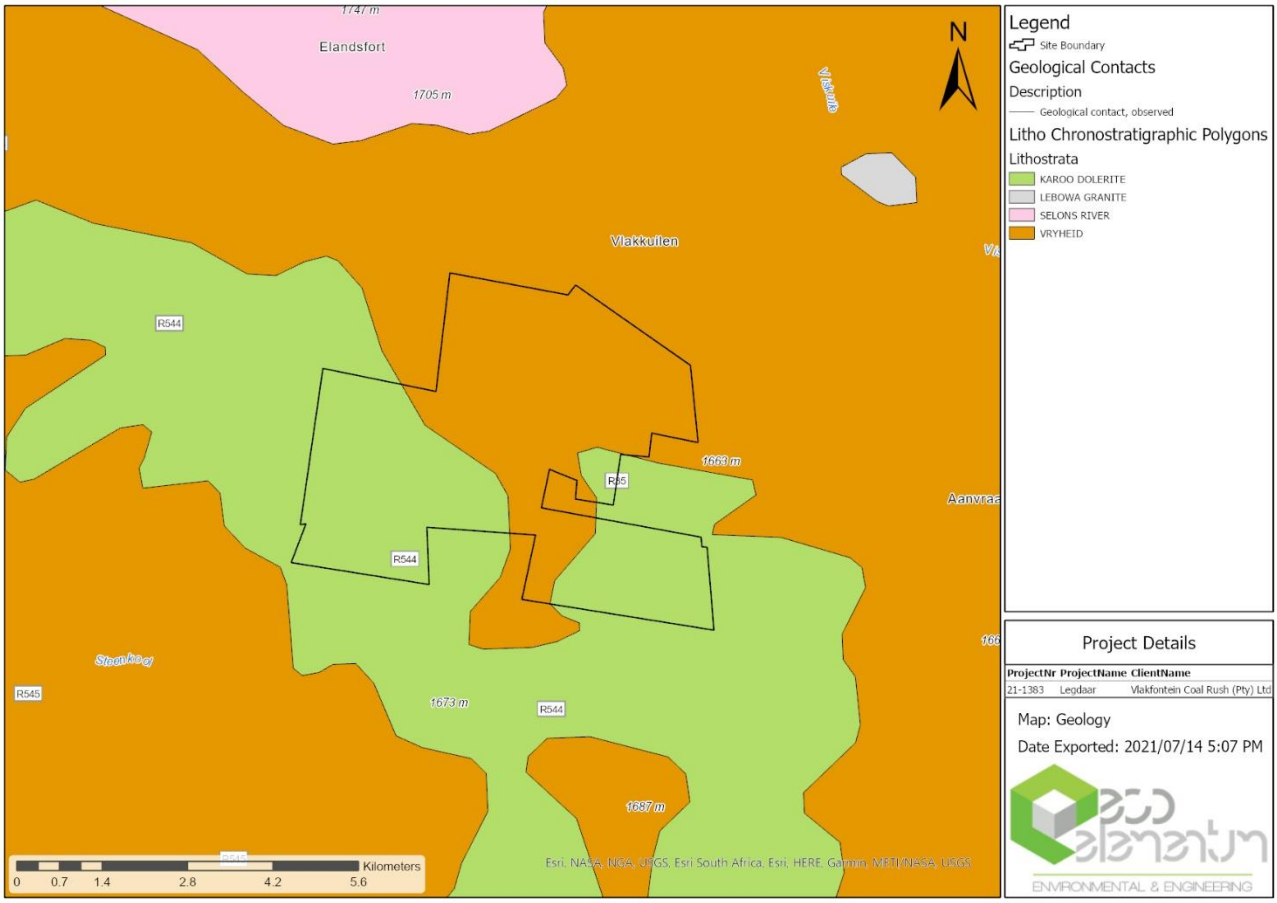

Figure 8: Local geology of prospecting right area

- Sensitivities

There are no foreseen geological sensitivities posed upon the site or the proposed activity.

9.1.3 Topography and Land Capability

- Methodology and Data Sources

Land Use and topography information data was obtained the specialist studies undertaken as well as the Govan Mbeki Local Municipality's Spatial Development Framework (SDF) obtained from their website (http://www.Govan Mbeki.gov.za/SDF.htm)

- Regional Description

Topography is gently undulating highland typical of the central Mpumalanga Province. The area falls in the central Mpumalanga climatic zone which experiences warms summers with rainfall and winters that are warm during the day, cold at night and dry, with sharp frosts. Rainfall is mainly experienced as showers and thunderstorms between October – March. Rainstorms are often violent with severe lightning and strong winds, occasional hail and up to 80mm of rain in a single day. Windiest months are August and September, although the winds are typically light. The topography of the Municipality is shown in the figure below with the site location indicated by the purple circle.

The average elevation for Eastern Highveld Grassland ranges from 1520 to 1780 MASL (Mucina & Rutherfords 2006). The average elevation of the project area is 1725 MASL and slopes from the more elevated western section towards the lower eastern half.

- Sensitivities

There are no foreseen topographical sensitivities in the study area.

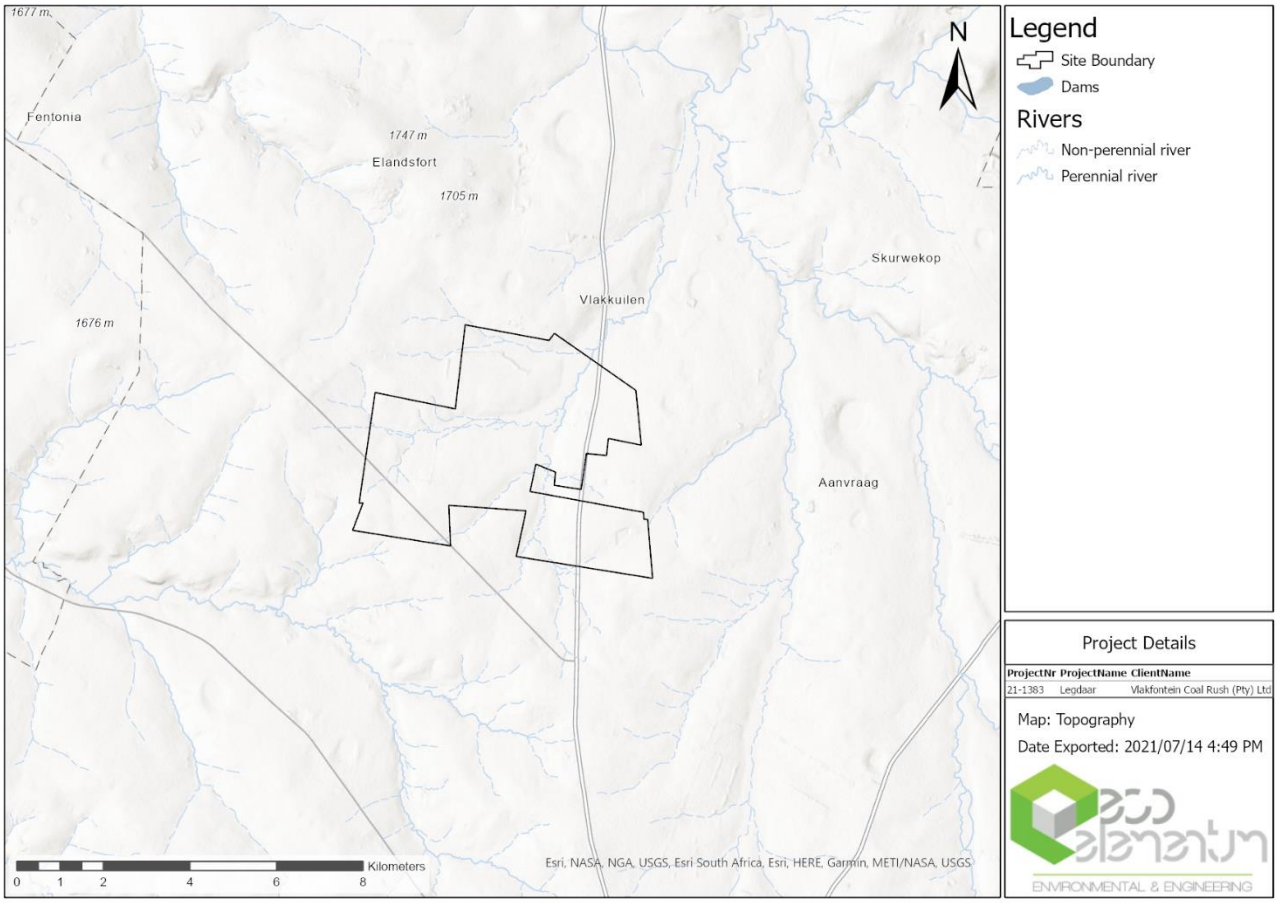

Figure 9: Topography

9.1.4 Surface Drainage Features

- Methodology and Data Sources

The Surface Drainage information was obtained from the specialist studies conducted for the project including the Ecological Desktop Report 2021.

- Regional Description

The majority of the study area falls within in the B11A quaternary catchment, while the south-western corner falls within the B11C quaternary catchment of the Olifants Water Management Area. The closest perennial rivers to the study area are the Viskuile River 4 km to the northeast and the Steenkoolspruit 3 km to the southwest. A perennial stream also intersects the Remaining Extent of the Portions 4 and 12, while several non-perennial streams are found on the majority of the remaining farm portions. The Rietspruit Dam is located approximately 26 km to the northwest of the study area and the Westdoe Dam 25 km to the southwest. Several minor dams, pans and non-perennial rivers are found within close proximity of the demarcated study area.

Sensitivities

All these habitats should be considered of very high sensitivity. Prospecting activities must aim to avoid wetlands and riparian areas (such would require a WULA), ensuring also that no prospecting-related pollution or runoff from coal-ore seeps into such areas. For further details, please refer to attached Ecological Desktop Screening Report 2021.

Figure 10: NFEPA Wetlands and River

9.1.5 Flora

- Methodology and Data Sources

Flora information was obtained from the specialist studies conducted for the project including the Archaeological Desktop Report 2021.

- Regional Description

In terms of vegetation, the study area falls within the Grassland Biome, Mesic Highveld Grassland Bioregion and the Eastern Highveld Grassland vegetation unit. The Grassland Biome covers approximately 28% of South Africa (Mucina & Rutherfords 2006). This vegetation unit's conservation status is considered to be endangered with a conservation target of 24%. Only a small portion is conserved in statutory and private reserves. Eastern Highveld Grassland consists of the plains between Belfast in the east and the eastern side of Johannesburg in the west and also extends towards Bethal, Ermelo and to the west of Piet Retief. This vegetation type is associated with slightly to moderately undulating planes and includes low hills and pan depressions. The general vegetation is short dense grassland with small, scattered rocky outcrops and some woody species. About 44% of this vegetation unit has been transformed by cultivation, plantations, mines, urbanisation and the building of dams. Although no serious alien invasions are reported, Acacia mearnsii may become dominant in According to Mucina & Rutherfords (2006), the average elevation for Eastern Highveld Grassland ranges from 1520 to 1780 MASL (metres above sea level). The average elevation of the study area is 1634 MASL and is associated with an undulating landscape.

Sensitivities

It is anticipated that due to historical disturbance levels, alien invasive plant species will be present on all sites. A full alien invasive plant survey is thus also recommended, as part of an analysis of the risk of prospecting and potential mining in spreading and/or further establishing such undesirable plants.

Mpumalanga Biodiversity Sector Plan (MBSP) 2014

On the **provincial level**, the **Mpumalanga Biodiversity Sector Plan** (MBSP) is a comprehensive environmental inventory and spatial plan that is intended to guide conservation and land use decisions in support of sustainable development (Lötter & Ferrar, 2006; Lötter 2014; MTPA, 2014). The MBSP maps the distribution of the Province's known biodiversity into several categories. These are ranked according to ecological and biodiversity importance and their contribution to meeting the quantitative targets set for each biodiversity feature. Of relevance to the study area are the following mapping categories (Figure 11 and **Error! Reference source not found.**):

The categories used in the CBA maps are as follows:

- **Protected areas (PAs):** Areas that are already proclaimed under national or provincial legislation, including gazetted biodiversity stewardship sites.
- **Critical Biodiversity Areas (CBAs):** Areas that are required to meet biodiversity targets for species, ecosystems or ecological processes.
- **Ecological Support Areas (ESAs):** Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs and for delivering ecosystem services such as water provision, flood mitigation, or carbon sequestration. In the terrestrial assessment they support landscape connectivity and strengthen resilience to climate change. ESAs need to be maintained in at least a functionaland often natural state, supporting the purpose for which they were identified. They include features such as riparian habitat surrounding rivers or wetlands, corridors etc.
- **Other Natural Areas (ONAs):** Areas that have not been identified as a priority in the current systematic biodiversity plan but retain most of their natural character and perform a range of biodiversity and ecological infrastructural functions. Although they have not been prioritised for biodiversity now, they are still an important part of the natural ecosystem.
- **Moderately or Heavily Modified Areas:** (Sometimes called 'transformed') areas that have been modified by human activity so that they are no longer natural, and do not contribute to biodiversity targets. These areas may still provide limited biodiversity and ecological infrastructural functions, even if they are never prioritised for conservation action. Their biodiversity value has been significantly compromised.

According to the MBSP (2014), the study area contains large extents of the following (Figure 5):

- CBA Irreplaceable Areas on remaining natural areas.

- ESA (and NFEPA) Wetlands (**Error! Reference source not found.**).
- Other Natural Areas.
- Moderately Modified – Old Lands (these are secondary grasslands).
- Heavily Modified Areas (currently under cultivation).

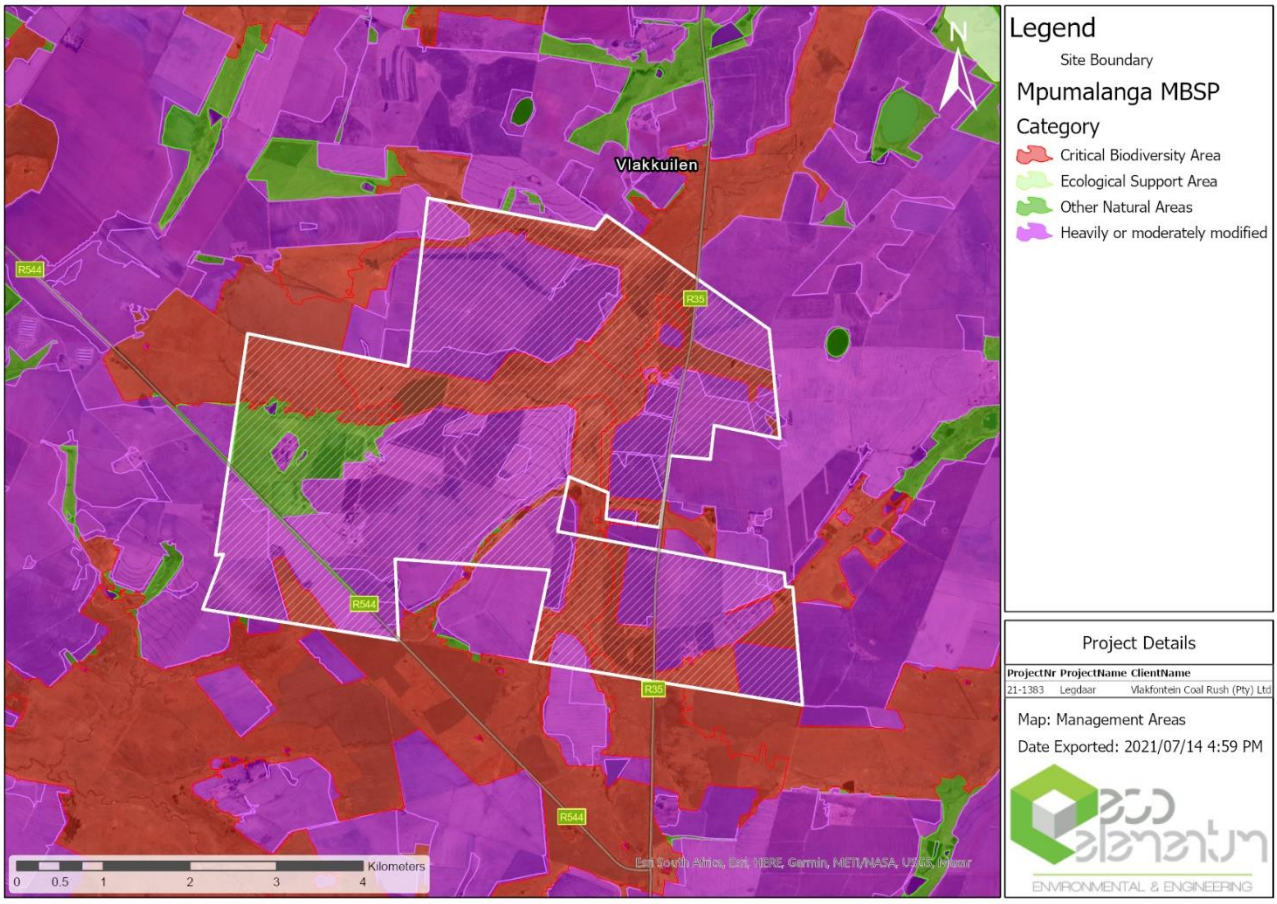

Figure 11: Map of Terrestrial CBA classification of areas in and around the study area.

9.1.6 Aquatic: Wetland and Rivers

The majority of the study area falls within in the B11A quaternary catchment, while the south-western corner falls within the B11C quaternary catchment of the Olifants Water Management Area. The closest perennial rivers to the study area are the Viskuile River 4 km to the northeast and the Steenkoolspruit 3 km to the southwest. A perennial stream also intersects the Remaining Extent of the Portions 4 and 12, while several non-perennial streams are found on the majority of the remaining farm portions. The Rietspruit Dam is located approximately 26 km to the northwest of the study area and the Westdoe Dam 25 km to the southwest. Several minor dams, pans and non-perennial rivers are found within close proximity of the demarcated study area.

9.1.7 Noise

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

- The Noise Receiving Environment

The prevailing ambient noise levels along this proposed road vary between built-up areas with high prevailing ambient noise levels to areas where there are low prevailing ambient noise levels because of the rural type of district of the area. Certain areas with high levels of ambient noise are located in close proximity to existing roads. The prevailing ambient noise levels are made up out of traffic noise,

domestic noise, built-up area noise, industrial type noises and residential type noises. The proposed prospecting right is not a linear type of noise source with only high noise levels during work hours and low noise levels night.

- Current Noise Sources

The prospecting area is located in open veldt and the surrounding land is used for grazing and farming purposes and in this regard livestock, birds and human voices have been identified as the main sources of sound in the prospecting right area. In terms of the broader area, the prospecting area falls within a predominantly well-developed area due to the substantial mining activities.

The ambient noise level is proportional to the type of activity i.e., traffic and industrial type noise far and near field, wind direction, inversion conditions, additional sounds i.e., frogs, animals, insects, etc. present at the time in a specific area. The alleged noise impact on the environment and the residents living in the vicinity of the roads will be investigated.

9.1.8 Cultural and Historical Environment

- Methodology and Data Sources

The cultural and historical information was obtained from the specialist studies conducted for the project including the Archaeological Desktop Report 2021.

- Regional Description

Several buildings and structures dating to historical times appear to exist on the farm portions. However, some of these structures appear to have been demolished, but it is possible that subsurface culturally significant material is still present. Therefore, it is recommended that the areas demarcated as 'Potential Sites' be avoided by the proposed prospecting activities. Other areas to avoid include rocky outcrops, stone cairns, potential burial sites, stone-walling and building ruins. Should this not possible, a qualified archaeologist should be present on-site during prospecting in order to limit potential impact on heritage resources and provide the required input.

- Sensitivity

The general region is significant from a heritage perspective. Heritage sites are likely to include cemeteries / graves, as well as Iron Age, rock paintings and historical sites. Since heritage sites, such as burial sites, are not always clearly identifiable due to disturbed/removed surface features, care must be exercised when prospecting.

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9.1.9 Social and Economic Environment

- Methodology and Data Sources

The Govan Mbeki Local Municipality's Spatial Development Framework (SDF) was obtained from their website (http://www.Govan Mbeki.gov.za/SDF.htm).

- Regional Description

Gert Sibande is one of the 3 districts of Mpumalanga province of South Africa. The seat of Gert Sibande is Ermelo. The majority of its 900 007 people speak IsiZulu. The district code is DC30. On 15 October 2004, the municipality changed its name from the "Eastvaal" to "Gert Sibande" District Municipality. The Govan Mbeki local municipality is predominantly rural in nature with key anchor towns that dominate the urban settlements. According to Stats SA (2016 Community Survey - CS), Govan Mbeki's population increased from 149 377 in 2011 to 164 608 people in 2016 which comprises the 11th largest population in the province and 14.5% of total population of Gert Sibande in 2016. The youth population contributes 41.2% of the total population of Govan Mbeki being the largest group in the population. With the youth population contributing a larger percentage of the population, this is a clear indication that most of the youth are joining the job market implying that the municipality together with sector departments and NGOs must proactively engage in a joint effort to address issues of unemployment, skills development, provision of basic services and housing.

The economy of Govan Mbeki Municipality is predominantly based on coal mining, agriculture, forestry, and timber processing. The municipality is also hosting Eskom's Camden power station which is being fed by surrounding coal mine stretching from Albert Luthuli

Municipality and coal haulage is being transported by road from the different mines. Coal haulage/transportation is also contributing a lot in terms of employment and support of local businesses.

b. Description of the current land uses.

Terrain and Land use

Current Land Uses on the proposed prospecting right area includes:

- Natural Veld;
- Dense stands of alien invasive trees;
- Rivers, streams, pans and dams;
- Dryland agriculture;
- Residential activities (farm dwellings, low density); and
- Infrastructure: roads, powerlines, telecommunication.

Land ownership details within and immediately adjacent to the prospecting right area are provided in Local Authority.

Table 14. This section should be read with reference to Figure 12 which shows affected farms and farms adjacent to the prospecting right area.

The surface rights are mainly owned by private individuals and the Local Authority.

Table 14: Landownership within and immediately adjacent to the Vlakfontein prospecting right area.

Property	Portion	Land owner	
Legdaar 78 IS	2	GROBLER BALTHAZER JOHANNES	Affected Land Owner
Legdaar 78 IS	3	GROBLER BALTHAZER JOHANNES	Affected Land Owner
Legdaar 78 IS	4	GROBLER BALTHAZER JOHANNES	Affected Land Owner
Legdaar 78 IS	10	GROBLER BALTHAZER JOHANNES	Affected Land Owner
Legdaar 78 IS	12	GROBLER BALTHAZER JOHANNES	Affected Land Owner
Legdaar 78 IS	13	GROBLER BALTHAZER JOHANNES	Affected Land Owner
Legdaar 78 IS	14	GROBLER BALTHAZER JOHANNES	Affected Land Owner
Legdaar 78 IS	15	GROBLER BALTHAZER JOHANNES	Affected Land Owner
Legdaar 78 IS	17	GROBLER BALTHAZER JOHANNES	Affected Land Owner
Legdaar 78 IS	19	VOSBREET BOERDERY PTY LTD	Affected Land Owner
Legdaar 78 IS	25	GROBLER BALTHAZER JOHANNES	Affected Land Owner
Legdaar 78 IS	26	GROBLER BALTHAZER JOHANNES	Affected Land Owner
Legdaar 78 IS	29	GROBLER BALTHAZER JOHANNES	Affected Land Owner
Legdaar 78 IS	RE	GROBLER BALTHAZER JOHANNES	Affected Land Owner
Ystervarkfontein 106 IS	RE	YSTERVARKFONTEIN BELEGGINGS PTY LTD	Adjacent Farm
Ystervarkfontein 106 IS	2	GROBLER BALTHAZER JOHANNES	Adjacent Farm

Ystervarkfontein 106 IS	8	GROBLER BALTHAZER JOHANNES	Adjacent Farm
Uitgedacht 299 IS	RE/3	ZELPY 100 PTY LTD	Adjacent Farm
Schurvekop 227 IS	RE	ZELPY 100 PTY LTD	Adjacent Farm
Schurvekop 227 IS	15	MMAKAU COAL PTY LTD	Adjacent Farm
Vlakkuilen 76 IS	RE	ANGLO AMERICAN INYOSI COAL PTY LTD	Adjacent Farm
Rensberghoop 74 IS	9	VOSBREET BOERDERY PTY LTD	Adjacent Farm
Rensberghoop 74 IS	12	VOSBREET BOERDERY PTY LTD	Adjacent Farm
Kafferstad 74 IS	RE	GROBLER BALTHAZER JOHANNES	Adjacent Farm
Kafferstad 74 IS	4	VOSBREET BOERDERY PTY LTD	Adjacent Farm

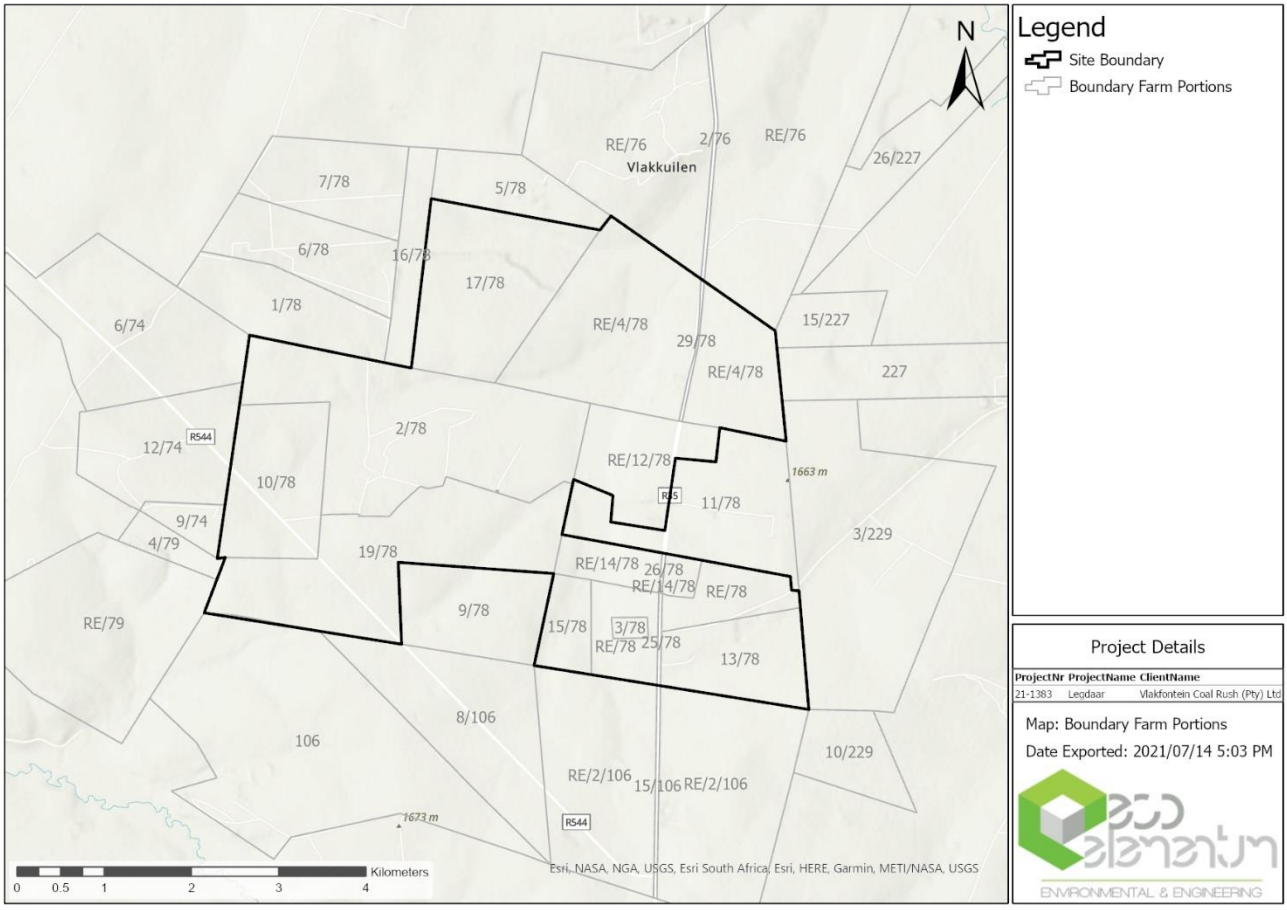

Figure 12: Study farm portions and adjacent farms

An email was sent to the Department of Rural Development and Land Reform to enquire as to the status of land claims on the subject properties. No response thus far.

c. Description of specific environmental features and infrastructure on the site.

The main environmental features would be those associated with the ecology, avi-faunal, ridges, heritage and the surface water bodies see Figure 13. Prospecting will allow for enough flexibility in location to avoid suitable habitats of globally threatened red data avifaunal species, wetlands, rivers, and associated buffer zones (servitudes). If there is a need to conduct activities in any of these areas, then the necessary applications will be sought and approved prior to conducting activities in these areas.

Wetlands and rivers

Although large portions of the prospecting area and surrounds has been modified by cultivation, there are still larger portions of remaining primary vegetation, including riparian and wetland areas(Figure 13). All these habitats should be considered of very high sensitivity. Prospecting activities must aim to avoid wetlands and riparian areas (such would require a WULA), ensuring also that no prospecting-related pollution or runoff from coal-ore seeps into such areas.

Figure 13: Wetlands and Rivers on and near the study area.

d. Environmental and current land use map.

A conceptual map showing topographical information as well as land uses on and immediately surrounding the prospecting site is provided in Figure 14.

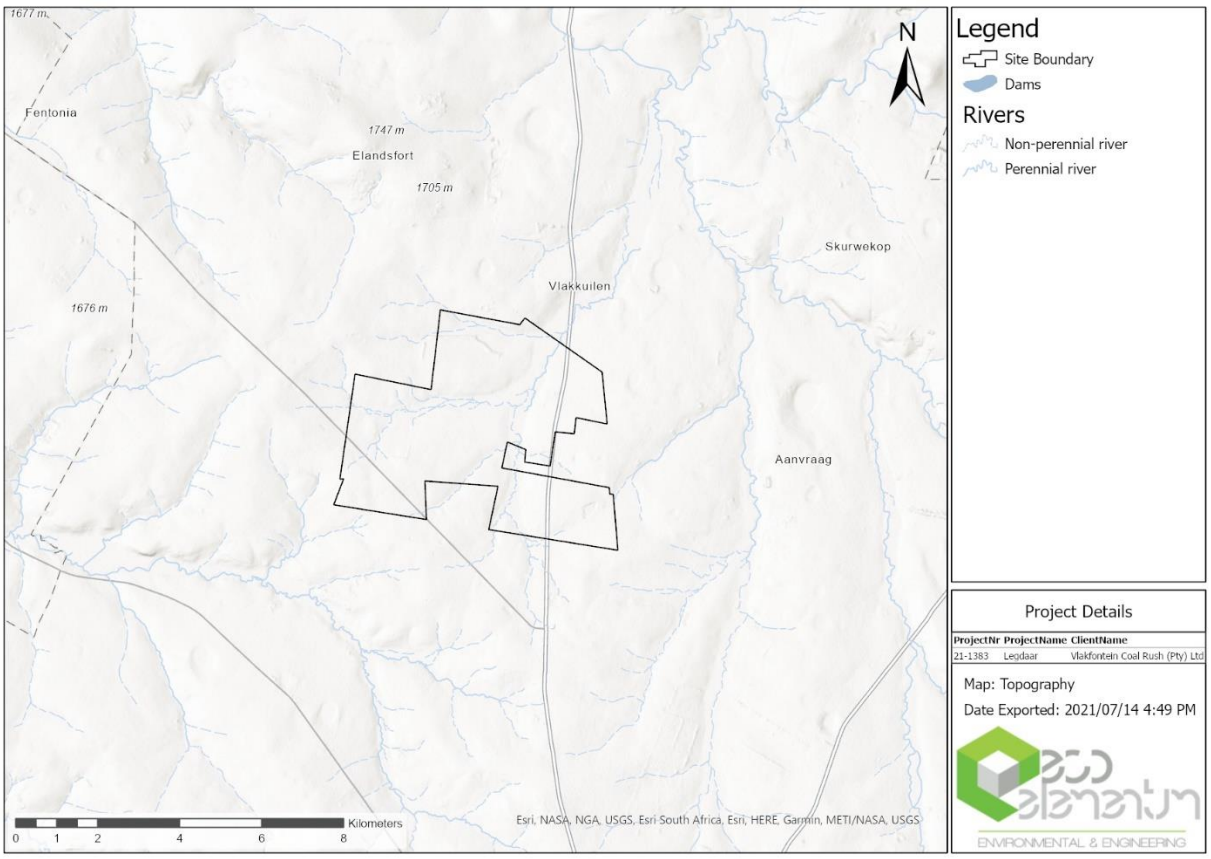

Figure 14: Topography of the prospecting area

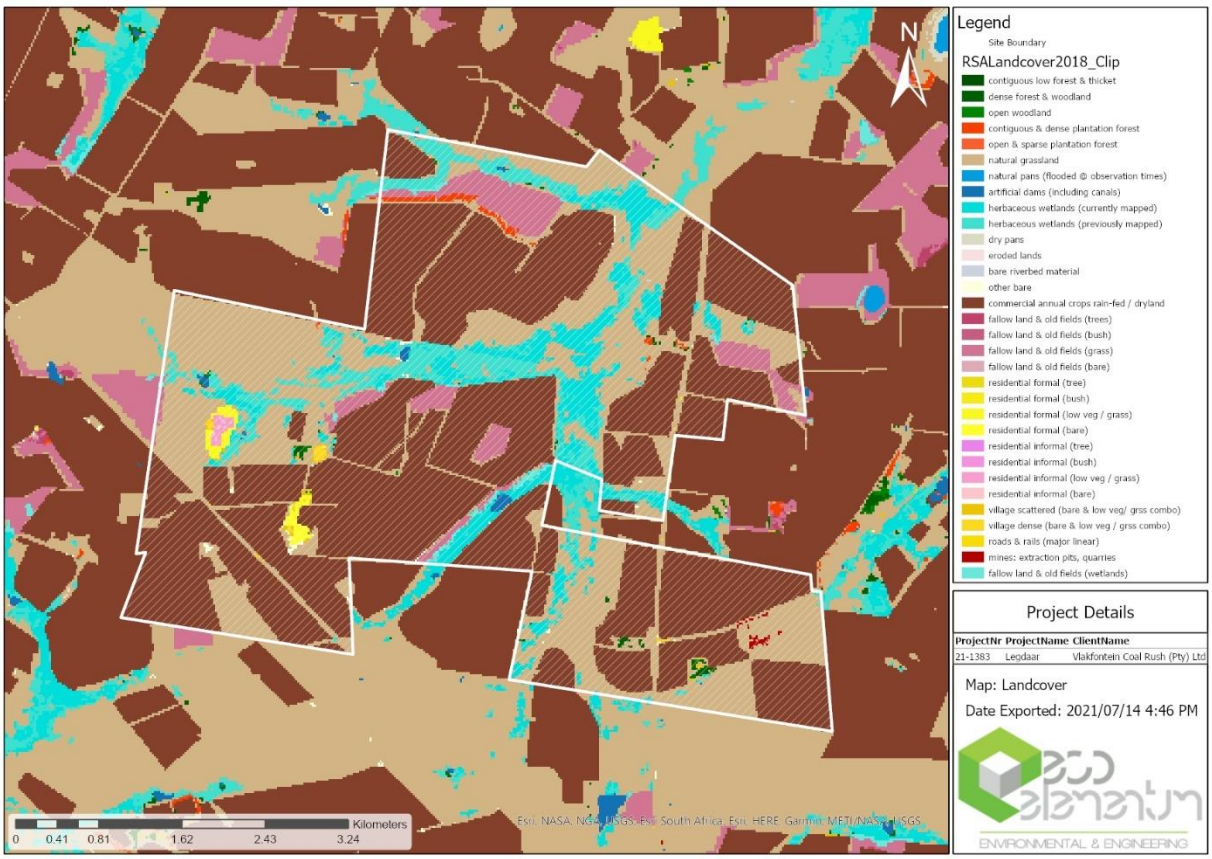

Figure 15: Landcover of the prospecting area

10. ENVIRONMENTAL IMPACTS AND RISKS

ii. Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impact.

Table 15: Impact Assessment Register

ASSESMENT OF IMPACTS AND MITIGATION MEASURES						POTENTIAL IMPACTS (without mitigation)						RESIDUAL IMPACTS (without mitigation)					
A	B	C		D	E	F						G					
Impact	Activity/ Impact Source	Mitigation Measures/ Enhancement Measures	Mitigation Failure Risk	Risk of Mitigation Failure	Impact Status	Intensity (I)	Duration (D)	Frequency (F)	Severity (I+D+F)	Extent	Significance (Consequence + Probability)	Intensity (I)	Duration (D)	Frequency (F)	Severity (I+D+F)	Extent	Significance (Consequence + Probability)
Topography																	
Change in natural topography of the site	Levelling of drilling sites	Stockpile soils removed for rehabilitation. Rehabilitate to original form	1	Low risk	Negative	1	1	1	Neg Low	1	Neg Low	1	0	0	Neg Low	1	Neg Low
Geology																	
Creation of conduits between geological strata	Drilling of borehole	Boreholes to be sealed with concrete	1	Low risk	Negative	1	1	1	Neg Low	1	Neg Low	1	0	0	Neg Low	1	Neg Low
Soils																	
Potential loss of topsoil	Erosion from soil disturbance at drilling sites	Keep the footprint of disturbance as small as practicly possible. Vegetation to be left in place to protect soils where possible. Where vegetation clearance cannot be avoided storm water management measures to be put in place if there is a risk of soil erosion. Erosion protection where cut and fill and levelling of the drill site occurred.	2	Moderate risk	Negative	1	1	2	Neg Low	1	Neg Low	1	1	1	Neg Low	1	Neg Low
Potential loss of soil resource	Erosion from soil disturbance of access roads	Utilize exiting access roads as far as possible. Keep the footprint of disturbance as small as practicbly possible. Access roads to follow slope contours where possible. Vegetation to be left in place at the sides of the road to protect the soils.	1	Low risk	Negative	1	1	2	Neg Low	1	Neg Low	1	1	2	Neg Low	1	Neg Low
Risk of soil contamination	Oil and diesel spills due to inappropriate storage, vehicle maintanence and washing operations	Impermeable liners or surfaces to be provided in areas where hydrocarbons are managed. Diesel storage areas to be bunded and regularly checked. Drip trays to be used when any vehicle maintanence is undertaken. Spill kits to be available at drill sites.	1	Low risk	Negative	1	1	2	Neg Low	1	Neg Low	1	1	2	Neg Low	1	Neg Low
Hydrology (Surface Water)																	
Contamination of surface water	Spillage from fuels, oils and lubricants	Implement measures to protect soils from pollution. Boreholes to be outside of the 1 in 50 year floodline or 100m from the edge of a watercourse whichever is greater.	1	Low Risk	Negative	2	2	1	Neg Low	2	Neg Low	1	1	1	Neg Low	1	Neg Low
	Increase in sediment loads as a result of erosion and heavy rainfall	Implement measures for soil erosion control in accordance with risk assesment. Boreholes to be outside of the 1 in 50 year floodlineor 100m from the edge of a watercourse whichever is greater.	0	No Risk	Negative	2	2	1	Neg Low	2	Neg Low	1	2	1	Neg Low	1	Neg Low
	General and human waste	Contractors may only use designated toilets and waste disposal facilities	1	Low risk	Negative	2	1	2	Neg Low	2	Neg Low	1	1	2	Neg Low	1	Neg Low

Hydrogeology (Groundwater)																	
Contamination of ground water	Seepage of fuels, oils and lubricants	Implement measures to protect soils from pollution. Boreholes to be outside of the 1 in 50 year floodline or 100m from the edge of a watercourse whichever is greater.	1	Low risk	Negative	2	3	1	Neg Moderate	1	Neg Moderate	1	3	1	Neg Low	1	Neg Low
	Cross contamination of aquifers due to borehole construction	Boreholes that will not be used again will be backfilled with cement and sealed.	0	No Risk	Negative	2	2	1	Neg Low	2	Neg Low	2	2	1	Neg Low	2	Neg Low
Noise																	
Increase in ambient noise levels. Disturbance to people and animals	Machinery and drilling operations. Movement of vehicles	Avoid travelling past residences. Speed limit of 40km/h will be enforced. Liaise with landowner on areas sensitive to noise. Provide a buffer of 100m from households. Drilling to take place during daylight hours. Borehole site and access route selection to give cognisance to the location of noise receptors and efforts must be taken to minimise such disturbance.	0	No Risk	Negative	1	1	3	Neg Low	2	Neg Moderate	1	1	3	Neg Low	2	Neg low
Air Quality																	
Release of gaseous emissions	Exhaust fumes from vehicles and machinery related to prospecting activities.	No unnecessary revving of vehicles should take place. No vehicle must stand idling when not in use.	0	No Risk	Negative	1	1	1	Neg Low	1	Neg low	1	1	1	Neg Low	1	Neg Low
Dust fallout and fine particular matter emmisions	Vehicles travelling on gravel roads. Windblown dust from bare surfaces.	Restrict travelling speed of vehicles to reduce vehicle entrainment of dust. Wet gravel roads if dust is found to be excessive.	0	No Risk	Negative	1	1	2	Neg Low	1	Neg Low	1	1	2	Neg Low	1	Neg Low
Land Use and Land Capability																	
Land use conflict	Intrusion due to drilling and prospecting activities in an area where agricultural land uses are prominent	Drilling sites must be selected to minimise disturbance of current land use. Relevant agreements must be in place with land owners to define location and extent of drilling sites and rehabilitation measures that will be undertaken at the end of drilling. Rehabilitation of drill sites and access roads.	2	Moderate risk	Negative	2	3	3	Neg Moderate	2	Neg Moderate	1	1	1	Neg Low	1	Neg Low
Reduction in land capability	Land clearing and transformation	Drilling sites must be selected to minimise disturbance of current land use. Relevant agreements must be in place with land owners to define location and extent of drilling sites and rehabilitation measures that will be undertaken at the end of drilling.	1	Low risk	Negative	1	1	3	Neg Low	1	Neg Low	1	1	3	Neg Low	1	Neg Low

Fauna, Flora and Ecology																	
Removal/ damage of natural vegetation	Establishment of drilling sites and access routes	Site selection aimed at minimising disturbance to natural vegetation - proposed prospecting area is dominated by Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs).	2	High risk	Negative	2	3	2	Neg Moderate	3	Neg Moderate	2	3	2	Neg Moderate	2	Neg Moderate
	Accidental fires	No smoking at the drilling sites. Code of concuct to include measures for the prevention of fires. Emergency equipment and procedures for firefighting to be in place. Adhere to emergency procedures.	2	Moderate risk	Negative	2	3	2	Neg Moderate	2	Neg moderate	2	2	2	Neg Moderate	2	Neg Moderate
Disturbance of suitable habitats of animals	Establishment of drilling sites and access routes	Site selection aimed at minimising disturbance to sensitive animal habitats and breeding areas	2	Moderate risk	Negative	2	3	2	Neg Moderate	3	Neg Moderate	2	3	2	Neg Moderate	2	Neg Moderate
	Movement of drilling contractors	Drilling contractors are only allowed to move within the designated drilling area. Environmental awareness training should include poaching and disturbance of animals	2	Moderate risk	Negative	2	3	2	Neg Moderate	3	Neg Moderate	2	3	2	Neg Moderate	3	Neg Moderate
Sensitive and Protected Areas																	
Degradation and destruction of sensitive biodiversity- Suitable habitat for the globally threatened red data avifaunal species	Establishment of drilling sites and access routes	Site selection by environmental scientists, detailed avifaunal surveys as well as detailed sensitive habitat mapping will have to be conducted for any potential development in the region. GDARD Biodiversity Stewardship Unit & EWT found this specific farms to be of high biodiversity value, as well as vital to the effective provision of ecosystem goods and services in the province. The GBSP intends to proclaim the site as a Protected Environment, which provides a legal mechanism that aims to guide and improve land use management on the properties proclaimed.	3	Moderate risk	Negative	2	3	2	Neg Low	3	Neg Moderate	2	3	2	Neg Moderate	3	Neg Moderate
Heritage Resources																	
Cultural heritage resources may be found within the study area	Drilling of boreholes will damage/ destroy heritage resources in the area	Site selection by environmental scientists aimed at minimising disturbance to heritage resources once the positions have been finalised.	0	No Risk	Negative	3	3	1	Neg Moderate	1	Neg Moderate	1	1	1	Neg Low	1	Neg Low
Economic Development																	
Contribution to the economy	Employment and use of contractors and purchasing of local goods.	Preference to be given to the use of local employment, contractors and local suppliers	0	No Risk	Positive	2	1	1	Pos Low	0	Pos Low	2	1	1	Pos Low	2	Pos Moderate
Creation of nuisance and disturbance to surrounding activities.	Dust and noise from prospecting activities	Implement measures to minimise air quality and noise impacts. Surrounding neighbours and land owners must be allowed to raise issues and complaints associated with prospection activities. Their issues must be addressed properly.	1	Low risk	Negative	2	1	2	Neg Low	1	Neg Low	2	1	2	Neg low	1	Neg Low

Visual and Sence of Place																	
Impact on sence of place due to prospecting activities	Visual intrusion due to drilling and prospecting activities	Implement measures to reduce the visual impacts of prospecting activities, i.e. rehabilitation of drill sites and access roads.	1	Low risk	Negative	1	2	3	Neg Low	2	Neg Moderate	2	1	2	Neg Low	2	Neg Low
Safety and Security																	
Increase in crime	Movement of drilling contractors and influx of workers	Drilling contractors not allowed moving outside of designated areas. Access of personnel related to the prospecting operations will only be allowed on approval by the project manager. All personnel that have access to the property will be provided with access cards. All personnel that have access to the property needs to be made visible.	2	Moderate risk	Negative	2	1	1	Neg Low	3	Neg Moderate	1	1	1	Neg Low	1	Neg Low
	Overnight accomodation of drilling contractors	Drilling contractors to be housed off the drilling property	1	Low risk	Negative	2	1	1	Neg Low	3	Neg Moderate	4	1	1	Neg Moderate	1	Neg Low
Stakeholder Acceptability																	
Prospecting on private property	Prospecting activities.	Comply with the MPRDA and NEMA and implement and comply with the EMP	2	Moderate risk	Negative	2	1	1	Neg Low	3	Neg Moderate	4	1	1	Neg Moderate	3	Neg Moderate
Prospecting is seen as a predecessor to mining and this raises a risk to various environmental impacts	Prospecting activities. Mining right application	An application for a mining right will require a separate public participation process and IAP's will be provided the opportunity to raise their concerns. This report should form part of the feasibility study towards a mining right application to ensure the current information and sensitivities identified in this process is considered.	2	Moderate risk	Negative	2	1	1	Neg Low	3	Neg Moderate	4	1	1	Neg Moderate	3	Neg Moderate

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

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

Criteria of assigning significance to potential impacts

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

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

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

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

Impact Ranking Criteria

The criteria used for assessing the significance of the impacts are given in Table 16. Cognisance was given to both positive and negative impacts that could result from prospecting.

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

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

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

Mitigation Measures

Mitigation measures were identified for significant impacts. The impacts were ranked before and after the implementation of the mitigation measures. Mitigation potential (risk of mitigation failure) was ranked as per the criteria in found in Table 14 below.

Table 16: Rating Criteria

Rating Criteria and Symbol / Short Description					Qualitative Description / Explanation of Rating Criteria
Environmental Impact Description					Description of the direct and indirect effect of human actions and project activities on the environment
Mitigation Measures / Enhancement Measures					Measures designed to avoid, reduce or remedy adverse potential negative impacts. Includes measures to compensate for residual impacts. Measures designed to expand and augment the effect of potential positive impacts.
Project Phase				Planning	Activities, impacts and mitigation measures applicable to the planning (or pre-implementation) phase.
				Construction	Activities, impacts and mitigation measures applicable to the construction phase.
				Operational	Activities, impacts and mitigation measures applicable to the operational (invasive prospecting) phase.
				Rehabilitation and Closure	Activities, impacts and mitigation measures applicable to rehabilitation and closure (includes progressive rehabilitation over time leading up to and including rehabilitation at the end of the life of the project). For this project it also covers activities, impacts and mitigation measures applicable to post-closure.
				Post Closure	Activities, impacts and mitigation measures that would be present after closure. For this project, due to the long life of the project, these are addressed under the Rehabilitation and Closure phase.
Impact Status				Negative	Impacts with a potential negative / adverse effect.
				Neutral	Neutral, no impact.
				Positive	Impacts with a potential positive / beneficial effect.
Consequence (Severity + Scale)	**Severity** (Intensity + Duration + Frequency)	**Intensity (Negative Impacts)**	1	low	Slight change, disturbance or nuisance. Targets, limits and thresholds of concern never exceeded. Impacts are rapidly and easily reversible. Require no or only minor interventions or clean-up actions. No complaints expected when the impact takes place.
			2	moderate	Moderate change, disturbance or discomfort. Real but not substantial. Targets, limits and thresholds of concern may occasionally be exceeded. Impacts are reversible but may require some effort, cost and time. Sporadic complaints can be expected when the impact takes place.
			3	high	Prominent change, disturbance or degradation. Real and substantial. May result in illness or injury. Targets, limits and thresholds of concern regularly exceeded. Regular complaints can be expected when the impact takes place.
			4	very high	Severe change, disturbance or degradation. May result in illness, injury or death. Targets, limits and thresholds of concern continually exceeded. Interest group / community mobilisation against project can be expected when the impact takes place. May result in legal action if impact occurs.
		Intensity (Positive Impacts)	1	low	Slight change or improvement. Minor benefits.
			2	moderate	Moderate change or improvement. Real but not substantial benefits.
			3	high	Prominent change or improvement. Real and substantial benefits. General community support.
			4	very high	Considerable and large-scale change or improvement. Real and considerable benefit. Widespread support.

Rating Criteria and Symbol / Short Description			Qualitative Description / Explanation of Rating Criteria
Duration			Refers to the total length of time (i.e. number of years) that the impact would or the impact source or risk will be present.
	1	low	Short-term. May occur for hours and are rapidly reversible.
	2	moderate	Medium-term. May occur for a couple of days. Impacts reversible within a three day period.
	3	high	Long-term. May occur throughout the life of the project, but will cease after operations ceases either because of natural processes or human intervention.
	4	very high	Permanent and irreversible. Residual impacts will remain after rehabilitation.
Frequency			Refers to the time intervals and how often (i.e. number of days per year) the impact would manifest over the entire duration of the impact.
	1	low	Seldom. Impact would be intermitted (occurs 0-10 % of the time).
	2	moderate	Occasional. Impact would occur now and again (occurs 10-25% of the time).
	3	high	Often (occurs >50% of the time).
	4	very high	Continuous. Impact would occur all the time (occurs 100% of the time).
Scale	0	none	None. Impact will not occur anywhere.
	1	low	Site impact. No effect beyond the prospecting site. Small area. No sensitive receptors outside prospecting area affected.
	2	moderate	Local. Seldom occurs beyond prospecting site. May affect immediate neighbours, never nearby townships. Small area or small number of sensitive receptors affected.
	3	high	Regional. Widespread impact. Extends beyond the prospecting boundary. Affects nearby townships. Large area or large numbers of sensitive receptors affected.
	4	very high	Local or regional impact. Impacts over a vast area or over vast numbers of sensitive receptors.
Probability	0	none	Never (0 % likelihood).
	1	low	Conceivable. Will only happen in exceptional circumstances (<10 % likelihood).
	2	moderate	Plausible. Could happen and has occurred here or elsewhere (11-40 % likelihood).
	3	high	Probable (>40-80 % likelihood).
	4	very high	Expected. Highly likely to happen (>80 % likelihood).
Significance (Consequence + Probability)	Neg Very High		Widespread negative effect. Negative impact that is of the highest order. Potential fatal flaw.
	Neg High		Substantial negative impact.
	Neg Moderate		Negative impact that is real but not substantial.
	Neg Low		Low to negligible negative impact with little real effect.
	Pos Low		Low to insignificant positive impact.
	Pos Moderate		Positive impact that is real but not substantial.
	Pos High		Substantial positive impact.
	Pos Very High		Widespread / substantial beneficial effect. An alternative means to achieve the same benefits not possible.
Precautionary Weighting (Value Judgement) (Negative Impacts)	Used when there is a potential understatement of the significance of a negative impact to increase the significance rating.		
	0	none	No weighting required. Significance rating is a true reflection of the potential effect of the impact.

Rating Criteria and Symbol / Short Description				Qualitative Description / Explanation of Rating Criteria
		1	low	There may be a slight understatement of the significance of the impact. Impact significance adapted to be slightly higher.
		2	moderate	There may be a moderate understatement of the significance of the impact. Impact significance adapted to be higher.
		3	high	The impact significance rating is highly understated. Impact significance adapted to be higher.
		4	very high	The impact significance rating is severely understated. Impact significance adapted to be higher.
	(Positive Impacts)	Used when there is a potential overstatement of the significance of a positive impact to reduce the significance rating.		
		0	none	No weighting required. Significance rating is a true reflection of the potential effect of the impact.
		1	low	There may be a slight understatement of the significance of the impact. Impact significance adapted to be lower.
		2	moderate	There may be a moderate understatement of the significance of the impact. Impact significance adapted to be lower.
		3	high	The impact significance rating is highly understated. Impact significance adapted to be lower.
		4	very high	The impact significance rating is severely understated. Impact significance adapted to be lower.
Risk of Mitigation Failure		The likelihood of mitigation failure rated based on: - research and technology, - timing, and thus secondary potential of outside influences occurring over time (i.e. climate change, political instability, inter/national economic instability).- financial considerations,- skills and labour availability and potential for human error.		
		0	Very Low Risk	Less than 10% likelihood that mitigation measures could fail. Mitigation implemented quickly, mitigation easy to implement, proven technology used, no special labour skills required.
		1	Low Risk	10-30% likelihood that mitigation measures could fail.
		2	Moderate Risk	30 to 60% likelihood that mitigation measures could fail.
		3	High Risk	60 to 80% likelihood that mitigation measures could fail.
		4	Very High Risk	>80% likelihood that mitigation measures could fail. May need research and new technologies to be developed, and/or may have to take place over many years after closure, and/or may involve exorbitant/prohibitive expenses to implement successfully, and/or may require highly skilled personnel with special training, and/or have a high risk of human error during the execution of the mitigation.
IAP Interest		Neg Very High		Widespread concern and/or concerns of very high importance. Concerns difficult to be addressed to satisfaction of authorities or concerned parties. Appeals against project anticipated if not addressed.
		Neg High		Several concerns and/or concerns of high importance. Real and substantial.
		Neg Moderate		Limited concerns. All concerns addressed. Real but not substantial.
		Neg Low		Very minor or minor concerns.
		Neutral		No interest.
		Not defined		Level of interest has not been tested.
		Pos Low		Very little support for project.
		Pos Moderate		Limited support for project.
		Pos High		General support. May be associated with high community expectations.

Rating Criteria and Symbol / Short Description				Qualitative Description / Explanation of Rating Criteria
		Pos Very High		Widespread support. May be associated with extremely high community expectations.
		Diverse Low		Minor interest. Some support. Some concerns.
		Diverse Moderate		Limited interest. Some support. Some concerns.
		Diverse High		General interest. Some support. Some concerns.
		Diverse Very High		Widespread interest. Some support. Some concerns.
Assessment Confidence		Complete		No information gaps exist. Decision-making can go ahead.
		Adequate		Minor information deficiencies exist but this does not affect decision-making. Decision-making can still go ahead.
		Incomplete		Not enough information for decision-making. Current data to be supplemented with further monitoring or research.
Impact Rating Methodology	Weighting	Formula	Example	Rating Criteria
	1.0	I	1.0	Intensity (I)
	1.0	D	1.0	Duration (D)
	1.0	F	1.0	Frequency (F)
	1.0	S=(I+D+F)/3	1.0	Severity (S)(Intensity + Duration + Frequency)
	1.0	E	4.0	Scale (Extent) (E)
	1.0	C=(S+E)/2	2.5	Consequence (Severity + Extent) (C)
	0.5	P	3.0	Probability (P) WEIGHING OF 0.5 USED TO INCREASE THE CONSERVANCY OF THE ASSESSMENT
		S1=(C+P)/2	2.7	Significance (S1) (Consequence + Probability)
		W	0.0	Precautionary Weighting (W)
		S2=(S+W)	2.7	Significance with Precautionary Weighting (S2)
Impact Rating		Formula	Level	Level
		<=	-3.6	Neg Very High
		<=	-3.0	Neg High
		<=	-2.0	Neg Moderate
		<	0.0	Neg Low
		>	0.0	Pos Low
		>=	2.0	Pos Moderate
		>=	3.0	Pos High
		>=	3.6	Pos Very High

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

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

The potential impacts of drilling, if it is determined that additional drilling is required on site, will be similar regardless of the exact drill location(s), considering the constraints imposed on site selection, including:

- No prospecting or associated activities (camp establishment, access tracks etc.) may occur within 500 m of any identified wetland on site. Prior to activities commencing, a registered ecologist must undertake a screening of the area to confirm the absence of wetlands and protected species in the area that will be affected, and a 500 m radius of that area.
- No prospecting activities (drilling, disposal of drill muds etc.) may occur within 100 m of any river, private road not owned by the applicant, powerline, private residence, or infrastructure existing on the site, without the express and written consent of the owner.
- of that infrastructure.

The advantages of imposing these constraints on drill site selection include:

- Avoidance of damage to sensitive environmental features that may be present on site, including avoidance of edge effects from on-site activities impacting surrounding water resources; and
- Avoidance of unnecessary public disturbance (noise, visual impacts) and damage to infrastructure.

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

This is the Draft Basic Assessment Report and affected parties have not yet had a chance to comment on the report. The report was updated with comments received from affected parties before being submitted to the DMR for decision-making. Therefore, the following mitigation can be implemented for sections of the proposed properties falling within the important areas. The following environmental management/mitigation plans can be followed if requested:

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

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

vi. Statement motivating the alternative development location within the overall site. (Provide a statement motivating the final site layout that is proposed)

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

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

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

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

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

11.1 ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK

(This section of the report must consider all the known typical impacts of each of the activities (including those that could or should have been identified by knowledgeable persons) and not only those that were raised by registered interested and affected parties).

Table 17: Impact Assessment Table with Mitigation

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

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

ASSESMENT OF IMPACTS AND MITIGATION MEASURES					POTENTIAL IMPACTS (without mitigation)	RESIDUAL IMPACTS (with mitigation)
Activity	**Potential impact**	**Affected Aspects**	**Phase**	**Mitigation Measures / Enhancement Measures**	**Significance (Consequence + Probability)**	**Significance (Consequence + Probability)**
Seepage of fuels, oils, and lubricants.	Contamination of groundwater.	Groundwater	Construction, Operation and Closure.	Implement measures to protect soils from pollution. Boreholes to be outside of the 1 in 50-year flood line or 100 m from the edge of a watercourse, whichever is greater.	Neg Low	Neg Low
Cross contamination of aquifers due to borehole construction.		Groundwater	Operation and Closure.	Boreholes that will not be used again will be backfilled with cement and sealed.	Neg Low	Neg Low

Noise						
Machinery and drilling operations. Movement of vehicles.	Increase in ambient noise levels. Disturbance to people and animals.	Noise	Construction, Operation and Closure.	Avoid travelling past residences. Speed limit of 40 km/h will be enforced. Liaise with landowner on areas sensitive to noise. Provide a buffer of 100 m from households. Drilling to take place during daylight hours. Borehole site and access route selection to give cognisance to the location of noise receptors and efforts must be taken to minimise such disturbance.	Neg Moderate	Neg Low
Air Quality						
Exhaust fumes from vehicles and machinery related to prospecting activities.	Release of gaseous emissions	Air Quality	Construction, Operation and Closure	No unnecessary revving of vehicles should take place. No vehicles must stand idling when not in use.	Neg Low	Neg Low
Vehicles travelling on gravel roads	Dust fallout and fine particular matter emissions	Air Quality	Construction, Operation and Closure	Restrict traveling speed of vehicles to reduce vehicle entrainment of dust. Wet gravel roads if dust is found to be excessive.	Neg Low	Neg Low
Land use and Land Capability						
Intrusion due to drilling and prospecting activities in an area where agricultural land uses are prominent	Land use conflict	Land use	Construction & Operation	Drilling sites must be selected to minimise disturbance of current land use. Relevant agreements must be in place with landowners to define location and extent of drilling sites and rehabilitation measures that will be undertaken at the end of drilling.	Neg Moderate	Neg Low
Land clearing and transformation.	Reduction in land capability	Land use	Construction		Neg Low	Neg Low

Fauna, Flora and Ecology						
Establishment of drilling sites and access routes.	Removal / damage of natural vegetation	Fauna, Flora and avifaunal.	Construction	Site selection aimed at minimising disturbance to natural vegetation - According to the MBSP (2014), the study area contains large extents of the CBA Irreplaceable Areas on remaining natural areas, ESA (and NFEPA) Wetlands, Other Natural Areas, Moderately Modified – Old Lands (these are secondary grasslands), Heavily Modified Areas (currently under cultivation	Neg Moderate	Neg Moderate
Accidental fires.		Fauna, Flora and avifaunal	Construction, Operation and Closure	• No smoking at drilling sites. • Code of conduct to include measures for the prevention of fires. • Emergency equipment and procedures for firefighting to be in place. • Adhere to emergency procedures.	Neg Moderate	Neg Moderate
Establishment of drilling sites and access routes.	Disturbance/ poaching of animals.	Fauna, Flora and avifaunal	Construction	Site selection aimed at minimising disturbance to sensitive animal habitats and breeding areas.	Neg Moderate	Neg Moderate
Movement of drilling contractors.		Fauna, Flora and avifaunal	Construction, Operation and Closure	Drilling contractors are only allowed to move within the designated drilling area. Environmental awareness training should include poaching and disturbance of animals.	Neg Moderate	Neg Moderate
Sensitive and Protected Areas						
Establishment of drilling sites and access routes.	Degradation and destruction of sensitive biodiversity- Suitable habitat for globally threatened red data avifaunal species.	Biodiversity	Construction, Operation and Closure	Site selection by environmental scientists, detailed avifaunal surveys as well as detailed sensitive habitat mapping will be conducted for any potential development in the region.	Neg Moderate	Neg Moderate
Heritage Resources						
Drilling of boreholes will damage / destroy heritage resources in the area.	Cultural heritage resources may be found within the study area.	Heritage Resources	Construction and Operation	Site selection by environmental scientists are aimed at minimising disturbance to natural vegetation once positions have been finalised.	Neg Moderate	Neg Low

Economic Development						
Employment and use of contractors and purchasing goods.	Contribution to the economy.	Economic Development	Construction and Operation	Preference to be given to the use of local employment, contractors, and local suppliers.	Pos Low	Pos Moderate
Dust and noise from prospecting activities.	Creation of nuisance and disturbance to surrounding activities.	Economic Development	Construction, Operation and Closure	Implement measures to minimise air quality and noise impacts. Surrounding neighbours and landowners must be allowed to raise issues and complaints associated with prospecting activities. Their issues must be addressed promptly.	Neg Low	Neg Low
Visual and Sense of Place						
Visual intrusion due to drilling and prospecting activities.	Loss of sense of place due to prospecting activities	Visual and Sense of Place	Construction and Operation	Implement measures to reduce the visual impacts of prospecting activities, i.e., rehabilitation of drill sites and access roads.	Neg Moderate	Neg Low
Safety and Security						
Movement of drilling contractors and influx of workers.	Increase in crime.	Safety and Security.	Construction and Operation.	• Drilling contractors not allowed moving outside of designated areas. • Access of personnel related to the prospecting operations will only be allowed on approval by the project manager. • All personnel that have access to the property will be provided with access cards. • All personnel that have access to the property needs to be made visible.	Neg Moderate	Neg Low
Overnight accommodation of drilling contractors.		Safety and Security	Construction, Operation and Closure.	Drilling contractors to be housed off the drilling property.	Neg Moderate	Neg Low
Stakeholder Acceptability						
Prospecting activities is a predecessor to mining.	Prospecting on private property.	Stakeholder Acceptability.	Construction, Operation and Closure.	Comply with the MPRDA & NEMA Implement and Comply with the EMP.	Neg Moderate	Neg Low

Prospecting activities is a predecessor to mining.	Prospecting seen as a predecessor to mining and this raises a risk to various environmental impacts.	Stakeholder Acceptability.	Construction, Operation and Closure	An application for a mining right will require a separate public participation process and IAP's will be provided with the opportunity to raise their concerns.	Neg Moderate	Neg Moderate

11.2 SUMMARY OF SPECIALIST REPORTS.

(This summary must be completed if any specialist reports informed the impact assessment and final site layout process and must be in the following tabular form):-Various specialist studies were undertaken due to the prospecting right application and the identified Avi-faunal sensitive species and water sources of the proposed site. The project team consists of qualified environmental assessment practitioners that have sufficient experience to inform the report on potential impacts and the baseline environment. The EAP also considered the temporary nature and limited footprint of the proposed project prospecting sites.

A preliminary desktop study was conducted to focus on topology, surface water, wetlands, soils, land capability, noise, socio-economic and habitat availability for species of vegetation, mammals, avifauna (birds), reptiles and amphibians of the study area. The data was supplemented by previous surveys conducted in the area, literature investigations, personal records, and historic data.

Heritage desktop study

A total of 16 sites consisting of 14 buildings and 2 graves were noted on historical topographical maps and aerial imagery (Table 2). Based on contemporary satellite imagery, four of these sites are associated with surface remains, while 10 appear to have been demolished as no surface remains are visible on satellite imagery. Although no surface remains are evident, subsurface culturally significant material might still be present. Two of the demolished sites appear not to exceed 60 years of age and are therefore not considered significant form a heritage perspective. The remaining identified sites, consisting of graves, demolished and intact buildings, should be avoided by the proposed prospecting activities. The 500 m River Buffer area is also considered potentially sensitive from a heritage perspective and care should be exercised when prospecting within the area. A full Phase 1 AIA (Archaeological Impact Assessment) must be done should any development that triggers an AIA result from the prospecting project, including if the cumulative impact of the proposed prospecting exceeds 0.5 ha.

Sixteen potential sites were identified on the historical aerial images and topographical maps: Two sites on Portion 2, three sites on the Remaining Extent of Portion 4, two sites on Portion 10, one site on the Remaining Extent of Portion 12, four sites on Portion 13, one site on Portion 15 and three sites on the Remaining Extent of the Farm Legdaar 78 IS. A total of 14 sites associated with buildings and two graves were noted. The status of the graves is unknown, while four sites are associated with intact buildings as observed on contemporary satellite imagery. The remaining 10 sites appear to have been demolished as no surface features are noted on contemporary satellite imagery, but might be associated with subsurface culturally significant remains. It is also unknown whether the sites associated with intact buildings have been demolished and replaced by modern buildings. Should any parts of the sites observed on the 1954 aerial image still exist, it would be at least 67 years old and would therefore be protected by the NHRA (National Heritage Resources Act) 25 of 1999. The buildings identified on the 1967 aerial image are not indicated on the 1964 topographical map, appear not to exceed 60 years of age and are therefore not considered significant from a heritage perspective. Additionally, the possibility exists that other buildings were constructed between 1954 and 1961, but were demolished before 1964 and are therefore not shown on the topographical maps and aerial imagery.

Ecological desktop study

Specialist report is being conducted and will be made available as soon as possible.

12. ENVIRONMENTAL IMPACT STATEMENT

12.1 SUMMARY OF THE KEY FINDINGS OF THE ENVIRONMENTAL IMPACT ASSESSMENT

The environmental impacts associated with the proposed project are largely **low**, **moderate** with high impacts anticipated. The most significant impacts are:

Table 18: Summary of key findings

IMPACT	SIGNIFICANCE – WITHOUT MITIGATION	SIGNIFICANCE – WITH MITIGATION	COMMENT	MITIGATION
Negatively affecting the Ecological Support Areas (ESAs)	Moderate	Negative low	According to the MBSP (2014), the study area contains extents of the CBA. Heavily or moderately Irreplaceable Areas on remaining natural areas, ESA (and NFEPA) Wetlands, Other Natural Areas, Moderately Modified – Old Lands (these are secondary grasslands), Heavily Modified Areas (currently under cultivation	A full alien invasive plant survey is thus also recommended, as part of an analysis of the risk of prospecting and potential mining in spreading and/or further establishing such undesirable plants.
Negatively affecting sensitive bird species and the Biodiversity in the area.	Moderate	Negative Low	Apart from those listed, a greater diversity of fauna is expected to be resident on or frequent the study areas, especially due to the presence of rivers and diverse rocky niches.	A full alien invasive plant survey is thus also recommended, as part of an analysis of the risk of prospecting and potential mining in spreading and/or further establishing such undesirable plants.
Negatively affecting the Heritage sites.	Moderate	Negative Low	Several kraals, huts, LIA sites and other buildings dating to historical times appear to exist on the farm portions.	The areas demarcated as 'Potential Sites' areas must be avoided by the proposed prospecting activities due to the potential presence of surface/subsurface culturally. significant material. Should this not be possible, a qualified archaeologist should be present on-site during prospecting in order to limit potential impact on heritage resources and provide the required input.
Negatively affecting the surface water quality.	Moderate	Negative Low	The majority of the study area falls within in the B11A quaternary catchment, while the south-western corner falls within the B11C quaternary catchment of the Olifants Water Management Area. The closest perennial rivers to the study area are the Viskuile River 4 km to the northeast and the Steenkoolspruit 3 km to the	Prospecting activities must aim to avoid wetlands and riparian areas (such would require a WULA), ensuring also that no prospecting-related pollution or runoff from coal-ore seeps into such areas.

			southwest. A perennial stream also intersects the Remaining Extent of the Portions 4 and 12, while several non-perennial streams are found on the majority of the remaining farm portions. The Rietspruit Dam is located approximately 26 km to the northwest of the study area and the Westdoe Dam 25 km to the southwest. Several minor dams, pans and non-perennial rivers are found within close proximity of the demarcated study area.	
Conflicting land uses (agriculture and prospecting).	Moderate	Negative Low		- Prospecting will be planned to take place outside of farming activities where possible. - where not possible compensation will be discussed and agreed with the affected party. - rehabilitation will consider further use of the land.

The nature of prospecting involves invasive drilling of sites not exceeding 64 m^2. The drill sites are not fixed and can be relocated by 1-50 meters. Due to the flexibility of the drill sites and small size the key mitigation is to approve each site on environmental factors by a competent environmental officer. Each active site will be rehabilitated to its natural status before sampling and trenching. The success of the proposed mitigation is high.

i) Final Site Map

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

12.2 PLEASE REFER TO THE CONCEPTUAL MASTER PLAN

ii) Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.

Table 19: Impact Assessment summary

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

Oil and diesel spills due to inappropriate storage, vehicle maintenance and washing operations.	Risk of soil contamination.	Soils	Construction, Operation and Closure.	Impermeable liners or surfaces to be provided in areas where hydrocarbons are managed. Diesel storage areas to be bunded and regularly checked. Drip trays to be used when any vehicle maintenance is undertaken. Spill kits to be available at drill sites.	Neg Low	Neg Low
Hydrology (Surface Water)						
Spillage from fuels, oils, and lubricants.	Contamination of surface water.	Surface Water	Construction, Operation and Closure	Implement measures to protect soils from pollution. Boreholes to be outside of the 1 in 50-year floodline or 100 m from the edge of a watercourse, whichever is greater.	Neg Low	Neg Low
Increase in sediment loads as a result of erosion and heavy rainfall.		Surface Water	Construction, Operation and Closure.	Implement measures for soil erosion control in accordance with risk assessment. Boreholes to be outside of the 1 in 50-year floodline or 100 m from the edge of a watercourse, whichever is greater.	Neg Low	Neg Low
General and Human Waste.		Surface Water	Construction, Operation and Closure.	Contractors may only use designated toilets and waste disposal facilities.	Neg Low	Neg Low
Hydrogeology (Groundwater)						
Seepage of fuels, oils, and lubricants.	Contamination of groundwater.	Groundwater	Construction, Operation and Closure.	Implement measures to protect soils from pollution. Boreholes to be outside of the 1 in 50-year flood line or 100 m from the edge of a watercourse, whichever is greater.	Neg Low	Neg Low
Cross contamination of aquifers due to borehole construction.		Groundwater	Operation & Closure.	Boreholes that will not be used again will be backfilled with cement and sealed.	Neg Low	Neg Low

Noise						
Machinery and drilling operations. Movement of vehicles.	Increase in ambient noise levels. Disturbance to people and animals.	Noise	Construction, Operation and Closure	Avoid travelling past residences. Speed limit of 40 km/h will be enforced. Liaise with landowner on areas sensitive to noise. Provide a buffer of 100 m from households. Drilling to take place during daylight hours. Borehole site and access route selection to give cognisance to the location of noise receptors and efforts must be taken to minimise such disturbance.	Neg Moderate	Neg Low
Air Quality						
Exhaust fumes from vehicles and machinery related to prospecting activities.	Release of gaseous emissions.	Air Quality	Construction, Operation and Closure.	No unnecessary revving of vehicles should take place. No vehicles must stand idling when not in use.	Neg Low	Neg Low
Vehicles travelling on gravel roads.	Dust fallout and fine particular matter emissions.	Air Quality	Construction, Operation and Closure.	Restrict traveling speed of vehicles to reduce vehicle entrainment of dust. Wet gravel roads if dust is found to be excessive.	Neg Low	Neg Low
Land use and Land Capability						
Intrusion due to drilling and prospecting activities in an area where agricultural land uses are prominent.	Land use conflict.	Land use	Construction & Operation.	Drilling sites must be selected to minimise disturbance of current land use. Relevant agreements must be in place with landowners to define location and extent of drilling sites and rehabilitation measures that will be undertaken at the end of drilling.	Neg Moderate	Neg Low
Land clearing and transformation.	Reduction in land capability.	Land use	Construction		Neg Low	Neg Low

Fauna, Flora and Ecology						
Establishment of drilling sites and access routes.	Removal/ damage of natural vegetation.	Fauna, Flora and Ecology.	Construction	Site selection aimed at minimising disturbance to natural vegetation - According to the MBSP (2014), the study area contains large extents of the CBA Irreplaceable Areas on remaining natural areas, ESA (and NFEPA) Wetlands, Other Natural Areas, Moderately Modified – Old Lands (these are secondary grasslands), Heavily Modified Areas (currently under cultivation.	Neg Moderate	Neg Moderate
Accidental fires		Fauna, Flora and Ecology.	Construction, Operation and Closure.	No smoking at drilling sites. Code of conduct to include measures for the prevention of fires. Emergency equipment and procedures for firefighting to be in place. Adhere to emergency procedures.	Neg Moderate	Neg Moderate
Establishment of drilling sites and access routes.	Disturbance / poaching of animals.	Fauna, Flora and Ecology	Construction	Site selection aimed at minimising disturbance to sensitive animal habitats and breeding areas.	Neg Moderate	Neg Moderate
Movement of drilling contractors.		Fauna, Flora and Ecology	Construction, Operation and Closure.	Drilling contractors are only allowed to move within the designated drilling area. Environmental awareness training should include poaching and disturbance of animals.	Neg Moderate	Neg Moderate
Sensitive and Protected Areas						
Establishment of drilling sites and access routes	Degradation and destruction of sensitive biodiversity- Suitable habitat for the globally threatened red data avifaunal species	Biodiversity	Construction, Operation and Closure	Site selection by environmental scientists, detailed avifaunal surveys as well as detailed sensitive habitat mapping will have to be conducted for any potential development in the region	Neg Moderate	Neg Moderate
Heritage Resources						
Drilling of boreholes will damage / destroy heritage resources in the area.	Cultural heritage resources may be found within the study area.	Heritage Resources	Construction and Operation	Site selection by environmental scientists are aimed at minimising disturbance to natural vegetation once the positions have been finalised.	Neg Moderate	Neg Low

Economic Development						
Employment and use of contractors and purchasing goods.	Contribution to the economy.	Economic Developmen.t	Construction and Operation	Preference to be given to the use of local employment, contractors, and local suppliers.	Pos Low	Pos Moderate
Dust and noise from prospecting activities.	Creation of nuisance and disturbance to surrounding activities.	Economic Development	Construction, Operation and Closure	Implement measures to minimise air quality and noise impacts. Surrounding neighbours and landowners must be allowed to raise issues and complaints associated with prospecting activities. Their issues must be addressed promptly.	Neg Low	Neg Low
Visual and Sense of Place						
Visual intrusion due to drilling and prospecting activities.	Loss of sense of place due to prospecting activities.	Visual and Sense of Place.	Construction and Operation.	Implement measures to reduce the visual impacts of prospecting activities, i.e., rehabilitation of drill sites and access roads.	Neg Moderate	Neg Low
Safety and Security						
Movement of drilling contractors and influx of workers.	Increase in crime.	Safety and Security.	Construction and Operation.	Drilling contractors not allowed moving outside of designated areas. Access of personnel related to the prospecting operations will only be allowed on approval by the project manager. All personnel that have access to the property will be provided with access cards. All personnel that have access to the property needs to be made visible.	Neg Moderate	Neg Low
Overnight accommodation of drilling contractors.		Safety and Security.	Construction, Operation and Closure.	Drilling contractors to be housed off the drilling property.	Neg Moderate	Neg Low
Stakeholder Acceptability						
Prospecting activities is a predecessor to mining.	Prospecting on private property.	Stakeholder Acceptability.	Construction, Operation and Closure.	Comply with the MPRDA & NEMA Implement and Comply with the EMP.	Neg Moderate	Neg Low

Prospecting activities is a predecessor to mining.	Prospecting seen as a predecessor to mining and this raises a risk to various environmental impacts.	Stakeholder Acceptability.	Construction, Operation and Closure.	An application for a mining right will require a separate public participation process and IAP's will be provided with the opportunity to raise their concerns.	Neg Moderate	Neg Moderate

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

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

13. PROPOSED IMPACT MANAGEMENT OBJECTIVES AND THE IMPACT MANAGEMENT OUTCOMES FOR INCLUSION IN THE EMPR

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

The objectives of impact mitigation and management are to:

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

Environmental impact management outcomes are:

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

14. ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION.

Any aspects which must be made conditions of the Environmental Authorisation

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

15. DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

(Which relate to the assessment and mitigation measures proposed)

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

- Activities must remain outside all wetland areas until authorisation has been obtained under NEMA and NWA.
- Specialist opinions and recommendations are based on high level studies.

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

16.1 REASONS WHY THE ACTIVITY SHOULD BE AUTHORIZED OR NOT.

- Approval of the project and granting of the prospecting right to the applicant will result in security of tenure to the Applicant and enable the Applicant to further investigate the feasibility of developing the coal resource on the Property. Non-invasive prospecting (desktop review of previous prospecting results) will have no environmental impact. If additional drilling is required on the site to confirm or supplement previous prospecting results, the resultant environmental impacts can be managed to acceptable levels.
- The risks of the remaining proposed prospecting activity are minimal and can be easily mitigated by following the mitigation measures stipulated in the EMPr, which will reduce impacts significantly to acceptable levels which will easily recover.
- The EAP takes note of the nearby wetlands that occur on site and realises that should prospecting identify viable coal resources that mining could have a detrimental effect on these sensitive areas. However, the EAP is of the decision that the nature and sensitivity of the area and the method of mining should be re-evaluated should a Mining Right be applied for, as prospecting at this stage will not have a significant impact.

16.2 CONDITIONS THAT MUST BE INCLUDED IN THE AUTHORISATION

- The awarding of the prospecting right to the Applicant should be conditional to the implementation of the EMPr commitments and management measures contained in this report.
- A full alien invasive plant survey is thus also recommended, as part of an analysis of the risk of prospecting and potential mining in spreading and/or further establishing such undesirable plants.
- A detailed terrestrial ecological assessment will be required when the drilling locations are identified and before any construction or operations may occur.
- Heritage sites and 50 m buffer zones will be preserved at all times unless the necessary permits are obtained under SAHRA.
- No activity is to occur within 100 m of any road servitude, wetlands, and their 100 m buffer zones, within rivers and their 100 m buffer zone / 1:100-year flood line without the necessary authorisation under NEMA and NWA.
- Planning before carrying out prospecting activities in a particular area, and surveying the area before conducting invasive prospecting, is critical to ensure the sensitive areas are preserved and to ensure prospecting proceeds in a manner compliant with national legislation.
- Rehabilitation must be applied on an on-going basis and no sites must be left exposed for more time than necessary to obtain the necessary data. All areas disturbed during the drilling process must be rehabilitated to previous land use capability.

17. PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED.

The prospecting right may not be valid for a period exceeding 5 years (Section 17(6) of the MPRDA) and therefore it is requested that the Environmental Authorisation pertaining to prospecting, if granted, also remains valid for a period of 5 years. After 5 years, the Applicant will have to apply for renewal of the prospecting right, relinquish the right or apply to convert the prospecting right to a mining right, which will then also be subject to the granting of Environmental Authorisation, pending the outcome of a full Scoping and EIA Process.

18. UNDERTAKING

Confirm 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 Basic assessment report and the Environmental Management Programme report.

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

19. FINANCIAL PROVISION

State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation.

19.1 EXPLAIN HOW THE AFORESAID AMOUNT WAS DERIVED.

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

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

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

The rehabilitation sites will have a footprint of 64 m^2 for 20 sites as this is the area determined that needs to be cleared for drilling from previous experience. The maps and illustrations attached therefore indicate the site layout and sizes associated in order to do prospecting drilling.

Application for Prospecting right in respect of in respect of portions Portions 2, 3, 4, 10, 12, 13, 14, 15, 17, 19, 25, 26, 29 and the Remaining Extent of the farm Legdaar 78 IS Situated in the Gert Sibande District Municipality and Govan Mbeki Local Municipality of South Africa with maximum of 20 drill boreholes are required to determine the available resource. Only one prospecting site will be active at a time as there is only one drill rig that will be used. This therefore allows minimum exposure and impact as concurrent rehabilitation can be carried out. Once drilling is complete at one site (usually within one day) the rehabilitation can be done immediately and soils and vegetation replaced.

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

19.2 Confirm that this amount can be provided for from operating expenditure.

(Confirm that the amount, is anticipated to be an operating cost and is provided for as such in the Mining work programme, Financial and Technical Competence Report or Prospecting Work Programme as the case may be).

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

20. SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

20.1 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 EIA REPORT MUST INCLUDE THE:-

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

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

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

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

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

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

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

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

(the EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation 22(2)(h), exist.

Section 24(4)(b)(i) of the Act requires the EAP to investigate of the potential consequences of impacts of alternatives to the activity on the environment and assessment of the significance of those potential consequences. Alternatives to the project are limited to the location of drill sites within the project area. Prospecting sites are not fixed and will only be confirmed during the desktop study if the prospecting right is warded. The EAP has however provided a grid of possible drill site locations. The prospecting site locations were amended on consideration of watercourses and biodiversity. This consideration has given value to alternative sites by removing sites that pose a high significance impact to the project.

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PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

22. DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

22.1 DETAILS OF THE EAP

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

Name of The Practitioner: Mr. Vernon Siemelink / Ms Kelebone Sekonyela

Tel No.: 012 807 0383

Fax No. : 086 714 5397

e-mail address: vernon@ecoe.co.za

Name	Vernon
Surname	Siemelink
Company	Eco Elementum (Pty) Ltd
Position	Director – Senior Environmental Consultant
Location	361 Oberon Ave, Glenfield Office Park, Nikka Building, 1st Floor, Faerie Glen, Pretoria, 0081
Email	vernon@ecoe.co.za
Telephone Number	072 196 9928/ 012 348 5214
Education	**M(EnvMan) - Masters in Environmental Management** Master's Degree at University of Pretoria in Pretoria, South Africa (Gauteng) **BSSc. GeoScience - Honours in Geographical Science** Honours Degree at University of Pretoria in Pretoria, South Africa (Gauteng)
Professional skills	- Vernon Siemelink is a Director at Eco Elementum (Pty) Ltd Environmental and Project Management Professionals and has been involved in the field of environmental science and environmental management for the past 9 years. - Vernon is a SGS IRCA Certified EMS Lead Auditor and a SETA accredited assessor. He has also completed the CEM auditor conversion training for ISO 9001, IS. - O 14001 and OHSAS 18001 Integrated Management Systems. - Vernon Siemelink has been an environmental consultant and professional since 2008, specialising in the fields of: • Environmental Impact Assessments and Authorisations; • Water use license application • Waste use license application • Environmental Monitoring and Control; • Mine Closure and Rehabilitation; • Environmental Compliance and Audits; • Environmental Management Systems; and Specialist Impact Studies. - During this time, he has provided quality, environmental, and health and safety consulting and auditing services in nearly every industry sector. - Furthermore, Vernon holds a Master's Degree in Environmental Management and an Honours Degree in Geosciences from the University of Pretoria.

Please refer to the CVs attached in Appendix A.

Skills	- **Environmental Impact Assessments** - **Basic assessments, WULA reports** - **Water use license application** - **Waste use license application** - **Prospecting and Mining Right Authorizations** - **Environmental Management Plans**

	- **Public Participation** - **Environmental Authorizations** - **ISO 14001:2004 Environmental Management System Auditor** - **FSC Forest Management Auditing** - **Geographic Information System Support (ArcGISv9.2)** - **SETA Accredited Assessor** - **EMSware software Administrator** - **Integrated Management System Auditor**
EAP Experience	Mr. Vernon Siemelink has been an Environmental Assessment Consultant for 10 years, during this time he has conducted S/EIA's, Basic Assessments, rehabilitation planning, developed EMPr (This includes conducting screening and scoping exercises, baseline studies, impact assessments, monitoring, and management planning and implementation) environmental legal assessments, ISO 14001:2004 management systems, due diligence, EMPr Performance Assessments and Integrated Water Use License Audits for clients in nearly every industry sector.

Name	**Kelebone**
Surname	Sekonyela
Company	Eco Elementum (Pty) Ltd
Position	Junior Environmental Practitioner (EAP)
Location	361 Oberon Ave, Glenfield Office Park, Nikka Building, 1st Floor, Faerie Glen, Pretoria, 0081
Email	kele@ecoe.co.za
Telephone Number	072 83 78813/ 012 348 5214
Education	**MSc (EnvMan) - Masters in Environmental Management** Master's Degree at University of Johannesburg in Johannesburg, South Africa (Gauteng) **BA. Geography - Honours in Geographical Science** Honours Degree at University of Johannesburg in Johannesburg, South Africa (Gauteng)
Professional skills	- Kelebone Sekonyela is an EAP at Eco Elementum (Pty) Ltd and has been involved in the field of environmental science and environmental management for about 4 years. - Kelebone Sekonyela is an environmental consultant since 2018, focusing on the fields of: • Environmental Impact Assessments and Authorisations. • Water use license application. • Waste use license application. • Environmental Monitoring and Control. • Environmental Compliance and Audits. - During this time, she has provided quality, environmental, and auditing services in nearly every industry sector. - Furthermore, Kelebone holds a Master's Degree in Environmental Management from the University of Johannesburg.

In terms of section 13 (2&3) of the 2014 National Environmental Management Act EIA regulations (GNR. 982 of 2014): In the event where the EAP or specialist does not comply with sub regulation (1)(a) (which is the independence clause), the proponent or applicant must, prior to conducting public participation as contemplated in chapter 5 of these Regulations, appoint another EAP or specialist to externally review all work undertaken by the EAP or specialist, at the applicant's cost. The external reviewer however needs to be independent. To satisfy the above requirements Vlakfontein Coal Rush (Pty) Ltd appointed Eco Elementum (Pty) Ltd as the Independent Environmental Assessment Practitioners (EAP) to review the BA Report and to oversee the PPP for the Prospecting Right Application.

Please refer to Appendix A for the detailed CV's.

22.2 Description of the Aspects of the Activity

(Confirm that the requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section (1)(h) herein as required).

The following section presents a detailed description of all the activities associated with the proposed prospecting application. Due to the nature of the Prospecting Works Programme, and the fact that the specific prospecting activities required are dependent on the preceding phase, assumptions are presented where required.

Access Roads

Access to the site will be required during mapping and drilling activities (Phase2). Access requirements can only be determined after Phase 1 has been concluded. A number of existing roads and tracks already traverse the proposed prospecting site and where practicable, these roads will be used. All access on farms will be conducted in terms of a written agreement with the landowner. In instances where no access roads are available to the site location a single track will be selected as the best alternative on the basis of least environmental impact with natural habitat considered the last option.

During mapping activities, vehicle access will be gained to site through the veld and the establishment of a track to gain repeated access to a mapping site will not be required.

Once the drill sites have been identified, temporary access roads may be established for repeated access to the prospecting site if the identified drill site cannot be accessed via existing roads and tracks.

Vegetation and topsoil stockpile areas (if required)

Vegetation and topsoil will only be stockpiled in instances where settling sumps are required i.e., core drilling. During the excavation process the topsoil and available vegetation will be placed adjacent to the sumps. This will also serve as a storm water diversion berm. The excavated material will be backfilled into the rehabilitated sumps on completion of the drilling process.

Water Supply

Currently it is not known whether there are any water boreholes located on the site and whether access and supply will be granted by the landowner. Water will be trucked from identified sources to the identified drill sites, water bowsers will be deployed to these sites as and when required.

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

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

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

Ablution

Ablution facilities at the drill site will involve the hiring of drum or tank type portable toilets.

Accommodation

No accommodation for staff and workers will be provided on- site. Workers will be transported to and from the prospecting site on a daily basis. Night security staff will be employed once equipment has been established onsite.

Storage of Dangerous Goods

During the diamond drilling activities limited quantities of diesel fuel, oil and lubricants will be used onsite, all chemicals and dangerous goods will be stored on the drilling trucks and be packed up at night and removed. The only dangerous good that will be stored in any significant quantity is diesel fuel. A maximum amount of 60 m^3 will be stored in above ground diesel storage tanks. Storage and use of hydrocarbons and other chemicals may only take place on impermeable surfaces with bunds to contain any accidental spills.

Hazardous material will be stored in appropriate containers and clearly marked. Drip trays and or impermeable surfaces with bunds must be placed under machinery that has the potential to leak. Material Safety Data Sheets will be available for all drilling and other chemicals kept on site.

Drill rig

In most cases, the drill rig will be a self-contained, truck-mounted unit that will be accompanied by a compressor and a generator. The drill rig will be driven to site and mobilised in the desired location, positioned over the hole site, and will be stabilised.

The footprint of disturbance for a prospecting rig and associated equipment is generally smaller than 25 m^2 -64 m^2. Plastic sheets and trip trays will be placed underneath the rig for the duration of the drilling process at each site in order to avoid hydrocarbon spills and contamination. The full extent of the drill sites will be staked out and the drill crew will not operate beyond these boundaries. Depending on the locality, this perimeter may be fenced, marked with bunting or barricading. Please refer to Figure 5 for a layout plan of the drilling site.

Drill core storage area

During core drilling, a laydown area for the extracted core samples will be established within the footprint of the drill site. This area is usually 8 m × 2 m and is used to place the extracted core in sequence (according to depth) for later analysis by an appointed geologist. Core trays will be used to contain the core samples.

Storm water berms

Berms will be constructed on the upstream side of the mini pit to divert any clean water around the pit and into the natural environment.

22.3 COMPOSITE MAP

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

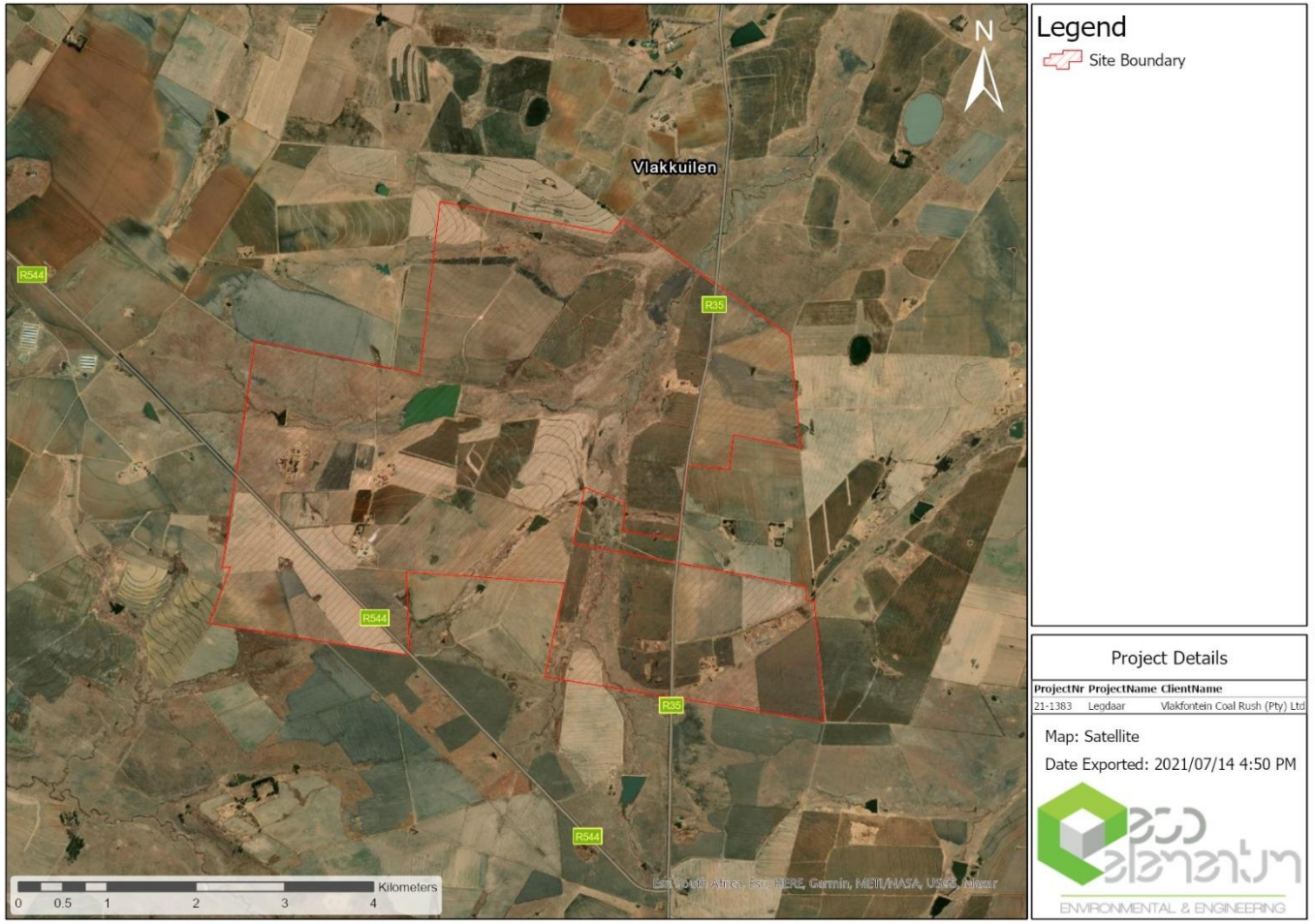

Figure 16: Conceptual prospecting site proposed layout

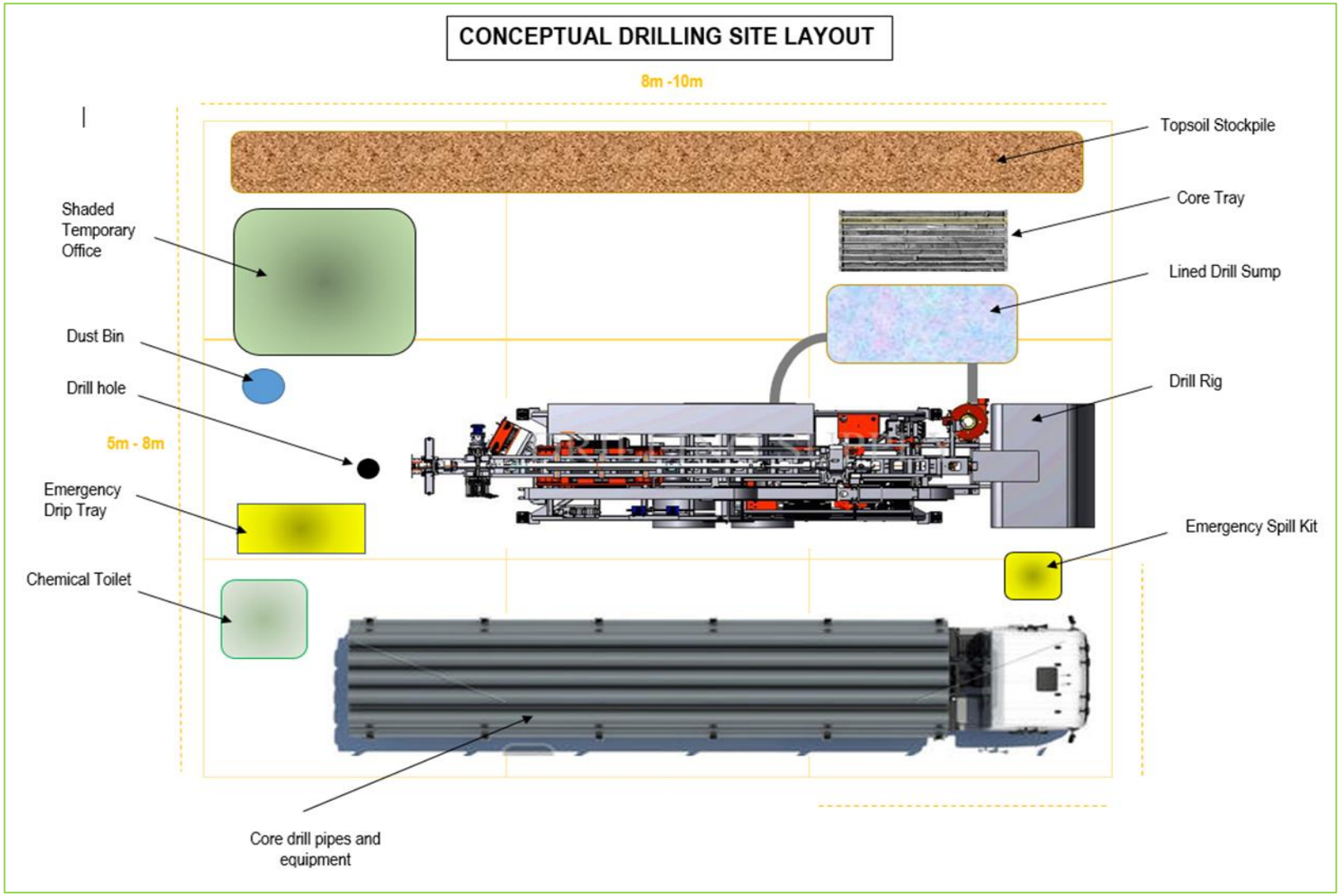

Figure 17: Conceptual drilling site layout

22.4 Description of Impact Management Objectives including Management Statements

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

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

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

22.4.1 Volumes and rate of water use required for the operation.

Only a small volume of water will be required during drilling. Approximately 15 m^3 of water will be used per day for a maximum of 20 days. This amounts to a total maximum of 300 m^3.

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

22.4.2 Has a water use licence has been applied for?

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

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

22.4.3 Impacts to be mitigated in their respective phases. Measures to rehabilitate the environment affected by the undertaking of any listed activity

22.4.3.1 Objectives

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

22.4.3.2 Environmental Impacts

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

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

22.4.4 Rehabilitation

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

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

22.4.4.1 Action Plan

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

22.4.4.2 Time Schedule

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

22.4.4.3 Requirements for Implementation

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

Table 20: Impacts to be mitigated in their respective phases

ACTIVITIES (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc…etc…etc. E.g. For mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)	PHASE (Of operation in which activity will take place. State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).	SIZE AND SCALE of disturbance (volumes, tonnages and hectares or m²)	MITIGATION MEASURES (describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	TIME PERIOD FOR IMPLEMENTATION Describe the time when the measures in the environmental management programme must be implemented Measures must be implemented when required. Regarding Rehabilitation specifically this must take place at the earliest opportunity. Regarding Rehabilitation, therefore state: -. Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling, or alluvial diamond prospecting as the case may be.
Prospecting (drill) site clearance	Construction	640 m²	Site selection by environmental scientists, detailed avifaunal surveys as well as detailed sensitive habitat mapping will have to be conducted for any potential development in the region, aimed at minimising disturbance to natural vegetation once the positions have been finalised. No-go areas to be identified. Environmental awareness training of all employees responsible for drilling. A heritage assessment and paleontological impact assessment need to be undertaken prior to any invasive site activities. ECO to approve drill site location considering biodiversity, water resources, heritage, and land use, consult with landowner on drill site location , demarcates drill site for safety, create an upstream berm to divert, clean	NEM: BA SANBI Resources Act Implementation of the Impact management hierarchy to avoid, minimise, mitigate, and rehabilitate. Compliance to GN704 of the National Water Act	Prior to construction

			stormwater around the site, create a downstream berm to contain any dirty water.		
Establish water recycling sumps	Construction	2 m^2	Remove topsoil where sumps will be placed for rehabilitation. Line drill sumps with plastic to limit groundwater seepage.	- to meet rehabilitation Standards. - to limit groundwater contamination	During construction.
Clearance of access roads	Construction	800 m^2	ECO to approve access road Route. Limit clearance to two lane tracks.	-Implementation of the Impact management hierarchy to avoid, minimise, mitigate, and rehabilitate.	During construction.
Establish prospecting site	Construction	25 – 64 m^2	Chemical toilets need to be placed in close proximity to the drill site. - All chemicals and fuels need to be stored in a bunded area. - bins for general waste need to be provided. - signage indicating hazards need to be placed at the entrance of the site. - drill rig operators and labourers need to be provided with identification cards. - no labourers are to be housed on site.	Occupation Health requirement. Management of hazardous substances.	During construction.
Operation of the drill site	Operation	25 – 64 m^2	General waste need to be collected and disposed at a licensed facility. - during rainfall events the drilling sumps need to be covered with plastic. - no employee are allowed outside of the drill site barricading without permission from the site manager. - water is to be sourced from existing users. - working hours is only permitted during daytime hours. - vehicles are not permitted to exceed 30 km/h within the drill properties.	- impact mitigation.	During operations.
Decommissioning and rehabilitation of the drill site Access roads.	Rehabilitation	25 – 64 m^2	- All infrastructure need to be removed from the site. - All waste and spillage need to be cleaned and disposed of appropriately.	- Rehabilitation standards and objectives.	Rehabilitation.

			- drill sump water should be reused or allowed to evaporate. - plastic from drill sumps need to be removed. - Chemical toilets need to be cleaned before I can be moved to the following drill site. - The drill hole must be capped or sealed to limit water ingress and ensure safety for humans and animals. - vehicles are not permitted to exceed 30 km/h within the drill properties.		

Table 21: Impact Management outcomes

ACTIVITY	POTENTIAL IMPACTS	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
(Whether listed or not listed) (E.g., Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, Powerlines, conveyors, etc...)	(E.g. dust, noise, drainage, surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution, etc…)		In which impact is anticipated (E.g., Construction, commissioning, operational Decommissioning, closure, post-closure).	(modify, remedy, control, or stop) through (e.g., noise control measures, storm water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.) E.g., •Modify through alternative method. •Control through noise control. •Control through monitoring and management. •Remedy through rehabilitation.	(Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
Prospecting (drill) site clearance	Dust pollution	Air quality	Construction	Control through dust suppression Control through minimisation of vehicle movement.	Conduct dust suppression techniques to ensure that applicable standards for PM10 and PM2.5 are not exceeded.
	Soil erosion, compaction, and contamination.	Soil		Prevent through restricting the disturbed area Prevent through restricting spillage from haulage vehicles. Control through removal of all utilisable soil and storage of the same. Control through implementation of storm water management measures. Remedy through treatment of contaminated soils.	Rehabilitation standards/ objectives.
	Degradation and destruction of sensitive biodiversity- Suitable habitat for the globally threatened red data avifaunal species.	Biodiversity Avifaunal.		Site selection by environmental scientists, detailed avifaunal surveys as well as detailed sensitive habitat mapping will have to be conducted for any potential development in the region, aimed at minimising disturbance to natural vegetation once the positions have been finalised. No-go areas to be identified.	As per detailed avifaunal survey and report- with the necessary recommendations

				Environmental awareness training of all employees responsible for drilling.	
	Visual impact	Visual receptors		Avoid / prevent leaving any building material or waste on site.	Rehabilitation standards/ objectives.
	Heritage	Archaeological or heritage features		Prevent through reporting and evaluation of any archaeological or heritage features found.	Impact avoided
	Social impact	Noise and visual Health, safety, and security		Control through appropriate management measures; Prevent through SHE management measures.	Objectives of Social & Labour plan
Clearance of access roads	Dust pollution	Air quality	Construction	Control through dust suppression Control through minimisation of vehicle movement.	Conduct dust suppression techniques to ensure that applicable standards for PM10 and PM2.5 are not exceeded.
	Soil erosion, compaction, and contamination.	Soil		Prevent through restricting the disturbed area. Prevent through restricting spillage from haulage vehicles. Control through removal of all utilisable soil and storage of the same. Control through implementation of storm water management measures. Remedy through treatment of contaminated soils	Rehabilitation standards/ objectives.
	Degradation and destruction of sensitive biodiversity- Suitable habitat for the globally threatened red data avifaunal species.	Biodiversity Avifaunal.		Site selection by environmental scientists, detailed avifaunal surveys as well as detailed sensitive habitat mapping will have to be conducted for any potential development in the region, aimed at minimising disturbance to natural vegetation once the positions have been finalised. No-go areas to be identified. Environmental awareness training of all employees responsible for drilling.	As per detailed avifaunal survey and report- with the necessary recommendations.
	Visual impact	Visual receptors		Avoid / prevent leaving any building material or waste on site.	Rehabilitation standards/ objectives.

	Heritage	Archaeological or heritage features		Prevent through reporting and evaluation of any archaeological or heritage features found.	Impact avoided.
	Social impact	Noise and visual Health, safety, and security		Control through appropriate management measures; Prevent through SHE management measures.	Objectives of Social & Labour plan.
Operation of the drill site	Dust pollution	Air quality	Operational	Control through dust suppression Control through minimisation of vehicle movement. Control through monitoring of dust fall to determine if measures are effective.	Conduct dust suppression techniques to ensure that applicable standards for PM10 and PM2.5 are not exceeded.
	Soil erosion, compaction, and contamination.	Soil		Prevent through restricting the disturbed area Prevent through restricting spillage from haulage vehicles. Control through removal of all utilisable soil and storage of the same. Control through implementation of storm water management measures. Remedy through treatment of contaminated soils. All infrastructures need to be removed from the site. All waste and spillage need to be cleaned and disposed of appropriately. Prevent - drill sump water should be reused or allowed to evaporate. Plastic from drill sumps need to be removed. Control - Chemical toilets need to be cleaned before it can be moved to the following drill site. Prevent - The drill hole must be capped or sealed to limit water ingress and ensure safety for humans and Animals.	Rehabilitation standards/ objectives.

Table 22: Potential Impact Mitigation type

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
Whether listed or not listed.				
(E.g. Excavations, blasting, stockpiles, discard dumps or dams, loading hauling and transport, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors etc...)	**(E.g. Dust, noise, drainage, surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution, etc…)**	**(modify, remedy, control, or stop) through (e.g., Noise control measures, storm water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity, etc…)**	Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. With regard the rehabilitation specifically, this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either: Upon cessation of the individual activity or Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.	(A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by competent authorities)
Prospecting (drill) site clearance.	Dust pollution	Control through dust suppression Control through minimisation of vehicle movement.	Construction.	Conduct dust suppression techniques to ensure that applicable standards for PM10 and PM2.5 are not exceeded.
	Soil erosion, compaction and contamination.	Prevent through restricting the disturbed area Prevent through restricting spillage from haulage vehicles Control through removal of all utilisable soil and storage of the same. Control through implementation of stormwater management measures Remedy through treatment of contaminated soils.		Rehabilitation standards / objectives.

	Degradation and destruction of sensitive biodiversity- Suitable habitat for the globally threatened red data avifaunal species. Loss of vegetation. Invasion by alien invasive species.	Site selection by environmental scientists, detailed avifaunal surveys as well as detailed sensitive habitat mapping will have to be conducted for any potential development in the region, aimed at minimising disturbance to natural vegetation once the positions have been finalised. No-go areas to be identified. Environmental awareness training of all employees responsible for drilling. Modify by vegetating soil stockpiles Control though alien invasive eradication programme.		As per detailed avifaunal survey and report- with the necessary recommendations.
	Visual impact	Avoid/prevent leaving any building material or waste on site.		Rehabilitation standards / objectives.
	Heritage	Prevent through reporting and evaluation of any archaeological or heritage features found.		Impact avoided.
	Social impact	Control through appropriate management measures; Prevent through SHE management measures.		Objectives of Social & Labour Plan
Clearance of access roads	Dust pollution	Control through dust suppression Control through minimisation of vehicle movement.	Construction	Conduct dust suppression techniques to ensure that applicable standards for PM10 and PM2.5 are not exceeded.
	Soil erosion, compaction and contamination.	Prevent through restricting the disturbed area Prevent through restricting spillage from haulage vehicles Control through removal of all utilisable soil and storage of the same. Control through implementation of storm water management measures. Remedy through treatment of contaminated soils.		Rehabilitation standards / objectives.
	Degradation and destruction of sensitive biodiversity- Suitable habitat for the globally threatened red data avifaunal species. Loss of vegetation Invasion by alien invasive species.	Site selection by environmental scientists, detailed avifaunal surveys as well as detailed sensitive habitat mapping will have to be conducted for any potential development in the region, aimed at minimising disturbance to natural vegetation once the positions have been finalised. No-go areas to be identified. Environmental awareness training of all employees responsible for drilling. Modify by vegetating soil stockpiles.		As per detailed avifaunal survey and report- with the necessary recommendations.

		Control though alien invasive eradication programme.		
	Visual impact	Avoid / prevent leaving building material or waste on site.		Rehabilitation standards / objectives.
	Heritage	Prevent through reporting and evaluation of any archaeological or heritage features found.		Impact avoided.
	Social impact	Control through appropriate management measures; Prevent through SHE management measures.		Objectives of Social & Labour Plan.
Operation of the drill site	Dust pollution	Control through dust suppression Control through minimisation of vehicle movement. Control through monitoring of dust fall to determine if measures are effective.	Operation	Conduct dust suppression techniques to ensure that applicable standards for PM10 and PM2.5 are not exceeded.
	Soil erosion, compaction, and contamination	Prevent through restricting the disturbed area Prevent through restricting spillage from haulage vehicles Control through removal of all utilisable soil and storage of the same. Control through implementation of storm water management measures Remedy through treatment of contaminated soils. All infrastructures need to be removed from the site. All waste and spillage need to be cleaned and disposed of appropriately. Prevent - drill sump water should be reused or allowed to evaporate plastic from drill sumps need to be removed. Control - Chemical toilets need to be cleaned before it can be moved to the following drill site. Prevent - The drill hole must be capped or sealed to limit water ingress and ensure safety for humans and Animals.		Rehabilitation standards / objectives.

23. FINANCIAL PROVISION

The project closure and rehabilitation vision is founded on the following principles:

- Sustainable exploitation of natural resources without limiting the ability of future generations to live off the same land.
- Limiting to the greatest extent possible, disruption of natural ecosystems, and where necessary and possible, restoring the environment to its original state (baseline environment) after cessation of activities. Alternatively, restore all land to a status and land-use agreed upon between Vlakfontein Coal Rush (Pty) Ltd and the relevant authorities, communities, and other stakeholders.
- To transfer all useful infrastructure to local authorities and communities should they be required by such authorities or communities.
- To ensure that the safety of people and animals is not compromised at any stage during and after any activities.

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

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

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

The basic assessment report and environmental management programme will be provided to IAPs for review and comment between 28 July 2021 to 28 August 2021. The objective to communicate to IAP's during the public consultation process. Please refer to Appendix C for more details.

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

Figure 18: Conceptual prospecting plan and rehab plan

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

The rehabilitation plan aims to provide a project site that is similar to the pre-prospecting environment through the removal of infrastructure, capping of boreholes, closing of trenches, and vegetating of disturbed areas (where not within cultivated lands).

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

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

Table 23: Closure Quantum

CALCULATION OF THE CLOSURE QUANTUM - PROSPECTING RIGHT							
Operation: PROSPECTING RIGHT WITHOUT BULK SAMPLING					**Province: Mpumalanga**		
Evaluators: Eco Elementum (Pty) Ltd					**Date: July 2021**		
General Information	**Risk Class**	**High (A)**	**MP 30/5/1/1/2/1/15870PR**				
	Environmental Sensitivity	**Medium**					
	WF 1: Nature of Terrain Weighting Factor	**Flat 1.00**					
	WF 2: Proximity to Urban Area Weighting Factor	**Peri Urban 1.05**					
Component No	**Main Activities Itemized Descriptions**	**[B] CPI Adjusted Master Rate**	**[A] Quantity**	**Units**	**[C] Multiplication Factor**	**[D] Weighting Factor 1: Nature of Terrain**	**Sub Totals [E = A*B*C*D]**
		STEP 4.3	**STEP 4.5**		**STEP 4.3**	**STEP 4.4**	
1	Dismantling of processing plant and structures	R 16.59	0.00	m3	1.00	1.00	R 0.00
2(A)	Demolition of steel buildings and structures	R 231.09	0.00	m2	1.00	1.00	R 0.00
2(B)	Demolition of reinforced concrete buildings and structures	R 340.55	0.00	m2	1.00	1.00	R 0.00
3	Rehabilitation of access roads	R 41.35	850.00	m2	1.00	1.00	R 35 147.50
4(A)	Demolition and rehabilitation of electrified railway lines	R 401.36	0.00	m	1.00	1.00	R 0.00
4(B)	Demolition and rehabilitation of non-electrified railway lines	R 218.92	0.00	m	1.00	1.00	R 0.00
5	Demolition of housing and facilities	R 462.17	0.00	m2	1.00	1.00	R 0.00
6	Opencast rehabilitation including final voids and ramps	R 235 221.83	0.00	ha	0.52	1.00	R 0.00
7	Sealing of shafts, adits and inclines	R 124.06	0.00	m3	1.00	1.00	R 0.00
8(A)	Rehabilitation of overburden and spoils	R 161 517.37	0.00	ha	1.00	1.00	R 0.00
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing waste)	R 201 116.96	0.00	ha	1.00	1.00	R 0.00
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)	R 584 284.21	0.00	ha	0.80	1.00	R 0.00
9	Rehabilitation of subsided areas	R 135 246.47	0.00	ha	1.00	1.00	R 0.00
10	General surface rehabilitation, including grassing of denuded areas	R 25 000.00	0.31	ha	1.00	1.00	R 7 750.00
11	River diversions	R 127 949.00	0.00	ha	1.00	1.00	R 0.00
12	Fencing	R 145.95	0.00	m	1.00	1.00	R 0.00

13	Water management (Separating clean and dirty water, managing polluted water, and managing the impact on groundwater, including treatment, when required)	R 48 649.81	0.00	ha	0.67	1.00	R 0.00
14	2 to 3 years of maintenance and after care	R 17 027.43	0.395	ha	1.00	1.00	R 6 725.83
15	Specialist study	n/a	0.00	report	1.00	1.00	n/a
						Subtotal (1 to 15 above)	**R 49 623.33**
		Subtotal 1			**Weighting Factor 2**	**1.05**	**R 52 104.50**
1	**Preliminary and General**				**12% of Subtotal 1 if less than R100mil**		**R 6 252.54**
					6% of Sub Total 1 if more than R100mil		
2	**Contingency**					**10% of Sub Total 1**	**R 5 210.45**
						Subtotal 2 (Subtotal 1 plus sum of management and contingency)	**R 11 462.99**
						Subtotal 3	**R 63 567.49**

(b) Confirm that the financial provision will be provided as determined.

The applicant, Vlakfontein Coal Rush (Pty) Ltd, hereby commits to undertaking to provide the calculated amount of R 63 567.49 (excl. VAT) in the form of either method provided in section 53 of the MPRD Regulations and the financial provisioning regulations, 2015 Published under Government Notice R1147 (GN R. 39425 of 2015). It should however be noted that no new guideline for determining the quantum for closure and rehabilitation has been published and therefore the guideline published under the MPRDA regulation was used to assess the quantum for closure liability.

Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including:

a) **Monitoring of Impact Management Actions**
b) **Monitoring and reporting frequency**
c) **Responsible persons**
d) **Time period for implementing impact management actions**
e) **Mechanism for monitoring compliance**

Table 24: Monitoring compliance

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

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

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

25. ENVIRONMENTAL AWARENESS PLAN

25.1 MANNER IN WHICH THE APPLICANT INTENDS TO INFORM HIS OR HER EMPLOYEES OF ANY ENVIRONMENTAL RISK WHICH MAY RESULT FROM THEIR WORK

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

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

Employees should be provided with environmental awareness training before prospecting operations start. All new employees should be provided with environmental awareness training. Environmental awareness and training is an important aspect of the implementation of the EMP. The onus is on the different parties involved in the various stages of the life cycle of the project to be environmentally conscious. Hence, it is suggested that all members of the project team are familiar with the findings of the site-specific EA report and the EMPr. For instance, the contractor is responsible for the lack of environmental knowledge of his/her crew members. The contractor could forward internal environmental awareness and training procedures to the project manager and environmental officer for comment prior to the commencement of the project. Likewise, the above is applicable to the programming, design, operations and maintenance, and decommissioning teams. Environmental awareness ensures that environmental accidents are minimized, and environmental compliance maximized.

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

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

25.2 VISITOR ENVIRONMENTAL AWARENESS

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

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

25.3 SENIOR AND MIDDLE MANAGEMENT ENVIRONMENTAL AWARENESS:

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

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

- The manager must ensure that the operators perform regular monitoring of their workstations / areas.

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

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

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

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

25.4 Operator / Workforce Environmental Awareness:

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

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

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

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

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

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

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

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

25.6 Specific information required by the Competent Authority

(Among others, confirm that the financial provision will be reviewed annually).

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

- The financial provision will be reviewed annually.

26. UNDERTAKING

The EAP herewith confirms

a. the correctness of the information provided in the reports ☐

b. the inclusion of comments and inputs from stakeholders and I&APs ; ☐

c. the inclusion of inputs and recommendations from the specialist reports where relevant; ☐ and

d. 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:

Date:

-END-

APPENDIX A: EAP CV

APPENDIX B: PUBLIC PARTICIPATION REPORT

APPENDIX C: CONCEPTUAL LAYOUT AND SENSITIVE RECEPTORS MAP

APPENDIX D: SPECIALIST STUDIES