

BASIC ASSESMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

MINING PERMIT AND ENVIRONMENTAL AUTHORISATION APPLICATION FOR COAL
ON PORTION OF THE REMAINING EXTENT OF PORTION 2 OF THE FARM ELANDSPRUIT
291 JS, UNDER THE MAGISTERIAL DISTRICT OF STEVE TSHWETE, MPUMALANGA

PREPARED ON BEHALF OF:



PREPARED BY:



PREPARED FOR



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

Saveways Crescent Centre

Mandela Drive

eMalahleni, 1035

DRAFT

2022

DMRE REF: MP 30/5/1/3/2/13516

DOCUMENT CONTROL	
Project Title:	Mining Permit Application on Portion of the Remaining Extent of Portion 2 of the Farm Elandspruit 291 JS
Mineral	Coal
Site Location	Steve Tshwete Magisterial District, Mpumalanga Province
Compiled For	Notre Coal
Compiled by	Mr Tsedzuluso Mundalamo
Reviewed by	Dr Kenneth Singo
To be submitted to	Department of Mineral Resources and Energy: Mpumalanga Region
Version	Draft
Year	2022

DISCLAIMER & TERMS OF USE	
<p>The opinion expressed in this, and associated reports are based on the information provided by Notre Coal (Pty) Ltd to Singo Consulting (Pty) Ltd ("Singo Consulting") and is specific to the scope of work agreed with Notre Coal (Pty) Ltd. Since the client is the owner or lessor of the property, many of the advice and acts contained in this legally binding contract remain his or her duty.</p>	
<p>Singo Consulting acts as an advisor to the Notre Coal (Pty) Ltd and exercises all reasonable skill and care in the provision of its professional services in a manner consistent with the level of care and expertise exercised by members of the environmental profession.</p>	
<p>Where site inspections, testing or fieldwork have taken place, the report is based on the information made available by Singo Consulting during the visit, visual observations and any subsequent discussions with regulatory authorities. The data and information used in this report were provided to Singo Consulting by the client and also referred to other outside sources (includes historical site investigation information and third-party expert research).</p>	
<p>Singo Consulting (Pty) Ltd ("Singo Consulting") takes reasonable care and diligence when providing services and preparing documents, but it has been assumed that the information provided to Singo Consulting (Pty) Ltd ("Singo Consulting") is accurate.</p>	



**mineral resources
& energy**

Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

AND

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORISATIONS 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 Application	NOTRE COAL
Telephone:	066 211 8714
Cell:	066 211 8714
Email:	eddi@notrecom.co.za
Physical Address:	Plot 106 Road 4 Delmas Gauteng, 2210
Postal Address:	Plot 106 Road 4 Delmas Gauteng, 2210
File Reference Number:	MP 30/5/1/3/2/13516 MP

Table of Contents

LIST OF TABLES vii

LIST OF FIGURES viii

DEFINITIONS ix

EXECUTIVE SUMMARY xi

1. IMPORTANT NOTICE 1

2. OBJECTIVE OF THE BASIC ASSESSMENT PROCESS 2

PART A: 4

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT 4

3. CONTACT PERSON AND CORRESPONDENCE ADDRESS 4

a) Details of 4

i) Details of the EAP 4

ii) Expertise of the EAP 4

(1) The qualifications of the EAP and Reviewer 4

(2) Summary of the EAP's Past experience 4

b) Location of the overall Activity 5

c) Locality Map 6

d) Description of the scope of the proposed overall activity 7

i) Listed and specified activities 9

ii) Description of Activities to be Undertaken 10

 ❖ Access Roads 11

 ❖ Water Supply 11

 ❖ Ablution 11

 ❖ Temporary Office Area 11

 ❖ Accommodation 11

 ❖ Explosives 12

4. POLICY AND LEGISLATIVE CONTEXT 13

5. NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES 15

6. MOTIVATION FOR THE OVERALL PREFERRED SITE, ACTIVITIES, AND TECHNOLOGY ALTERNATIVE 16

7. FULL DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED ALTERNATIVES WITHIN THE SITE 17

 7.1. Details of Development Footprint Alternatives 17

 7.1.1. Preferred site 17

 7.1.2. Type of Activity 17

 7.1.3. Technology Alternatives 17

8. DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED 18

 8.1. Public Participation Methodology 18

 8.1.1. Public Participation Plan: Discussion of approach and methodology to meet the requirements of the Regulations 19

 8.2. Notification of I&APs 26

8.3. Release of Draft BAR & EMPr 26

- 8.4. Summary of Issues Raised by I&APs 31
- 9. ENVIRONMENTAL ATTRIBUTES AND ASSOCIATED ALTERNATIVES 35
 - 9.1. The Baseline Receiving Environment 35
 - 9.1.1. Regional geology 35
 - 9.1.1.1. Karoo Geology 35
 - 9.1.1.2. Local Geology 37
 - 9.1.2. Flora 38
 - 9.1.3. Fauna 42
 - 9.1.4. Soil 43
 - 9.1.4.1. Soil depth 43
 - 9.1.4.2. Soil Drainage 43
 - 9.1.4.3. Erodibility 44
 - 9.1.5. Surface and Ground water 46
 - 9.1.6. Terrestrial Biodiversity 48
 - 9.1.7. Topography 49
 - 9.1.8. Public Roads 50
 - 9.1.9. Cultural and Heritage environment. 50
 - 9.1.10. Noise 50
 - 9.1.11. Description of current land-Use/Land-Cover 51
- 10. IMPACTS AND RISKS IDENTIFIED 53
 - 10.1. Impact and Risk Identified 53
 - 10.1.1. The Impact Assessment Methodology 56
 - 10.1.2. Method of Assessing Impacts 56
 - 10.1.3. Determination of Environmental Risk 56
 - 10.1.4. Impact Prioritisation 59
 - 10.2. Assessment and Evaluation of Potential Project Impacts and Mitigation Measures 61
 - 10.2.1. Topography and Landform 61
 - 10.2.1.1. Significance of Impacts 62
 - 10.2.2. Impact on Geology 63
 - 10.2.2.1. Significance of Impact 63
 - 10.2.3. Impacts on Soil 63
 - 10.2.3.1. Significance of Impacts 64
 - 10.2.5.1. Significance of Impacts 67
 - 10.2.6.1. Significance of Impacts 69
 - 10.2.7.1. Significance of Impacts 70
 - 10.2.8. Pollution of Groundwater 71

10.2.9.	Impacts of Environmental Pollution	71
10.2.10.	Impacts on Heritage Resources.....	73
10.2.10.1.	Significance of Impact	73
10.2.13.1.	Significance of Impacts.....	78
10.2.14.	Impacts on Transportation, Infrastructure and Traffic.....	79
10.2.14.1.	Significance of Impacts.....	80
10.2.15..	Visual Impact	80
10.2.15.1.	Significance of Impact	80
10.2.16..	Impacts on Air Quality	81
10.2.17.1.	Significance of Impact	82
10.2.18.	Blasting and Vibration.....	83
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.....	84
12.	IMPACT ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK	85
13.	SUMMARY OF SPECIALIST REPORTS	93
14.	ENVIRONMENTAL IMPACT STATEMENT.....	99
15.	COMBINED SENSITIVITY	93
16.	SUMMARY OF POSITIVE AND NEGATIVE IMPLICATIONS AND RISKS	95
17.	PROPOSED IMPACT MANAGEMENT OBJECTIVES AND OUTCOMES	95
18.	ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION.....	103
19.	DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE	105
21.1	Heritage	105
21.2	Surface Water.....	105
21.3	Flora.....	105
21.4	Fauna	107
20.	REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED 107	
21.	PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED	108
22.	UNDERTAKING	108
23.	FINANCIAL PROVISION	108
24.	SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY.....	110
25.	COMPLIANCE WITH THE PROVISIONS OF SECTIONS 24(4)(A) AND (B) READ WITH SECTION 24(3)(A) AND (7) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT 107 OF 1998) THE BAR REPORT MUST INCLUDE THE:	110
27.1	Impact on the Socio-Economic Conditions of any Directly Affected Person.....	110
27.2	Impact on any National Estate Referred to in Section 3(2) of the National Heritage Resources Act 111	
26.	OTHER MATTERS REQUIRED IN TERMS OF SECTIONS 24(4)(A) AND (B) OF THE ACT	112
	PART B:	113
27.	INTRODUCTION.....	113
29.1	Details of the EAP	113
29.2	Description of the Aspects of the Activity.....	113
28.	ENVIRONMENTAL MANAGEMENT PRINCIPLES	113
30.1	Holistic Principle	113
30.2	Best Practicable Environmental Option	114
30.3	Sustainable Development	114

30.4	Preventative Principles.....	115
30.5	The Precautionary Principles	115
30.6	Duty of Care and Cradle to Grave Principle	115
30.7	Polluter Pays Principle	117
30.8	Duty of Care Responsibilities	117
30.9	Failure to Comply with Environmental Considerations.....	118
29.	DESCRIPTION OF IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS.....	120
31.1	Determination of Closure Objectives	120
31.2	Volumes and Rate of Water Use Required for the Operation.....	121
31.3	Has a Water Use License Been Applied For?	121
30.	IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES	110
31.	FINANCIAL PROVISION	188
33.1	Other Guidelines.....	190
32.	DESCRIBE THE CLOSURE OBJECTIVES AND THE EXTENT TO WHICH THEY HAVE BEEN ALIGNED TO THE BASELINE ENVIRONMENT DESCRIBED UNDER THE REGULATION.....	190
33.	CONFIRM SPECIFICALLY THAT THE ENVIRONMENTAL OBJECTIVES IN RELATION TO CLOSURE HAVE BEEN CONSULTED WITH LANDOWNER AND INTERESTED AND AFFECTED PARTIES	192
34.	REHABILITATION PLAN	193
36.1	Integrated Rehabilitation and Closure Plan	193
36.2	Phase 1: Making Safe.....	191
36.3	Phase 2: Landform Design, Erosion Control and Revegetation	193
36.4	Phase 3: Monitoring and Maintenance	193
36.5	Post-Closure Monitoring and Maintenance.....	195
35.	EXPLAIN WHY IT CAN BE CONFIRMED THAT THE REHABILITATION PLAN IS COMPATIBLE WITH THE CLOSURE OBJECTIVES.....	195
36.	CALCULATE AND STATE THE QUANTUM OF THE FINANCIAL PROVISION REQUIRED TO MANAGE AND REHABILITATE THE ENVIRONMENT IN ACCORDANCE WITH THE APPLICABLE GUIDELINE	196
37.	CONFIRM THAT THE FINANCIAL PROVISION WILL BE PROVIDED AS DETERMINED	196
38.	MECHANISMS FOR MONITORING COMPLIANCE.....	195
39.	FREQUENCY OF THE SUBMISSION OF THE PERFORMANCE ASSESSMENT/ENVIRONMENTAL AUDIT REPORT....	21
40.	ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM	21
42.1	EMS Framework	22
42.2	Stakeholder Engagement	23
42.3	Grievance Mechanism.....	221
42.4	Internal Grievance Procedure	223
42.5	Record Keeping	223
42.6	Auditing and Reporting Procedures.....	224
42.7	Responding to Non-Compliances	225
42.8	Environmental Incidents.....	226
41.	ENVIRONMENTAL AWARENESS PLAN AND TRAINING.....	229
43.1	Manner in which Risks will be Dealt with to Avoid Pollution or Degradation.....	235
42.	SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY.....	235
43.	ENVIRONMENTAL MONITORING	235
45.1	Functional Requirements of Monitoring Programmes.....	236
45.2	List of Aspects that Require Monitoring Plans	237
45.3	Monitoring Plans for Environmental Aspects.....	237
44.	UNDERTAKING	239

LIST OF TABLES

Table 1: Locality details.....5
Table 2: Listed and specified activities.....9
Table 3: Policy and Legislative Context.....13
Table 4: Summary of issues raised by I&APs.31
Table 5: Quantum for financial provision.194

LIST OF FIGURES

Figure 1: Locality map of the proposed project6

Figure 2: A typical truck and Backhoe Excavator operation.8

Figure 3: Proposed Mining Layout.....8

Figure 4: Proof of Site Notice.28

Figure 5: Proof of published newspaper Middelburg observer.29

Figure 6: Windeed Results portion of RE/2.....30

Figure 7: Karoo and coal basin map36

Figure 8: Geology Map for the mining permit area.37

Figure 9: Biome Type, Vegetation Type, and Site picture of the project area.39

Figure 10: Plant Species Theme Sensitivity Map from Screening Tool.40

Figure 11: Vegetation type.....41

Figure 12: Farming Type42

Figure 13: Animal Sensitivity from Screening Tool.....43

Figure 14: Soil type observed during site assessment.44

Figure 15: Soil Type in the project area.....45

Figure 16: Hydrological Map of the project Area.....46

Figure 17: Quaternary Catchment and Water Management Area47

Figure 18: Biodiversity map of the Area (heavily modified area)48

Figure 19: Terrestrial Biodiversity Map from screening tool.....49

Figure 20: Topology Map of the project area.....50

Figure 21: Land Use and Land Cover Map of the project area.....52

Figure 22: Composite sensitivity map of the application area.....93

Figure 23: Financial provision.....109

DEFINITIONS

AEL	:	Air Emissions License
APPA	:	Atmospheric Pollution Prevention Act
BID	:	Background Information Document
DEA	:	Department of Environmental Affairs
DEDET	:	Department of Economic Development, Environment and Tourism
DMR	:	Department of Mineral Resources & Energy
DRDLR	:	Department of Rural Development and Land Reform
DWA	:	Department of Water Affairs
DWAF	:	Department of Water Affairs and Forestry
DWS	:	Department of Water and Sanitation
EA	:	Environmental Authorisation
EC	:	Electrical Conductivity
ECA	:	Environmental Conservation Act
EHS	:	Environmental, Health, and Safety
EIA	:	Environmental Impact Assessment
EMP	:	Environmental Management Plan
EMPR	:	Environmental Management Program
EMS	:	Environmental Management System
ESMS	:	Environmental and Social Management System
FPA	:	Fire Protection Agency
IFC	:	International Finance Corporation
ISO	:	International Organization for Standardization
IWUL	:	Integrated Water Use License
IWULA	:	Integrated Water Use License Application
IWWMP	:	Integrated Water and Waste Management Plan
MP	:	Mining Permit
MPRDA	:	Mineral and Petroleum Resources Development Act
NEMA	:	National Environmental Management Act
NEMAQA	:	National Environmental Management: Air Quality Act
NEMBA	:	National Environmental Management: Biodiversity Act
NEMWA	:	National Environmental Management: Waste Act
NHRA	:	National Heritage Resources Act
PES	:	Present Ecological Status
PPP	:	Public Participation Process
RSIP	:	Rehabilitation Strategy and Implementation Plan
SAWQG	:	South African Water Quality Guidelines
SHE	:	Safety, Health and Environmental

TDS : Total Dissolved Solids
TOPS : Threatened and Protected Species
WML : Waste Management License

EXECUTIVE SUMMARY

Singo Consulting (Pty) Ltd has been appointed as an Independent Environmental Consultant by **Notre Coal (Pty) Ltd** to conduct an Environmental Impact Assessment (EIA), Compile an Environmental Management Programme report (EMPr) and undertake Public Participation Process (PPP). This is done for processes of acquiring Environmental Authorization (EA) for the proposed Mining Permit Application within a portion of the Remaining Extent of Portion 2 of the Farm Elandspruit 291 JS, under the Magisterial District of Steve Tshwete, Mpumalanga Province (**DMRE Ref: MP 30/5/1/3/2 (13516) MP**).

Mining Permit Application has been submitted for the extraction of Coal on the mentioned-above property. Mining activities will be undertaken over a period of two (2) years. This project will entail an open cast mining method. The mine design will be developed according to the dimension of the applied mineral within the project area, but overall mining activities will be limited to an area of 5 Ha as per mining permit requirements. The topsoil will be stockpiled on designated area, preferably next to the permit boundary and used during rehabilitation period. Once a box cut has been made, the overburden and coal where necessary will be loosened by blasting. The loosened material will then be loaded onto trucks by excavators. A haul road will be situated at the side of the open cast, forming a ramp up which trucks can drive, carrying coal and waste rock. Waste rock will be piled up at the surface, near the edge of the open cast (Overburden). The Overburden stockpile will be tiered and stepped, to minimize soil erosion. All the activities will be guided by the project's EMPr such that the project does not impact the environment negatively.

Purpose of this Document

This document has been compiled in support of the Mining Permit and Environmental Authorization Application and aims to assess any possible impacts associated with small scale mining. It is important that Interested and Affected Parties(I&APs) are provided with an opportunity to review and comment on the assessment report, thereby contributing to the environmental impact assessment process and assisting in identifying any additional risks or impacts that may be experienced. As such, a public consultation was undertaken for this application and will be an on-going process until the DMRE conclude the project.

Project Location

Proposed Project is located within a portion of the Remaining Extent of Portion 2 of the Farm Elandspruit 291 JS, which is located approximately 8 km North and 10 km South of Middelburg and Witbank respectively. The proposed site is accessible through an unnamed gravel road from Road R555 (Old Middleburg Road) and within Steve Tshwete local municipality under the Magisterial District of Steve Tshwete in Mpumalanga Province.

Project Activities

The proposed mining methodology to be employed is a very basic form of opencast mining, and a 5-hectare area will be demarcated for mining. Vegetation cover at the demarcated area will be cleared. This will be followed by the removal of topsoil and soft overburden using a bulldozer, and excavator/TLB. These will be hauled to the designated areas (Topsoil and Overburden Stockpile). Thereafter, hard overburden will be drilled and blasted and subsequent mining of the orebody utilizing a truck and excavator (Backhoe) operation. The Run-Of-Mine (ROM)(Coal) will be crushed and screened using a mobile crushing and screening plant. A front-end loader will be used to load the waste rock and ROM into haulage trucks. The coal will be processed off-site (Washing). The mine will operate for a two (2) year permit. Period with an option to renew for three (3) periods, each of which may not exceed one (1) year if the mining programme is not completed.

The project infrastructure and activities will include:

- Site establishment, including the establishment of an access route, mobilization of equipment and preparation of area for mining
- Site clearance/Vegetation Clearing.
- Excavation of a box cut- Removal of topsoil and overburden and stockpiling.
- Blasting of competent subsurface formation.
- Loading zone.
- Loading of fragmented material and dust control.
- Crushing and screening of coal.
- Hauling and transporting of coal.
- Ablution facilities and waste storage area.
- Rehabilitation of the site

Environmental Specialist Studies

A comprehensive assessment was undertaken in support of the Mining Permit Project. Three specialist studies together with Rehabilitation Plan were conducted, namely:

- Hydrological Study
- Soil Study
- Geohydrological Study
- Rehabilitation Plan

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

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

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 activity is located and document how the proposed 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 the technology alternatives on these aspects to determine:
 - i. The nature, significance, consequence, extent, duration, and probability of the impacts occurring; and
 - ii. The degree to which these impacts-
 - (aa) Can be reversed.
 - (ba) May cause irreplaceable loss of resources. (ca) 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.
 - iii. Identify residual risks that need to be managed and monitored.

This report has been designed to meet the requirements for a Basic Assessment Report and Environmental Management Programme as stipulated in the 2014 Environmental Impact Assessment Regulations (as amended) promulgated under the National Environmental Management Act, 1998 (Act 107 of 1998). The adjudicating authority for this application is the Department of Mineral Resources & Energy and this report has been compiled in accordance with the applicable Department of Mineral Resources & Energy Guidelines and Basic Assessment Report and Environmental Management Programme template.

PART A:

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

3. CONTACT PERSON AND CORRESPONDENCE ADDRESS

a) Details of

i) Details of the EAP

❖ Details of the EAP who compiled the report

Name of the Practitioner	Tsedzuluso Mundalamo
Designation	Environmental Technician
Cell No	072 3626 124
Tell No	013 692 0041
Fax No	086 514 4103
Email address	tsedzuluso@singoconsulting.co.za

❖ Details of the EAP who reviewed the report

Name of the Practitioner	DR Kenneth Singo
Designation	Principal EAP (Reviewer)
Tell No	013 692 0041
Fax No	086 514 4103
Email address	kenneth@singoconsulting.co.za

ii) Expertise of the EAP

(1) The qualifications of the EAP and Reviewer
See CV on Appendix
See CV on Appendix

(2) Summary of the EAP's Past experience
See CV on Appendix
See CV on Appendix

b) Location of the overall Activity

The Mining Permit application area covers 5 hectares (ha) and is situated on portion of the Remaining Extent of portion 2 of the farm Elandspruit 291 JS. The proposed Mining Permit area is located within the jurisdiction of Steve Tshwete Local Municipality under the Steve Tshwete Magisterial District. The area of interest is located approximately 15 km North and 10 South of Middelburg and Witbank, respectively. Proposed area is accessible through Road R555 (Old Middleburg Road).

Table 1: Locality details

Farm Name	Elandspruit 291 JS
Farm Portion	Remaining Extent of Portion 2
Application Area (Ha)	5 ha
Magisterial District	Steve Tshwete Magisterial District
Distance and direction from nearest town	Approximately 10 North of Witbank. Approximately 15 South of Middelburg.
21 digit Surveyor General Code for each Portion	TOJS0000000029100002

c) Locality Map

The area of interest is located approximately 15 km North and 10 South of Middelburg and Witbank, respectively. Proposed area is accessible through Road R555 (Old Middelburg Road) (**See Figure 1**).

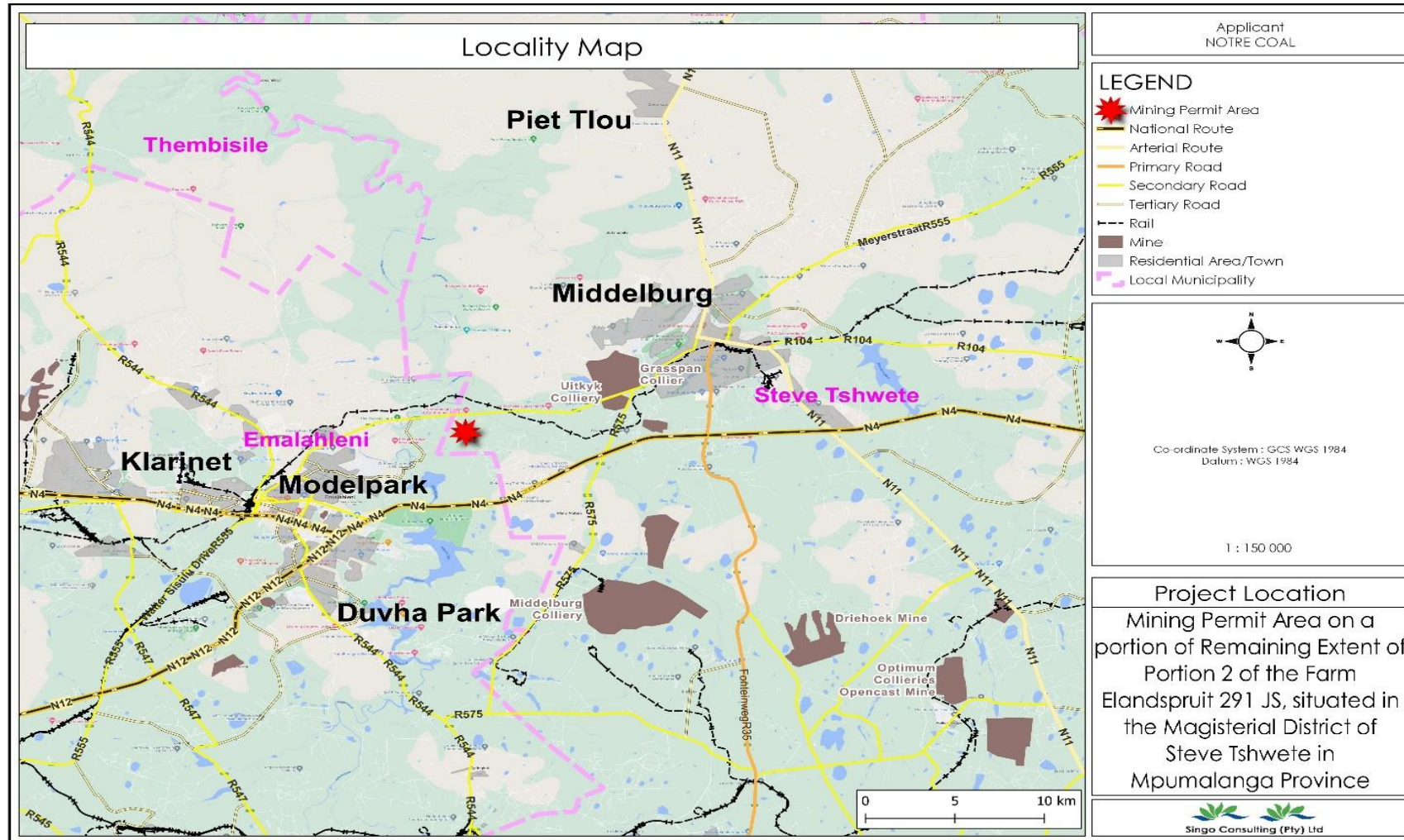


Figure 1: Locality map of the proposed project (Singo Consulting (Pty) Ltd (2022))

d) Description of the scope of the proposed overall activity

Describe methodology/technology to be employed, including type of commodity to be prospected/mined, a linear activity and a description of the route of the activity.

The method that will be employed is a very basic form of open cast mining, and a 5-ha area will be demarcated for mining activities. Mine layout plan is depicted on figure 2. Topsoil and other soft material will be removed using excavator and piled at the topsoil stockpile area. For competent/hard rock, drilling and blasting will be undertaken. The overburden will be hauled into overburden stockpile area. After removal of overburden is complete, coal will be exposed. Coal (ROM) will be excavated and loaded into trucks to the ROM Stockpile Area. ROM will be crushed and screened using a mobile crushing and screening plant that will be placed within the boundaries of the mining area. This will be done to reduce the size of the coal. No washing or further processing of coal will be taken place within the proposed mine area. The product will be transported off-site using trucks.

The mine will operate for a two (2) year permit period with an option to renew for three (3) periods of which may not exceed one year. The coal will be stockpiled and transported to clients via trucks and trailers. All activities will be contained within the boundaries of the mining site.

The project infrastructure and activities will include the following:

- Site establishment- Establishment of an access route, demarcating the mining area mobilization of equipment (Mobile Toilet, Office, Crushing and Screening Plant) and
- Removal of topsoil and stockpiling into designated topsoil stockpile Area.
- Removal of soft overburden and stockpiling into designated overburden stockpile Area
- Drilling and blasting of hard overburden
- Loading and hauling Hard Overburden to the designated Overburden stockpile area
- Removal of Run of Mine (Coal), load and haul to the ROM Stockpile area
- Dust control on loading and hauling area.
- Crushing and screening of Coal (Run of Mine).
- Hauling and transporting of Product
- Rehabilitation of site.



Figure 2: A typical truck and Backhoe Excavator operation (Internet Search)

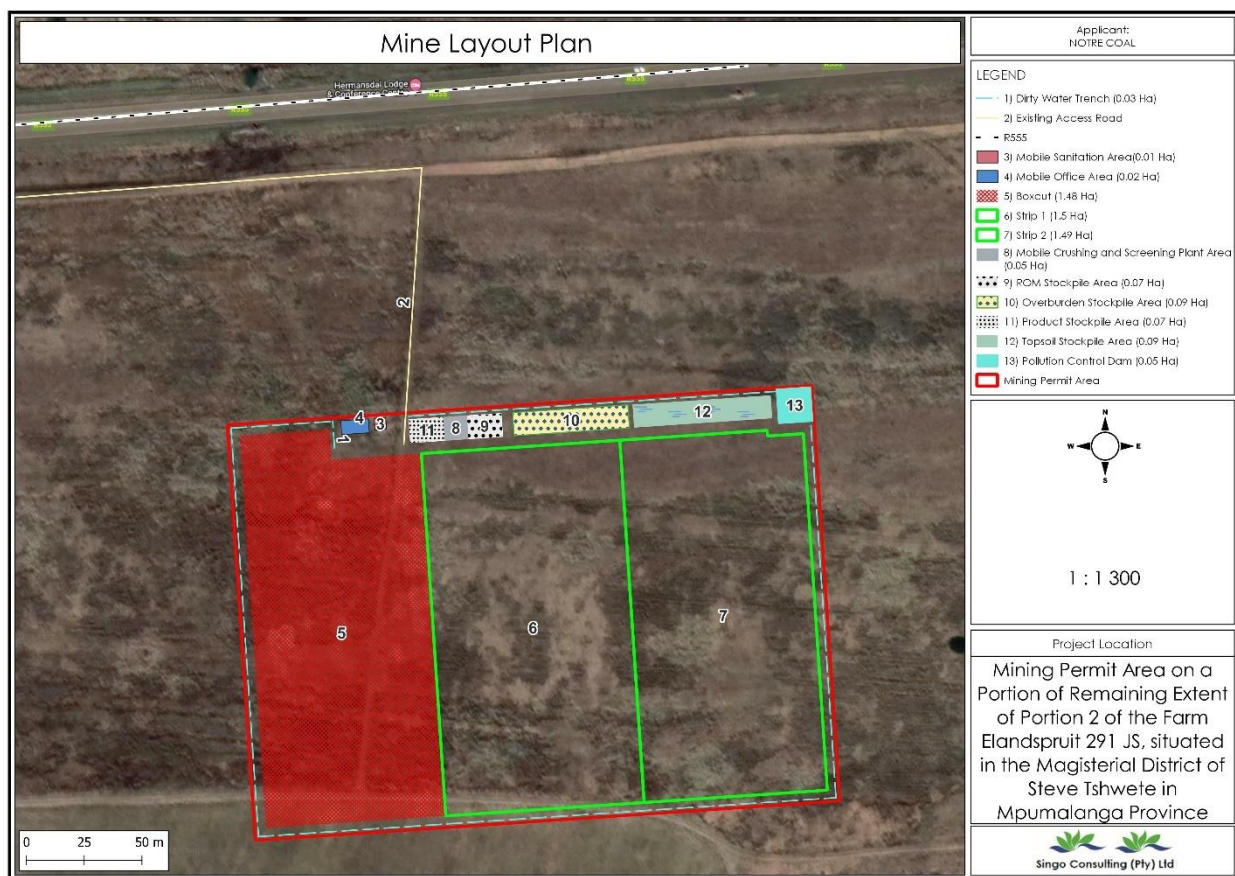


Figure 3: Proposed Mining Layout (Singo Consulting (Pty) Ltd (2022))

i) Listed and specified activities

The legal requirement for Environmental Authorisation for a Mining Permit came into effect after the promulgation of the NEMA 2014 EIA Regulations on the 8th of December 2014. Prior to this, Mining Permits were subjected to the provisions of the MPRDA (2002). In this regard, a Mining Permit and Environmental Authorisation are required in terms of the MPRDA (2002) and NEMA 2014 EIA Regulations (as amended), respectively. The applicable NEMA listed activities anticipated to be triggered by this project are outlined in Table 2.

Table 2: Listed and specified activities.

NAME OF ACTIVITY E.g. for prospecting: drill site, site camp, ablation facility, accommodation, equipment storage, sample storage, site office and access route; and for mining: excavations, blasting, stockpiles, discard dumps/dams, loading, hauling, transport, water supply dams and boreholes, accommodation, offices, ablation, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines and conveyors.	Aerial extent of the activity Ha or m ²	Listed activity Mark with X where applicable	Applicable listing notice
Open cast mining and crushing to produce coal specs required by clients	5 Ha	X	GN 517/2021 Listing notice 1 activity 21: Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required to exercise the mining permit.
A closure certificate in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)	5 Ha	X	Not Listed

Vegetation Clearance	5 ha	X	GN 517/2021, Listing Notice 1 activity 27: The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for - (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.
Overburden stockpile	0.09 Ha	X	Not listed
Access road	0	X	Not listed
Topsoil stockpile	0.09 Ha	X	Not listed
ROM stockpile area	0.07 Ha	X	Not listed
Dirty water trench	0.03 Ha	X	Not listed
Mobile offices	0.02 Ha	X	Not listed
Toilets and sanitation	0.01 Ha	X	Not listed
Pollution Control Dam (PCD) construction	0.05 Ha	X	Not listed
Product Stockpile Area	0.07 Ha	X	Not listed
Crushing and Screening	0.05 Ha	X	Not listed
Box cut construction	1.49 Ha	X	Not listed
Ripping	4.47 Ha	X	Not listed
Coal extraction	4.47 Ha	X	Not listed
Rehabilitation	5.00 Ha	X	Activity 22

ii) Description of Activities to be Undertaken.

The proposed Mining Permit application involves the exploitation of coal on the portion of the Remaining Extent of Portion 2 of the farm Elandspruit 291 JS, situated within the local municipality of Steve Tshwete, under the Steve Tshwete Magisterial District, Mpumalanga Province. The mining method to be employed involves the open cast mining over an area

with an extent of 5 hectares. The topsoil (approximately 30cm) will be removed from one side of the permit area and stockpiled into a designated area within the mine boundary, to be later used for rehabilitation purposes. The machinery to be used includes bulldozer/ripper, Front End Loader (FEL), Backhoe excavators and dump trucks

For hard overburden, drilling and blasting will be undertaken then subsequent mining of the coal seam utilizing a truck and backhoe operation will be conducted. The mined coal (ROM) will be crushed and screened utilizing a mobile crushing and screening plant. An FEL will be utilized to load the waste rock and coal into haulage trucks. The project infrastructures and activities will include site clearance, removal of topsoil and overburden and stockpiling, site establishment, the widening of an access route, mobilization of equipment and preparation of area for mining, excavation of an open pit, drilling and blasting, loading zone, loading and dust control, crushing and screening of coal, hauling and transporting of coal, ablution facilities and waste storage area and rehabilitation of site.

❖ **Access Roads**

Gravel road exists to the site that connects the proposed site to the Road R555. Widening of the existing gravel road will be required to accommodate tipper trucks and will be rehabilitated on completion of the Mining Permit operations, to the satisfaction of the relevant landowner.

❖ **Water Supply**

It is anticipated that portable water will be brought to site. The water will be sourced from the Local Municipality, and it will be trucked in. An on-site water storage tank will be required for potable water supply to employees. Additional water will also be required for dust suppression in order to prevent dust pollution on the gravel road

❖ **Ablution**

Ablution facilities will be required on site. This may involve the installation of drum or tank type portable toilets. The toilets should be emptied twice every week through the services of a registered sewage waste service provider.

❖ **Temporary Office Area**

A temporary site office area may be erected on site. The office must be established distant from the water drainage lines.

❖ **Accommodation**

Accommodation for workers will be provided off-site. However, 24-hour security staff may be stationed on-site. No fires will be allowed on-site.

❖ **Storage of Dangerous Goods**

During extraction of Coal, limited quantities of diesel fuel, oil and lubricants may be stored on-site. A maximum amount of 60 m³ may be stored in above ground diesel storage tanks with elevated bunded walls.

❖ **Waste**

Waste generated from the mining area will include minimal construction and domestic waste, some hydrocarbon and explosive waste and sewage. These will be collected in designated waste bins and disposed of as part of the waste management plan and/or will be managed by contractors. Waste will be recycled as far as possible. Portable toilets will be used at the mining area. Weekly collection of waste from mobile toilets will be undertaken.

❖ **Stockpiles**

Various stockpiles will be required on site. Long-term stockpiles will include topsoil and overburden stockpiles, all of which will be erected as close as possible to the final void to aid in infilling and rehabilitation of final voids. In addition, the mine will have product and ROM stockpiles which will be temporary in nature and moving based on the active mining operation.

❖ **Explosives**

During the mining operation drilling and blasting will be undertaken to break the hard overburden and the coal. Explosives for blasting will be kept safe on site.

4. POLICY AND LEGISLATIVE CONTEXT

The proposed Elandspruit Mining Permit application requires Authorisation in terms of the following interlinked pieces of legislation:

- The Mineral and Petroleum Resources Development Act, 2002 (MPRDA, Act 28 of 2002), as amended.
- The National Environmental Management Act, 1998 (NEMA, Act 107 of 1998), as amended.

These pieces of core legislation stipulate the required studies, reports and legal processes to be conducted and the results thereof are to be submitted to the relevant authorities for approval prior to commencement of the activities. In addition to the above, there are various pieces of legislation which govern certain aspects of the mining operations and these are summarized in Table 3, together with the main legislative requirements mentioned above.

Table 3: Policy and Legislative Context

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context
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.		E.g. In terms of the National Water Act (NWA) a Water Use License has/has not been applied for.
Minerals and Petroleum Development Resources Act, Act 28 of 2002 (MPRDA) and the MPRDA Amendment Act, Act 49 of 2008	DMRE	The conditions and requirements attached to the granting of the mining permit will apply to the mining activities.
Constitution of South Africa, specifically everyone has the right to: <ul style="list-style-type: none"> • an environment that is not harmful to their health or wellbeing • have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological 	Republic of South Africa	The mining activities will only proceed after effective consultation.

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context
degradation, promote conservation, and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development		
Environmental Impact Assessment (EIA) regulations	DMRE	This Basic Assessment Report (BAR) is being undertaken in terms of the EIA. Regulations are in place to determine any possible impacts on the environment and propose sufficient mitigation to prevent environmental damage.
National Environmental Management Act, Act 107 of 1998 (as amended) (NEMA)	DMRE	<p>This BAR is being undertaken in terms of the NEMA (No. 107 of 1998), as amended, to determine environmental impact and propose sufficient mitigation to prevent environmental damage.</p> <p>The appropriate environmental authorisation will be obtained before proceeding with any mining activities. No mining activity will be conducted in a sensitive environment.</p> <p>Measures will be implemented to prevent pollution during mining activities. Once mining is complete, the area will be rehabilitated as close as reasonably possible to its pre-mining state.</p>
National Water Act, 1998 (Act 36 of 1998). Best Practice Guidelines: Series A, G, & H	(S 21) Water use & mine water management	Best practice guidelines will be followed for water management, water characterisation, water resource protection, water treatment, and the development of the mine water management model

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context
National Environmental Management: Waste Act, Act 59 of 2008 (NEMWA)NEM: WA	Management measures Environmental awareness plan	N/A
National Heritage Resources Act, 25 of 1999 (NHRA)	Management measures	No mining activities will take place within 500 m of any identified heritage resource, such as a grave. No graves have been identified on the site in question.
Municipality By-Laws: Waste Management by-law Act 59 of 2008, Air Quality Management By-law Act 39 of 2004, Noise control by-law, Spatial planning and land use management act no 16 of 2013 (SPLUMA).	Environmental Management measures awareness plan	Best practice guidelines will be followed for any by-law's management and the development of the mine environmental and other legislative management.

5. NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

Coal Mining sector in South Africa has traditionally occupied a principal role in the generation of economic output. It provides employment and reduces poverty. The mining companies have an obligation to improve and develop the state of the communities in which they operate through infrastructural, educational and skills development. The mining activities bring different kinds of business, which has significant economic benefits for communities. And in most cases, the jobs created by the mines pay more than the average salary. The mining industry makes a big contribution to South Africa's export market. It generates significant gains from the foreign exchange rate differences. Mining contributions to the total government revenue are directed to the national and sub-national levels. The profits of mining companies and taxes generated by companies, in addition, contribute to the Gross Domestic Product (GDP) of the country.

South Africa produces a typical of 224 million tonnes of marketable coal annually, making it the fifth largest coal producing country in the world. A total of 25% of our production is exported internationally, making South Africa the third largest coal exporting country. The remainder of South Africa's coal production feeds the various local industries, with 53% used for electricity generation.

The key role played by our coal reserves in the economy is illustrated by the fact that Eskom is the 7th largest electricity generator in the world, and Sasol the largest coal-to-chemicals producer. The Mpumalanga province is rich in coal resources, which provides many employment opportunities in the area. Most of the coal is mined in the Witbank Coalfield in South Africa, the seams of which have diverse characteristics, resulting in a range of potential markets/utilisation in power generation, export, domestic, metallurgical, liquefaction and chemical sectors.

❖ **Advantages**

- SA has abundant coal reserves.
- Coal-fired power stations are reliable.
- SA coal resources are at shallow depth, hence the low mining cost.
- South Africa's infrastructure to generate electricity from coal is well-established.
- Burning coal is the most cost-effective and energy-efficient way of generating electricity.

❖ **Disadvantages**

- Coal has the most waste problems of all energy sources. Waste includes sulphur and nitrogen oxides, organic compounds, heavy metals, radioactive elements, greenhouse gases and a lot of ash.
- Building a coal-fired power station is a long and expensive process.
- South Africa's coal fields are concentrated in Mpumalanga, which limits the location options for power stations.

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

PREFERRED SITE-The proposed site earmarked for the winning of the coal will include the pit. The proposed site was identified as the preferred alternative due to the following reasons:

- Although the area is virgin ground, it has minimal vegetation cover (grasses and shrubs).
- The site offers the sought-after resource.
- The mining impacts can be contained to one area.
- The mining area can be accessed by an existing gravel road from the Road 555 (Old Middelburg Road). No need for construction of new access road
- The geology underlying the proposed mining area supports availability of coal seams
- The geology underlying the proposed mining area supports availability of coal seams

- The area is more than 500m away from the waterbodies

PREFERRED ACTIVITY-The open cast mining of the coal has been identified as the most effective method to produce the desired coal. Due to the remote location of the pit, the potential impacts on the surrounding environment, associated with open cast mining, is deemed to be of low significance

PREFERRED TECHNOLOGY-The ripper/dozer has ripping ability and pushing the material to the designated stockpiles. This machine has been used for numerous mines. Tipper trucks have been preferred mode of hauling coal is cheaper than conveyor or rail transport. As mining permit is for two years, this mode of transport is viable for this type of mineral right.

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

7.1. Details of Development Footprint Alternatives

The development footprint is 5 ha, which is the maximum legislated aerial extent that may be approved for a Mining Permit application in terms of the MPRDA, 2002 (as amended). The geology is the primary driver in determining the location for mining. As such, no assessment of alternative development scenarios was conducted.

7.1.1. Preferred site

The proposed area has been selected based on historical and active Coal mining operations in the immediate surroundings of the application area along with historical and current data that indicate the economic viability of the Coal mineral to occur. The area of interest is located on Loskop Formation, which is made of Mudrock, sandstone. Conglomerate and volcanic rocks. The area was being utilised for livestock farming. Therefore, on the proposed mining permit area there are no environmental sensitive areas, there are no major infrastructures, and the site has been chosen is next to the coal mining mine.

7.1.2. Type of Activity

The proposed activity is mining. The geology is the primary driver in determining the location for mining. As such, no activity alternative was considered.

7.1.3. Technology Alternatives

The method that will be employed is a very basic form of open pit mining, and a 5-ha area will be demarcated for mining activities. Drilling and blasting then subsequent mining of the orebody utilizing a truck and backhoe operation will be conducted. The mined coal will be crushed and screened utilizing a mobile crushing and screening plant. An FEL will be utilized to load the material into haulage trucks. The coal will not be processed within the site (only Crushing and Screening will be done on site). Should the proposed mining activities change, this will be indicated in the form of a Section 102 Amendment Application of the MPRDA.

7.1.4. No Go Alternative

Mining contributes greatly to local economic stimulation through direct employment, business opportunities, royalties and tax revenues. If the Coal reserves on the property are not mined, South Africa and the local communities will forego the benefits of the associated employment, business opportunities, royalties and tax revenues.

8. DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED

8.1. Public Participation Methodology

South Africa, being one of the countries with the most progressive constitutions, enshrined the public's right to be involved in decisions. Section 57(1) of the new Constitution that provides: "The National Assembly may (b) make rules and orders concerning its business, with due regard to representative and participatory democracy, accountability, transparency and public involvement". This provision, along with several others gave rise to many new trends in South African legislation. In environmental legislation, the idea of public participation (or stakeholder engagement) features strongly and especially the National Environmental Management Act, 1998 (Act 107 of 1998, NEMA – as amended) and the recent regulations passed under the auspices of this Act make very strict provisions for public participation in environmental decision-making.

Public participation can be defined as "a process leading to a joint effort by stakeholders, technical specialists, the authorities and the proponent who work together to produce better decisions than if they had acted independently" (Greyling, 1999). From this definition, it can be seen that the input of the public is regarded as very important indeed.

The Public Participation Process (PPP) is designed to provide sufficient and accessible information to Interested and Affected Parties (I&APs) in an objective manner to assist them to:

- 8.1.4. Raise issues of concern and suggestions for enhanced benefits.
- 8.1.5. Verify that their issues have been recorded.
- 8.1.6. Assist in identifying reasonable alternatives.
- 8.1.7. Contribute relevant local information and knowledge to the environmental assessment.
- 8.1.8. Comment on the findings of the environmental assessments.
- 8.1.9. Obtain information on the outcome, i.e, the competent authority's decision, and how and by when the decision can be appealed.

8.1.1. Public Participation Plan: Discussion of approach and methodology to meet the requirements of the Regulations.

Regulation	Approach & Methodology to meet requirements
<p>Regulation 40(1), Regulation 40(3) & Regulation 43 – provide all potential or registered interested and affected parties, including the competent authority, access to project related information, access to the BA report which will be made available for a period of at least 30 days to submit comments on draft reports prior to submission of final reports for decision-making.</p>	<p><u>Notification of Basic Assessment (BA) process to be undertaken for application for Environmental Authorisation (EA) to be distributed using the following means:</u></p> <ul style="list-style-type: none"> • E-mail • Dedicated project page on the Singo Consulting online stakeholder engagement platform. • Post • Process notices placed at locations that are accessible to I&Aps. • Advertisement in the printed media. <p><u>Notification of availability of report and period for review using the following means:</u></p> <ul style="list-style-type: none"> • Newspaper advert, including details of where the report can be accessed and details of the Singo Consulting website. • Notification letter (to be sent via email, fax or post) to registered I&Aps. • Notifications to communities via Ward Councillor, ward committee members, identified and confirmed community representatives, and local community forum members. • SMS and/ or WhatsApp notifications where no other means are available. <p><u>Availability of report for review:</u></p> <ul style="list-style-type: none"> • Report available on the Singo Consulting website for download. • Electronic copies can be made available to parties via a secure Dropbox link that will be emailed upon request for the documentation. • CDs to be posted, if requested. <p>Hard copy report to be available only where appropriate sanitary conditions can be maintained</p>

- Report will be submitted to the DEA using the DEA online portal.
- Report will be submitted to Organs of State and commenting authorities via an agreed electronic platform (such as on CD, or via a secure Dropbox link).

Submission of comments to EAP:

- Comments will be able to be submitted directly to the EAP using the Singo Consulting online stakeholder engagement platform. A customised reply form is available on this webpage.
- The online platform allows for instant feedback and comments to be submitted, in so doing saving time for the stakeholder and also giving the assurance that their comments have been submitted for inclusion in the project reporting.
- Written comments can also be submitted via email, post or fax.
- Any comments provided telephonically or via instant message will be transcribed and recorded as formal comments.
- Report will be submitted to Organs of State and commenting authorities via an agreed electronic platform (such as on CD, or via a secure Dropbox link).
-
- Submission of comments to EAP:
 - Comments will be able to be submitted directly to the EAP using the Singo Consulting online stakeholder engagement platform. A customised reply form is available on this webpage.
 - The online platform allows for instant feedback and comments to be submitted, in so doing saving time for the stakeholder and also giving the assurance that their comments have been submitted for inclusion in the project reporting.
 - Written comments can also be submitted via email, post or fax.
 - Any comments provided telephonically or via instant message will be transcribed and recorded as formal comments.

<p>Regulation 40(2) - Provide access to all project information that has the potential to influence any decision regarding the application, unless protected by law, and must include consultation with Competent Authority, Organs of State & registered I&APs.</p> <p>Regulation 41(6) – Relevant information available and accessible</p>	<p>Provision of project information and consultation via various means including:</p> <ul style="list-style-type: none"> • Telephonic consultation. • Email correspondence. • Correspondence sent via post. • SMS and/or WhatsApp.
Regulation	Approach & Methodology to meet requirements
	<ul style="list-style-type: none"> ○ Project maps (including locality map, layout map, sensitivity map, landowner map, etc) ○ Photos of the project site and surrounds ○ Presentation with narration providing a summary of the project details and the findings of the BA. ○ Posters providing a summary of the findings of the BA ○ A means of submitting written comment or queries. ○ Communities will be consulted via the relevant Ward Councillor, ward committee members, community representative or local community forum members, as determined and confirmed during the consultation process.
<p>Regulation 41(2)(a) – Site notice</p>	<ul style="list-style-type: none"> • Site notices will be placed at affected properties by the EAP, landowner or specialist, depending on specific travel restrictions applicable at the time.

	<ul style="list-style-type: none"> • Size and content will be in accordance with Regulation 41(3) & 41(4).
<p>Regulation 41(2)(b) – Written notification to affected and neighbouring landowners and occupiers; municipality; ward councillors; Organs of State & other parties required by the CA</p>	<ul style="list-style-type: none"> • Notification letter to be sent via email, fax or post.
<p>Regulation 41(2)(c) – (e) – Advertisements</p>	<ul style="list-style-type: none"> • Advert to be placed in a local newspaper. • Live reads on a local radio station will be used as alternative means based on the nature, extent of the projects and the demographics within the vicinity of the project location. • Process notices (A4 size) with site notice details will be placed at public places that are frequented by and accessible to community members during Alert Level 3.

Regulation	Approach & Methodology to meet requirements
Regulation 42 – Project database	<ul style="list-style-type: none"> • I&APs to be identified through a process of networking and referral, obtaining information from the Singo Consulting existing stakeholder database, liaison with potentially affected parties in the greater surrounding area and a registration process involving the completion of a reply form. • Organs of State, key stakeholders and affected and surrounding landowners will be identified and registered on the project database. • Other stakeholders will be required to formally register their interest in the project through either directly contacting the Singo Consulting Public Participation team via email or fax or use of the Singo Consulting website. • In order to access the Singo Consulting online stakeholder engagement platform for a specific project, I&APs will be required to provide their details such that they are automatically registered on the project database. • The register of I&APs will contain the names of: <ul style="list-style-type: none"> ○ all persons who requested to be registered on the database through the use of the Singo Consulting website, or in writing and disclosed their interest in the project; ○ all Organs of State which hold jurisdiction in respect of the activity to which the application relates; and ○ all persons who submitted written comments or attended virtual meetings and viewed virtual presentations on the Singo Consulting website during the public participation process. • The information captured on the project database will contain the names, organisation and contact details, as required.
Regulation 44 – Comments to be recorded	<ul style="list-style-type: none"> • Comments will be able to be submitted directly to the EAP using the Singo Consulting online stakeholder engagement platform. A customised reply form is available on this webpage. • The Singo Consulting online stakeholder engagement platform includes:

Regulation	Approach & Methodology to meet requirements
	<ul style="list-style-type: none"> ○ A means to register on the project database and provide details of their interest in the project ○ A means of submitting written comment or queries. • The online platform allows for instant feedback and comments to be submitted, in so doing saving time for the stakeholder and also giving the assurance that their comments have been submitted for inclusion in the project reporting. • Written comments can also be submitted via email, post or fax. • Any comments provided telephonically or via instant message will be transcribed and recorded as formal comments. • I&APs without the applicable electronic facilities to access the Singo Consulting website will be provided with the opportunity to submit their comments and communicate with the public participation team via SMS, WhatsApp or by sending a Please-call-me notification. These comments will be transcribed and recorded as formal comments. • All comments received throughout the EIA process will be acknowledged and captured in the comments and responses report (C&RR) with a relevant response. The C&RR will be included in the final report submitted to the CA.

	<ul style="list-style-type: none"> ○ A means to register on the project database and provide details of their interest in the project ○ A means of submitting written comment or queries. • The online platform allows for instant feedback and comments to be submitted, in so doing saving time for the stakeholder and also giving the assurance that their comments have been submitted for inclusion in the project reporting. • Written comments can also be submitted via email, post or fax. • Any comments provided telephonically or via instant message will be transcribed and recorded as formal comments. • I&APs without the applicable electronic facilities to access the Singo Consulting website will be provided with the opportunity to submit their comments and communicate with the public participation team via SMS, WhatsApp or by sending a Please-call-me notification. These comments will be transcribed and recorded as formal comments. • All comments received throughout the EIA process will be acknowledged and captured in the comments and responses report (C&RR) with a relevant response. • The C&RR will be included in the final report submitted to the CA.
<p>Regulation 4(2) – Notification of decision on application</p>	<p><u>Notification of Environmental Authorisation (EA) using the following means:</u></p> <ul style="list-style-type: none"> • Notification letter with details as outlined in the EA issued will be sent via email, fax or post. • Notification will be available on the Singo Consulting website. • Notifications that the EA has been issued and where to download and/or obtain a copy to communities via Ward Councillor and his/her ward committee members and identified and confirmed community representatives. • SMS or WhatsApp notification.

8.2. Notification of I&APs

The following notification methods were used to notify the potential Interested and Affected Party(I&APs) during the Public Participation Process:

As part of the Public Participation Process (PPP) for this proposed mining permit project, Interested and Affected Parties (I&APs) were invited to review and comment on the Draft Basic Assessment Report (DBAR) and Environmental Management Programme report (EMPr).

Consultation through newspaper announcement published for public to review Draft Basic Assessment Report through Local Newspaper Advert *Witbank News (published 05/08/2022)*(See Figure 5) and Site Notices were plugged around proposed site, Farm boundaries as well as the surrounding areas as another form of notifying any person/s who might be affected by the project on the 15th of August 2022. Link to Figure 4 for proof of site notice placement.

The first phase of the PPP includes the identification of I&APs. An initial I&AP database was compiled using Windeed searches (Landowners), internet searches and previous Basic Assessment (BA) projects in the vicinity of the study area.

The identification and notification of potential stakeholders will be an ongoing process throughout the PPP, as more information is gathered and contact with people is established.

8.2.1. List of Authorities Identified and Notified

The following authorities/stakeholders have been identified and notified of the proposed Elandspruit Mining Permit:

- Steve Tshwete Local Municipality.
- Department of Water and Sanitation: Mpumalanga Province.
- Mpumalanga Tourism and Parks Agency (MPTA)
- Department of Agriculture, Land Reform and Rural Development: Mpumalanga Province.
- South African National Roads Agency Ltd (SANRAL).
- South African Heritage Resources Agency.
- Eskom SOC Limited.
- South African National Biodiversity Institute (SANBI).

8.3. Release of Draft BAR & EMPr

A copy of the Draft Basic Assessment Report will be made available to the public for a 30- day review period from 12th of September 2022 until the 12th of October 2022. as per regulation 54 (2), section 4.6). Due to the ongoing strike at Steve Tshwete Local Municipality, the Draft BAR & EMPr will not be made available at the Gerard Sekoto Library (Wanderers Avenue, Middelburg, 1055) and electronic copies will be made available upon request.

All comments and responses received throughout the review period of the Draft Basic Assessment report will be recorded in the Comments and Response section, as well as in the summarized Table 4 of problems raised by interested and affected parties.

Once DMRE has decided on Environmental Authorization, all registered I&APs will be notified of the outcome of the application.



Figure 4: Proof of Site Notice.

Deeds Office Property - List

JS, 291, MPUMALANGA

Lexis® WinDeed

Any personal information obtained from this search will only be used as per the Terms and Conditions agreed to and in accordance with applicable data protection laws including the Protection of Personal Information Act, 2013 (POPI), and shall not be used for marketing purposes.

SEARCH CRITERIA			
Search Date	2022/07/28 13:44	Farm Number	291
Reference	-	Registration Division	JS
Report Print Date	2022/07/28 13:44	Portion Number	-
Farm Name	-	Remaining Extent	NO
Deeds Office	Mpumalanga	Search Source	Deeds Office

PORTION LIST				
Portion	Owner	Title Deed	Registration Date	Purchase Price (R)
0	*** NO LONGER EXISTS - SEE ENDORSEMENTS ***	-	-	-
1	TRANSNET LTD	T3533/1907	-	-
2	ELANDSPRUIT BELEGGINGS PTY LTD	T11473/1973	-	-
3	IZIMBIWA COAL PTY LTD	T18817/2008	-	-
4	VAN SNY INV PTY LTD	T5667/2022	-	-
5	ENGELBRECHT ISABEL	T15203/1972	-	-
6	TRANSNET LTD	T3902/1919	-	-
7	C H SCHUTTE ERFGENAME CC	T10213/1994	-	-
8	ROBINSON JEANNE ISABEL	T45955/1997	-	-
9	MRHETJA-MBHUDUMA COMMUNAL PROP ASSOC	T4787/2013	-	-
10	PHEZULU HOLDINGS PTY LTD	T1752/2020	-	-
11	*** NO LONGER EXISTS - SEE ENDORSEMENTS ***	-	-	-
12	*** NO LONGER EXISTS - SEE ENDORSEMENTS ***	-	-	-
13	*** NO LONGER EXISTS - SEE ENDORSEMENTS ***	-	-	-
14	IZIMBIWA COAL PTY LTD	T6660/2008	-	-
15	WELDING ANDRIES STEPHANUS	T21846/1987	-	-
16	MDAU KHETHIWE ELIZABETH	T24588/2006	-	-

DISCLAIMER

This report contains information provided to LNRM by content providers and LNRM cannot control the accuracy of the data nor the timely accessibility. LNRM will not be held liable for any claims based on reliance of the search information provided. This report is subject to the terms and conditions of LexisNexis Risk Management Agreement. LexisNexis Risk Management (Pty) Ltd is a registered credit bureau (NCRCB26).



0861 946 333
windeed.support@lexisnexis.co.za
search.windeed.co.za | www.windeed.co.za

Page 1 of 4

Figure 6: Windeed Results portion of RE/2





8.4. Summary of Issues Raised by I&APs

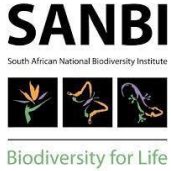
Comments to be raised by I&Aps will be recorded on Table 4 together with responses DMRE (the Competent Authority). The issues and responses will be incorporated into the final BAR and EMPr to be submitted to the Competent Authority

Table 4: Summary of issues raised by I&APs.

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted	Date Comments Received (Call, Fax, emails)	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
<u>AFFECTED PARTIES</u>				
Landowner/s				
Local Municipality:				

 <p>STEVE TSHWETE LOCAL MUNICIPALITY</p>					
<p>Organs of state (Responsible for infrastructure that may be affected: Roads, Departments, Eskom, Telkom & DWA)</p>					
 <p>water & sanitation Department: Water and Sanitation REPUBLIC OF SOUTH AFRICA</p>					
 <p>agriculture, forestry & fisheries Department: Agriculture, Forestry and Fisheries REPUBLIC OF SOUTH AFRICA</p>					
 <p>SANRAL</p>					
 <p>Eskom</p>					
<p>Dept. Land affairs</p>					

 <p>COMMISSION ON RESTITUTION OF LAND RIGHTS</p>					
<p>Tribal leaders</p>					
<p>Dept. of Environmental affairs</p>					
 <p><u>environmental affairs</u> Department: Environmental Affairs REPUBLIC OF SOUTH AFRICA</p>					
<p>Dept. Agriculture, land reform & rural development</p>					
 <p><u>agriculture, land reform & rural development</u> Department: Agriculture, Land Reform and Rural Development REPUBLIC OF SOUTH AFRICA</p>					
 <p>Mpumalanga TOURISM AND PARKS AGENCY</p>					

Adjacent Landowners					
Other Affected Parties					
Interested parties					
 <p>SANBI South African National Biodiversity Institute Biodiversity for Life</p>					

9. ENVIRONMENTAL ATTRIBUTES AND ASSOCIATED ALTERNATIVES

9.1. The Baseline Receiving Environment

This section describes the baseline receiving environment of the Mining Permit application area. Information in this section is based on specialist studies undertaken in support of this application, desktop studies and a site visit by the EAP as well as input from the public through the I&AP questionnaire. As such, the descriptions below of environmental features represent a consolidation of relevant information to the application area.

9.1.1. Regional geology

9.1.1.1. Karoo Geology

The Loskop Formation consists of continental detrital red beds (*sensu lato*), 2.06 Ga old, laid down in the Cullinan-Witbank Basin. These beds rest conformably to unconformably on the Rooiberg volcanics and on the Pretoria Group, and have been partly eroded before the deposition of the Waterberg Group. In the western part of the basin, only 3 main relicts of the Loskop Formation have escaped this denudation. They are the object of this study: the area south of Moloto, Renosterkop Hill and south of Balmoral. The investigation focussed on the stratigraphy, the petrography of the clasts, the extrusive and intrusive rocks, and the mineralisations. Synsedimentary tensional tectonics, updoming and epithermal activity are documented. A clast study indicated that the basic rocks of the Bushveld Complex (= Rustenburg Layered Suite), up to the Main Zone and possibly even the basal Upper Zone, were already solid and were rapidly uplifted and partly eroded during the early stages of Loskop sedimentation. The uplift is attributed to diapiric rise of the Bushveld floor before the end of the deposition of the cumulates of the Rustenburg Layered Suite. The main part of the Bushveld Granite (= Nebo Granite) is intrusive into the Loskop Formation, but had cooled down before the end of the last magmatic phase of the Rustenburg Layered Suite. The model proposed recently by some authors, that the Rooiberg Group developed simultaneously with the Rustenburg Layered Suite and that both are due to a plume of short duration, is supported by this investigation. It is suggested that the Loskop Formation was deposited during the waning stage of the plume activity, when the production of new magma became reduced.

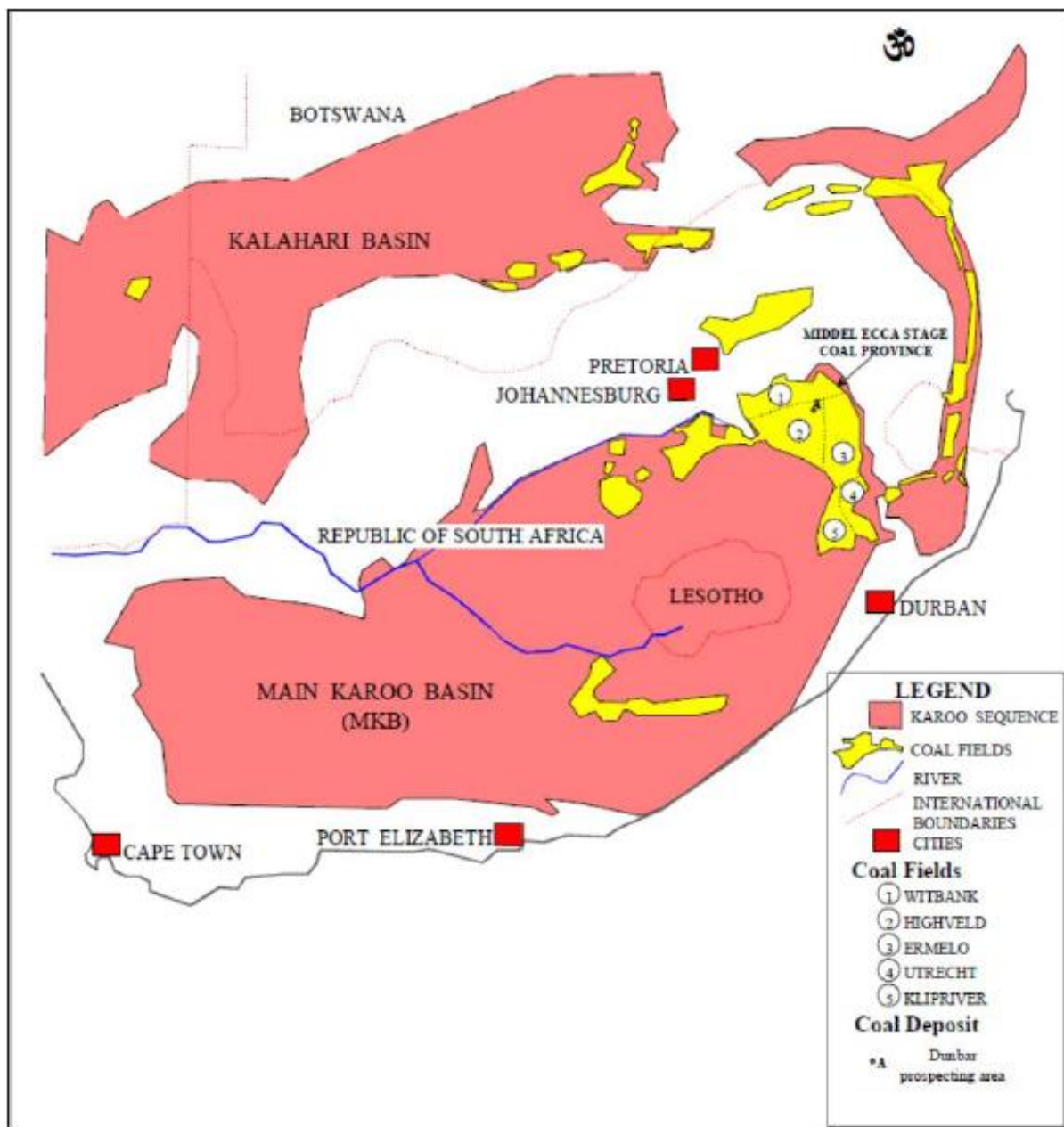


Figure 7: Karoo and coal basin map

9.1.1.2. Local Geology

The proposed mining permit project area comprises of the Loskop Formation. The dominant rocks of the Loskop Formation that can be found are Mudrock, sandstone. Conglomerate and volcanic rocks. In addition, it consists of continental detrital red beds (*sensu lato*), 2.06 Ga old, laid down in the Cullinan-Witbank Basin. These beds rest conformably to unconformably on the Rooiberg volcanics and on the Pretoria Group, and have been partly eroded before the deposition of the Waterberg Group

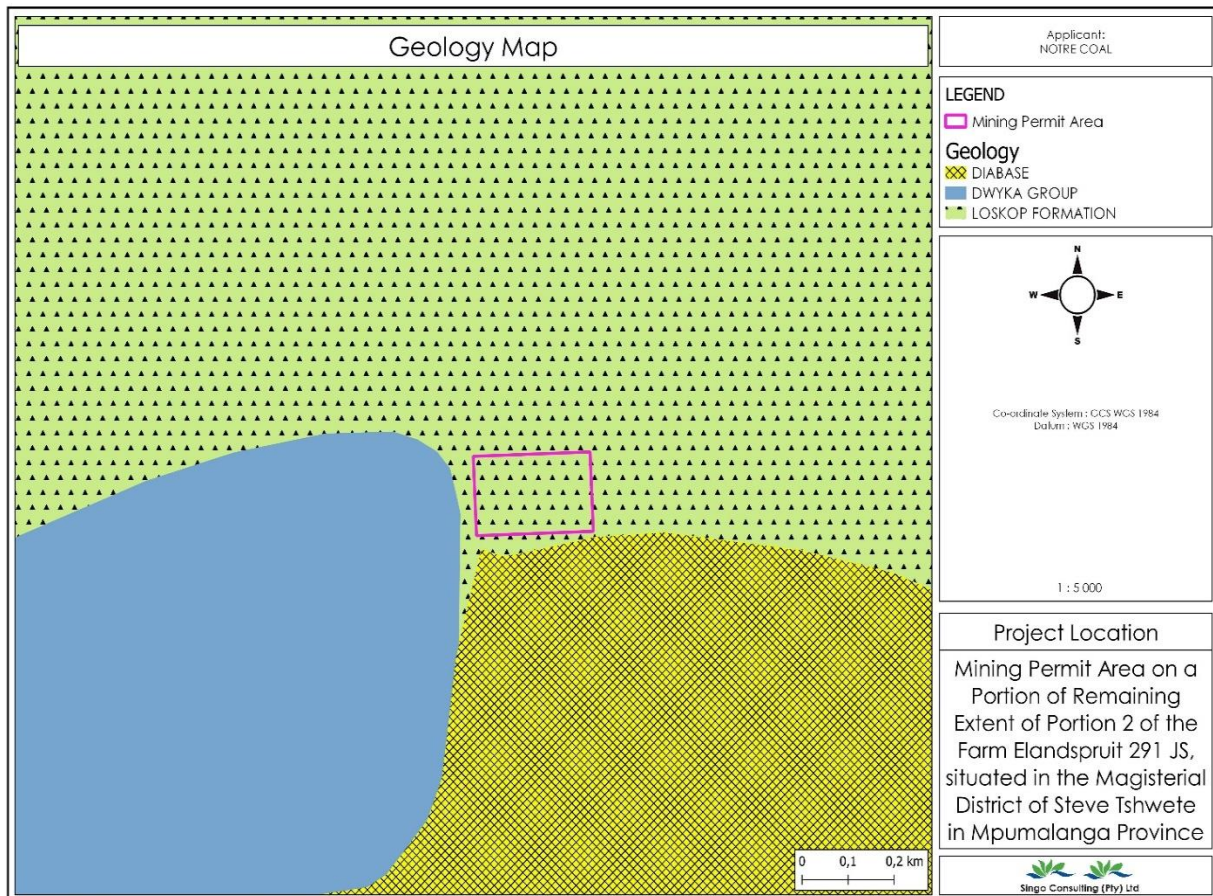


Figure 8: Geology Map for the mining permit area (Singo Consulting (Pty) Ltd (2022)).

The proposed project area falls within the Witbank coalfields. This Coalfield was first exploited in 1895 and became the most significant production area in South Africa supporting many collieries. Six coal seams (numbered 1 through 6 from the base upwards) are contained in a 70 m-thick succession comprising dominantly of sandstone with subordinate siltstone, mudstone and shale (Vryheid Formation). The partings between the seams are remarkably constant, although seam splitting is common.

9.1.2. Flora

The proposed project area is classified as Grassland Biome (see figure 9(a) and the vegetation type (Figure 9(b)) that exists in the proposed project area is categorized as Rocky Highveld Grassland which falls in the Grassland Biome. This agrees with Screening tool report (Figure 10) and field observation (Figure 11)

The Grassland Biome is found chiefly on the high central plateau of South Africa, and the inland areas of KwaZulu-Natal and the Eastern Cape. The topography is mainly flat and rolling but includes the escarpment itself. Altitude varies from near sea level to 1 445 to 1 450 m above sea level. Grasslands (also known locally as Grassveld) are dominated by a single layer of grasses. The amount of cover depends on rainfall and the degree of grazing. Trees are absent, except in a few localized habitats. Geophytes (bulbs) are often abundant. Frosts, fire and grazing maintain the grass dominance and prevent the establishment of trees (SANBI, 2013).

The Grassland Biome is considered to have an extremely high biodiversity, second only to the Fynbos Biome. It is the second largest of South Africa's nine biomes, covering nearly 30% of the country's land surface area. A rich store of biodiversity assets, including 52 of South Africa's 122 important bird areas, almost one third of the country's 107 threatened butterflies, 15 of its endemic mammals and nearly 3,500 plant species. In addition, rare plants are often found in the grasslands, especially in the escarpment area. These rare species are often endangered, comprising mainly endemic geophytes or dicotyledonous herbaceous plants. Very few grasses are rare or endangered. The scenic splendour of the escarpment region attracts many tourists (SANBI, 2013).

The dominant vegetation comprises grasses, with geophytes and herbs also being well represented. Dominant and diagnostic grass species are *Hyparrhenia hirta* and *Sporobolus pyramidalis*. Non-grassy forbs include *Acacia sieberiana*, *Rhus rehmanniana*, *Walafrida densiflora*, *Spermacoce natalensis*, *Kohautia cynanchica*, and *Phyllanthus glaucophyllus* (Bredenkamp et al. 1989; Coetzee et al. 1993; Eckhardt et al. 1993; Fuls et al. 1993; Cowling et al. 1997).

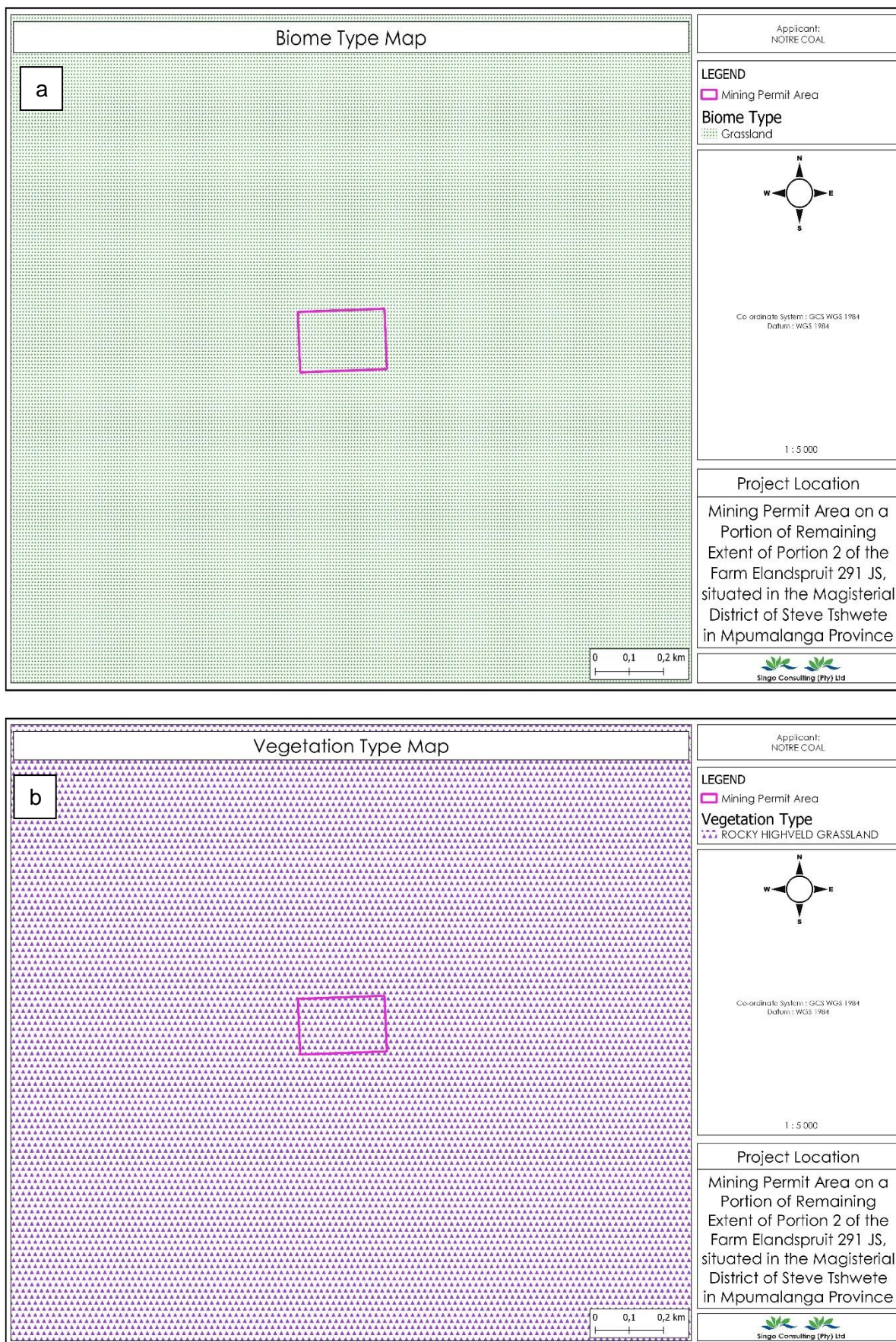


Figure 9: Biome Type, Vegetation Type, and Site picture of the project area (Singo Consulting (Pty) Ltd (2022)).



Figure 10: Plant Species Theme Sensitivity Map from Screening Tool.



Figure 11: Vegetation Type (Site Photo).

9.1.3. Fauna

At the time of the site inspection, no domestic or wild wildlife were found. But there was evidence that cows were there as their faeces were found. This agrees with Farming Type Map in Figure 12. The area is medium sensitivity as per screening tool report (Figure 13). There will be no impact on the proposed mining activity if any wild wildlife enters the mining area because they will be able to migrate away or through the site without being killed.

The fauna at the site will not be impacted by the proposed processing activity, as they will be able to move away from or through the site unharmed. Workers must be educated and managed to ensure that no fauna at the site is harmed. Upon commencement of the proposed processing activities, the processing area will be fenced off to prevent livestock, such as cattle from wandering into the work area.

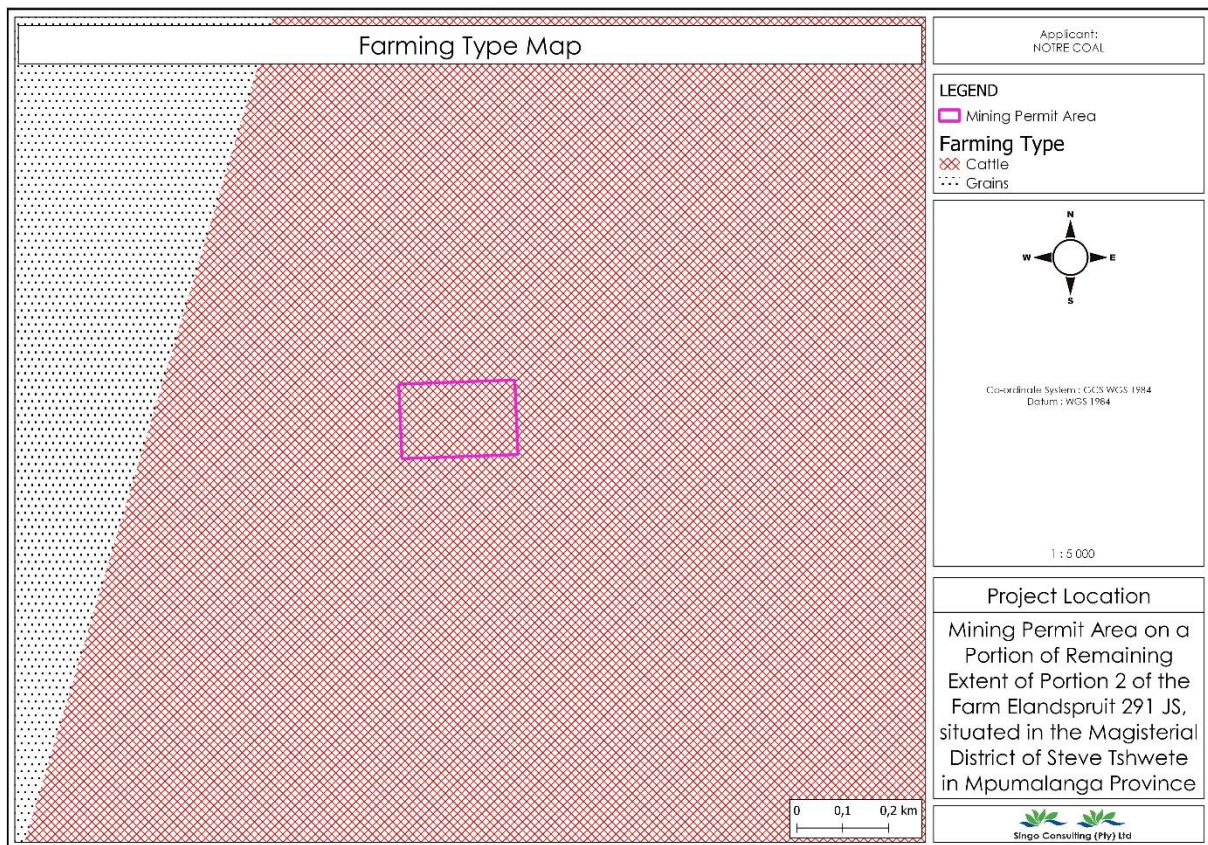


Figure 12: Farming Type (Singo Consulting (Pty) Ltd (2022))

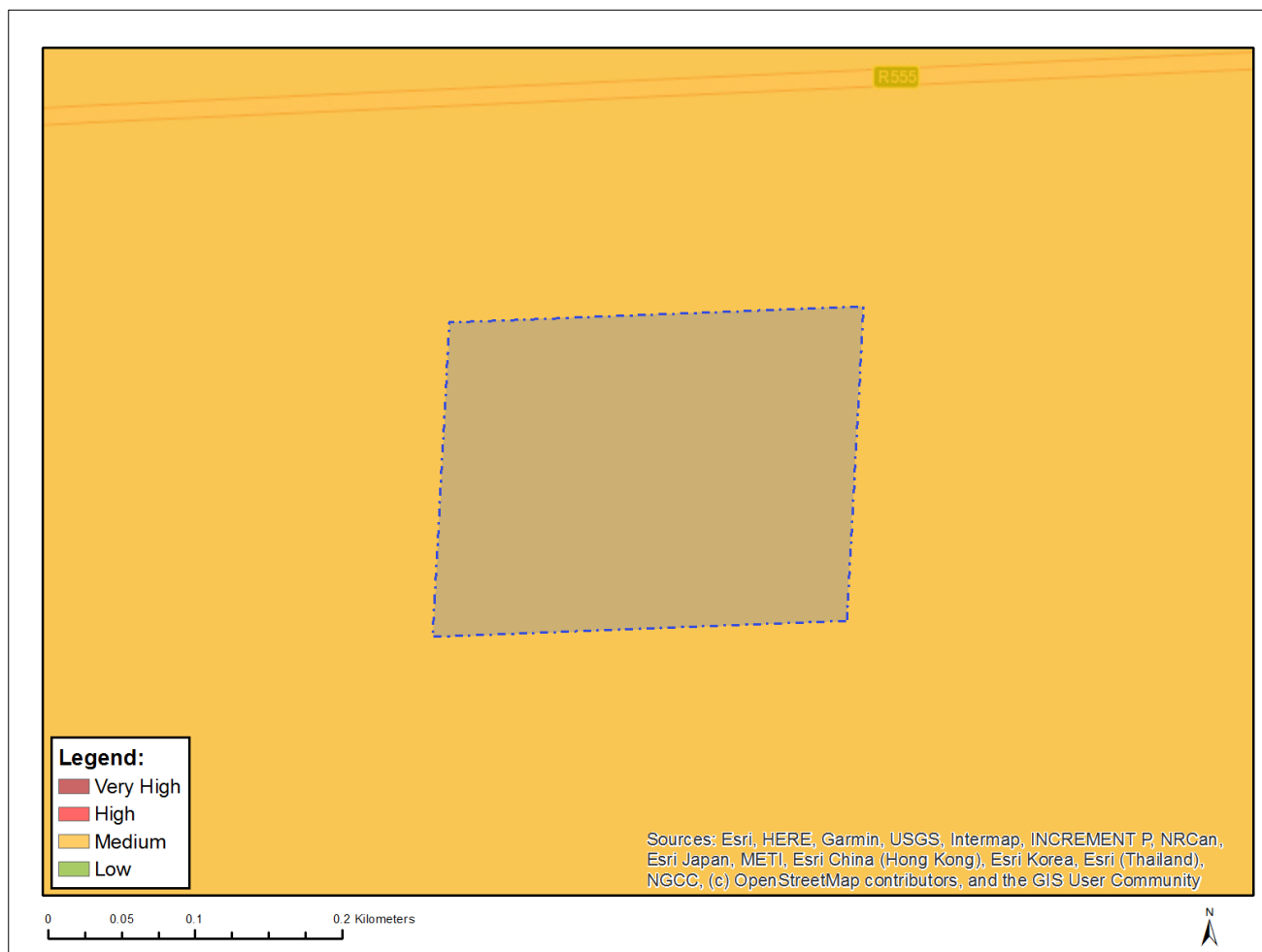


Figure 13: Animal Sensitivity from Screening Tool

9.1.4. Soil

Mining permit area is covered with freely drained, structureless soils (Figure 14). The soil classes in the proposed area can be described based on their soil depth, soil drainage, erodibility, and natural fertility.

9.1.4.1. Soil depth

Depth of the soil profile is from the top to the parent material or bedrock. This type of soil can be classified as a restricted soil depth. A restricted soil depth is a nearly continuous layer that has one or more physical, chemical, or thermal properties.

9.1.4.2. Soil Drainage

Soil drainage is a natural process by which water moves through, and out of the soil because of the force of gravity. The soils in the proposed area have an excessive drainage due to the soils having very coarse texture. Their typical water table is less than 150.

9.1.4.3. Erodibility

Erodibility is the inherent yielding or non-resistance of soils and rocks to erosion. The freely drained structureless soils have high erodibility. A high erodibility implies that the same amount of work exerted by the erosion processes lead to a larger removal of material. (Source according to Singo Consulting specialist studies)



Figure 14: Soil type(Site photo).

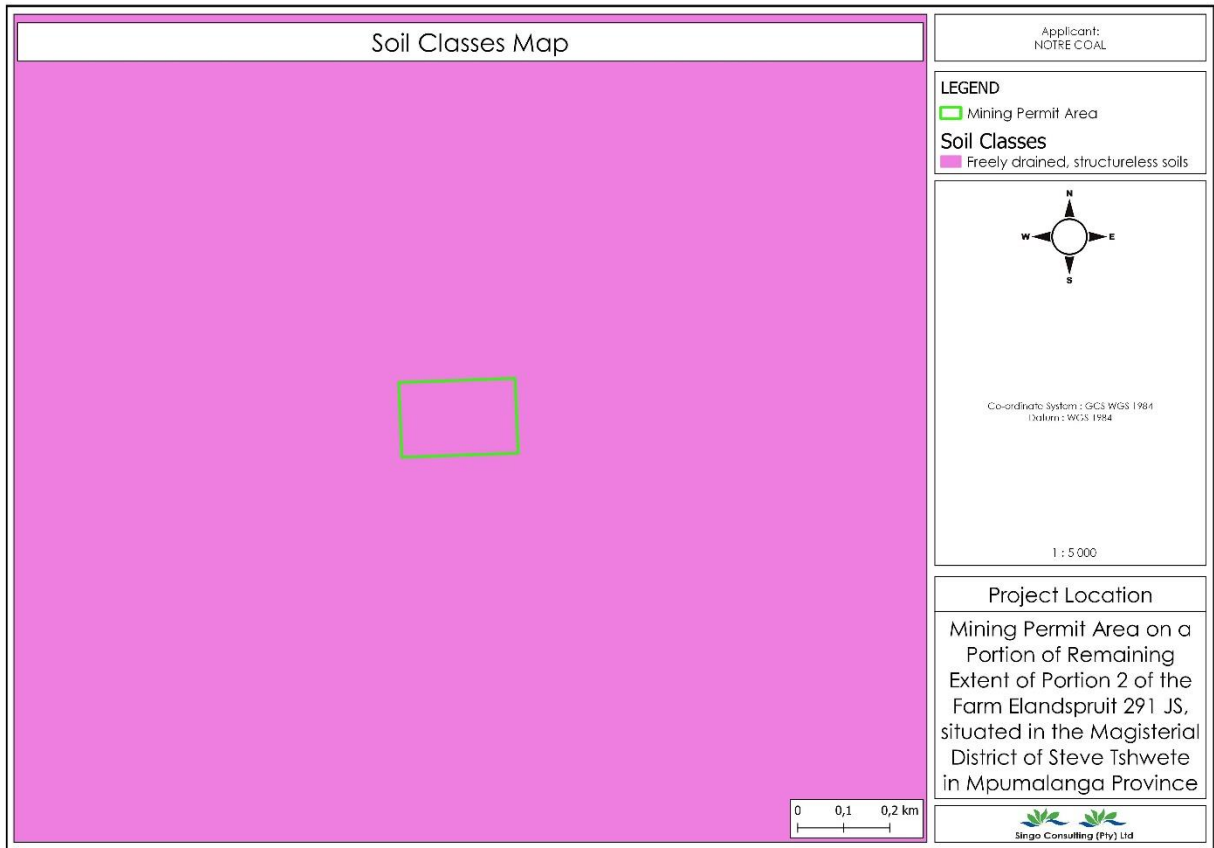


Figure 15: Soil Type in the project area (Singo Consulting (Pty) Ltd (2022))

9.1.5. Surface and Ground water

The project area is in the Olifants Management Area (WMA). The quaternary catchment is B11J. The WR2012 study, presents hydrological parameters for each quaternary catchment including area, mean annual precipitation (MAP) and mean annual runoff (MAR). Based on the WR2012 study, the project area falls within the quaternary catchment B11J. The total catchment area of B11J is 574 km² with MAP of 669 millimetre (mm).

The mining permit area map below Figure 16 shows that there are no water bodies within the mining permit. Furthermore, the map shows that water bodies such as wetlands and the perennial river and non-perennial river exist within a 2 km radius from the mining permit. The mining activities will be monitored to ensure that these activities do not damage the water bodies.

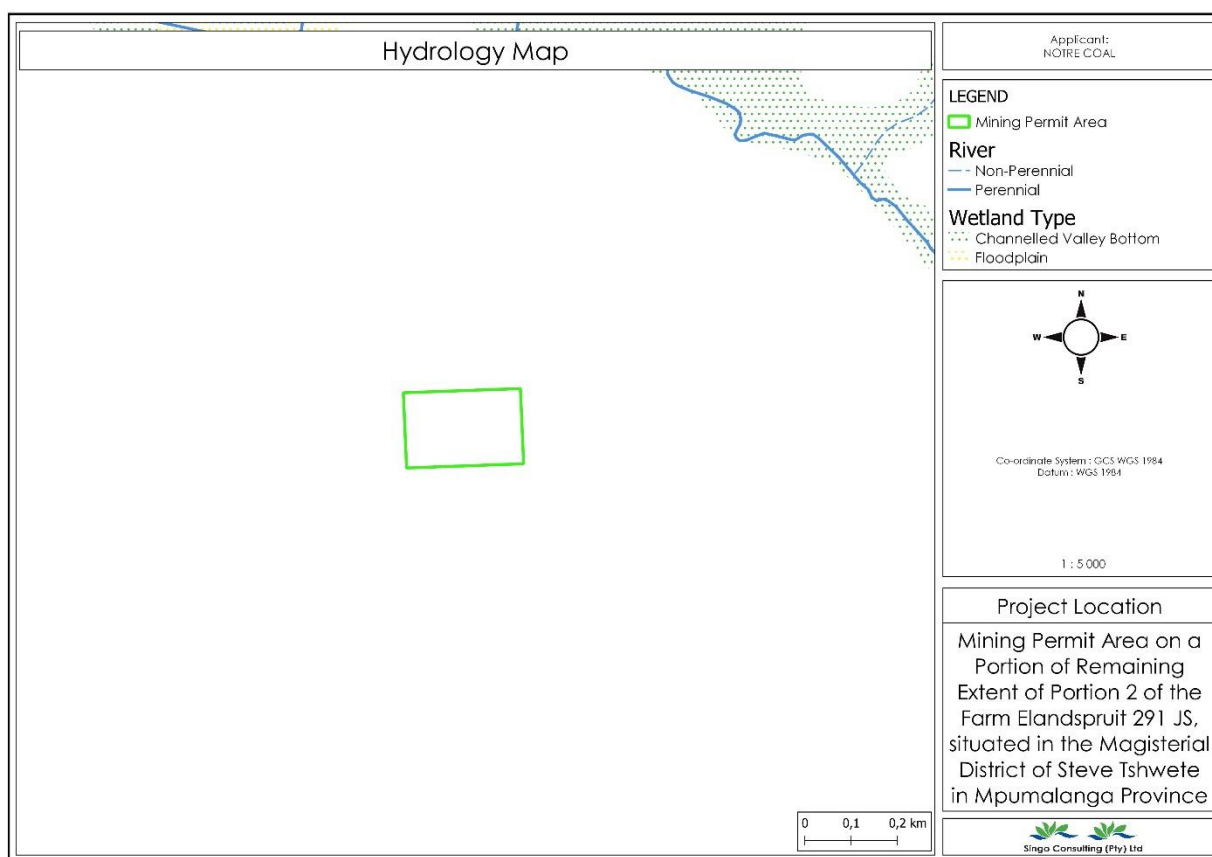


Figure 16: Hydrological Map of the project Area (Singo Consulting (Pty) Ltd (2022)).

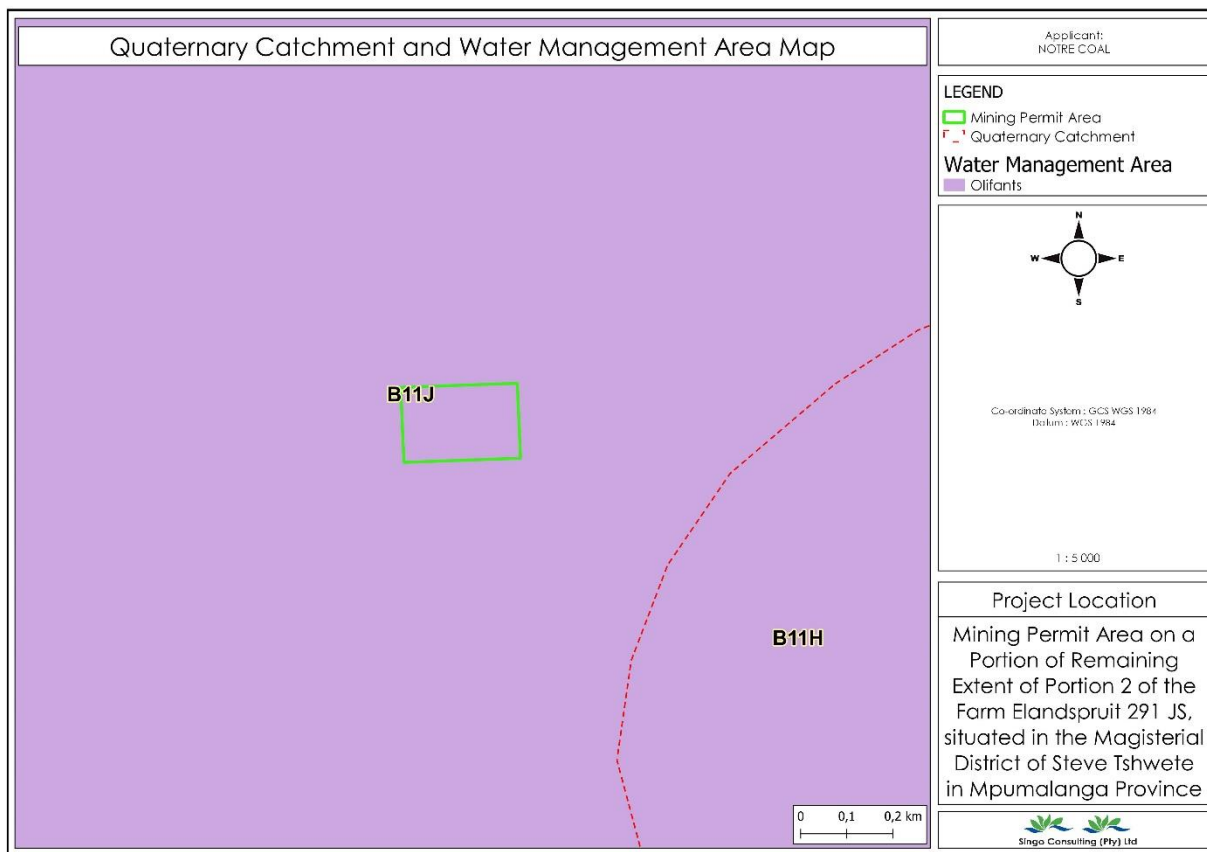


Figure 17: Quaternary Catchment and Water Management Area (Singo Consulting (Pty) Ltd (2022))

9.1.6. Terrestrial Biodiversity

The permit area is situated in Moderately Modified-Old Lands (Figure 18). There are no critical species will be affected by the proposed project as there are critical plants and sensitivity within and around the proposed mining permit. Therefore, critical species will be harmed even though identified during the operation of proposed project as Eco will be onsite every day to monitor the operation. Although the area is characterized by Rocky Highveld Grassland according to the Map. However, Screening Tools shows the area as high sensitive (Figure 19).

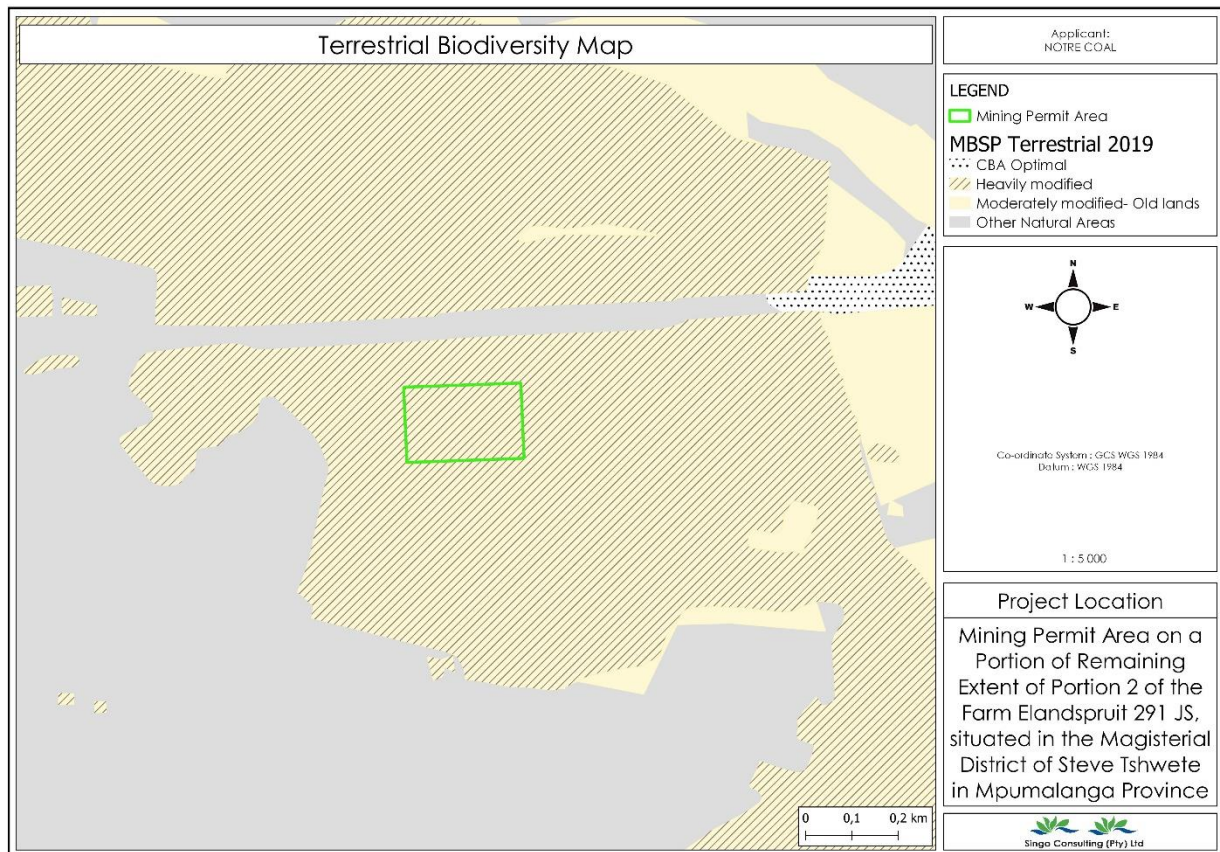


Figure 18: Terrestrial Biodiversity map of the Area (Singo Consulting (Pty) Ltd (2022))

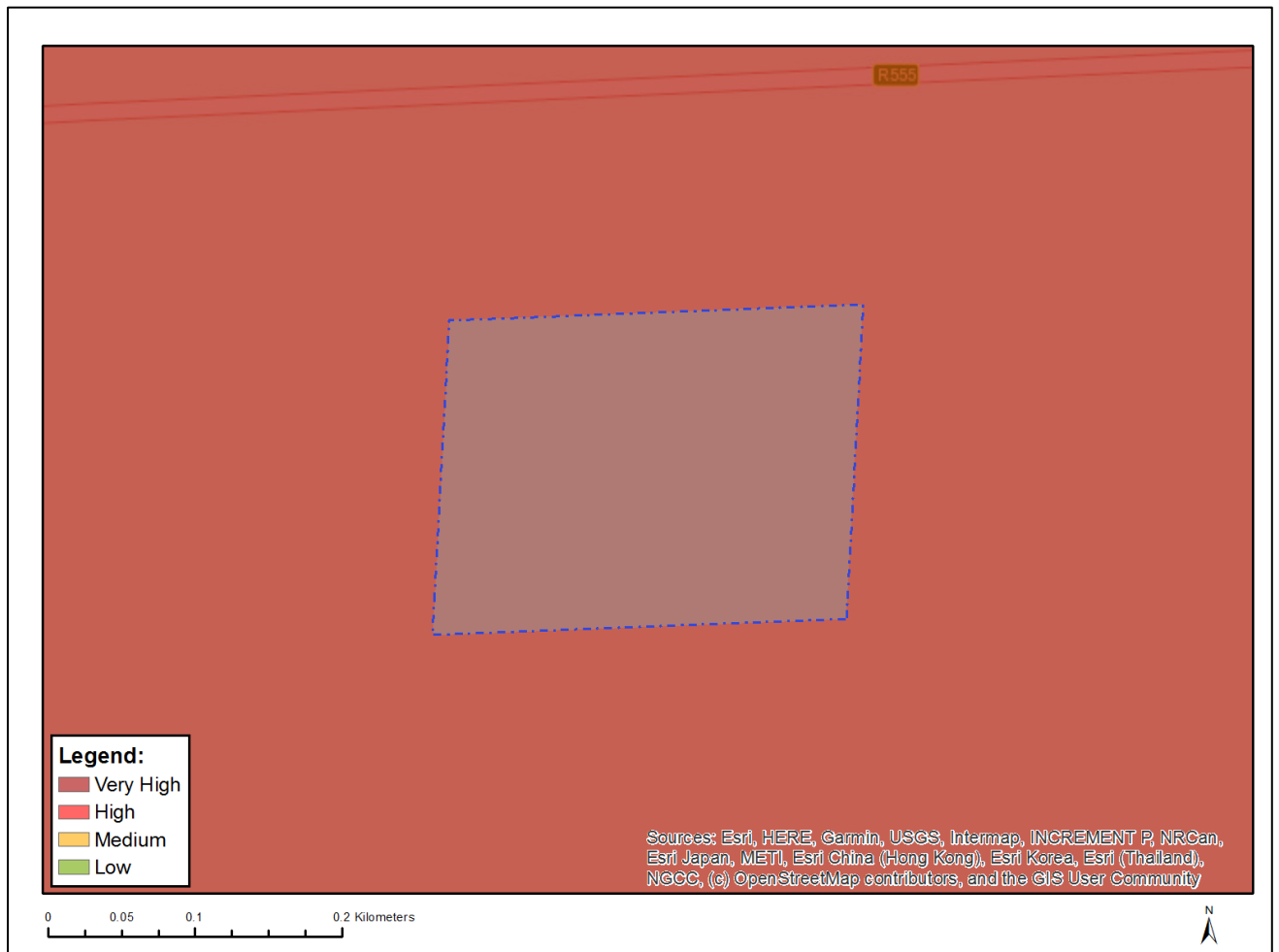


Figure 19: Terrestrial Biodiversity Map from screening tool.

9.1.7. Topography

The topography of the project area is situated in a flat-lying topography range as displayed by the contour lines on the topology map below, and the map shows that there are hills around the project area. Elevation ranges from 1 445m to 1450m (Figure 20)

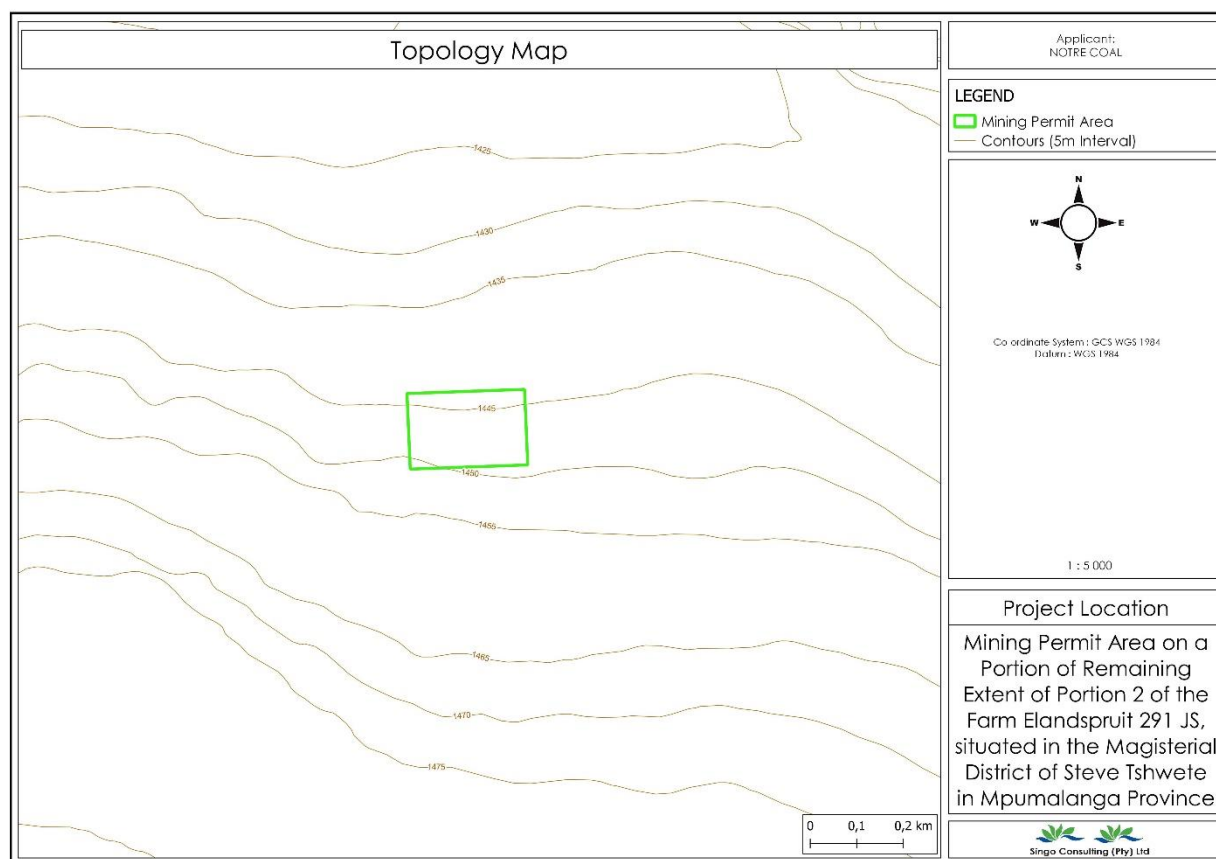


Figure 20: Topology Map of the project area (Singo Consulting (Pty) Ltd (2022))

9.1.8. Public Roads

The proposed project area is roughly 8 km South of Middelburg and 10 km North of Witbank in Mpumalanga Province. The project area is accessible through R555. The project area is 5 hectares and is located on portion of the Remaining Extent of portion 2 of the farm Elandspruit 291 JS.

9.1.9. Cultural and Heritage environment.

The proposed mine is located within the old fields and there are no archaeological or heritage resources identified at the surface on site. SAHRA was consulted through online, and the status of the land is not yet confirmed. Site visit did not reveal any critical feature which can be declared as heritage. Consultation with stakeholders more especially landowner and SAHRA will allude to the presence of any heritage feature.

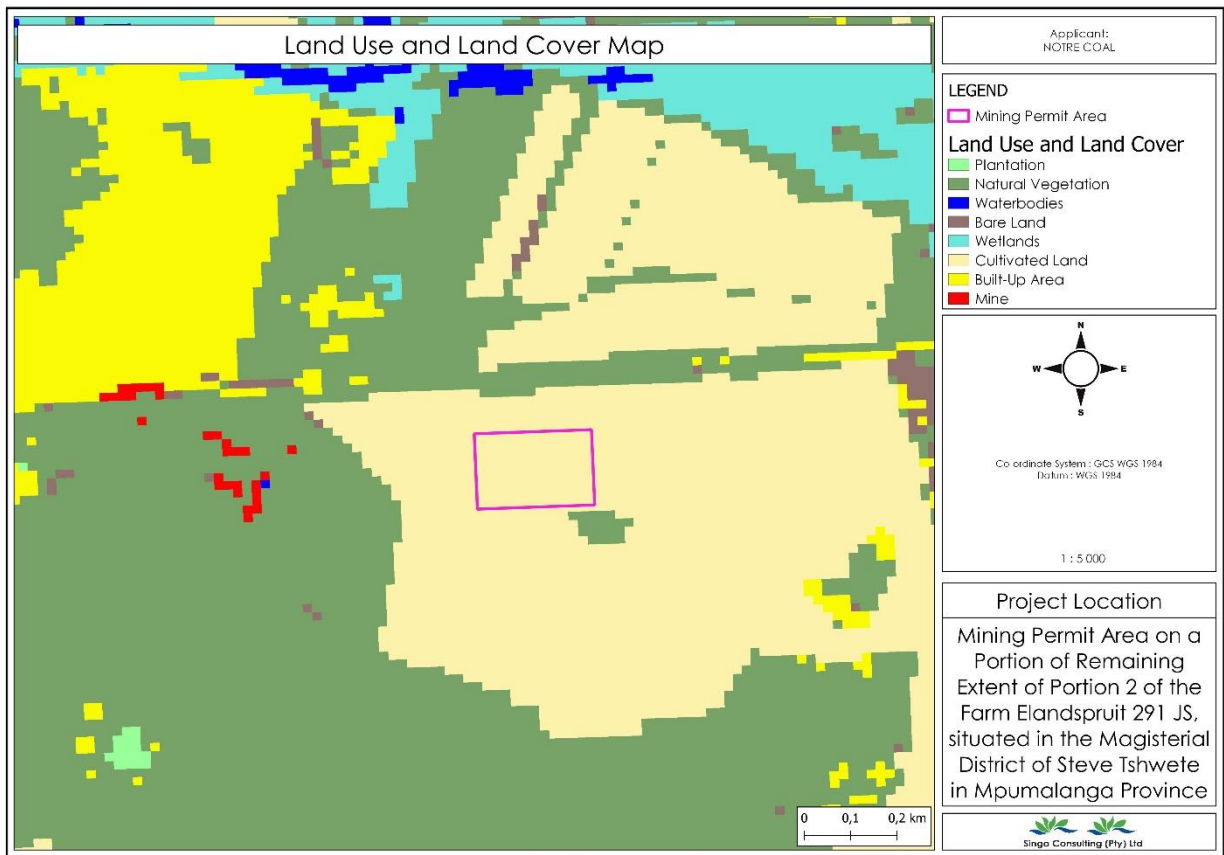
9.1.10. Noise

The surrounding areas are characterized by agricultural and mining setting in which vehicles and equipment operate. The traffic on the public roads surrounding the property contributes to the ambient noise of the area. The noise to be generated at the proposed mining operation is expected to temporarily increase the noise levels of the area. Blasting noise will be instantaneous and of short duration. Transportation of the material will generate noise daily.

Mitigation measures should be implemented to ensure employees conduct themselves in an acceptable manner while on site to lessen the noise impact of the proposed activity on the surrounding environment.

9.1.11. Description of current land-Use/Land-Cover

The surrounding land use on the proposed project area are associated natural vegetation and dysfunctional water system next to the proposed permit. Mining Permit application composed of natural vegetation(Figure 21). This was confirmed by site visit process that was conducted. The area is surrounded with other infrastructures such as road, powerline and buildings. All infrastructures are beyond 100m from the proposed area. They range from 200m to approximately 1km.



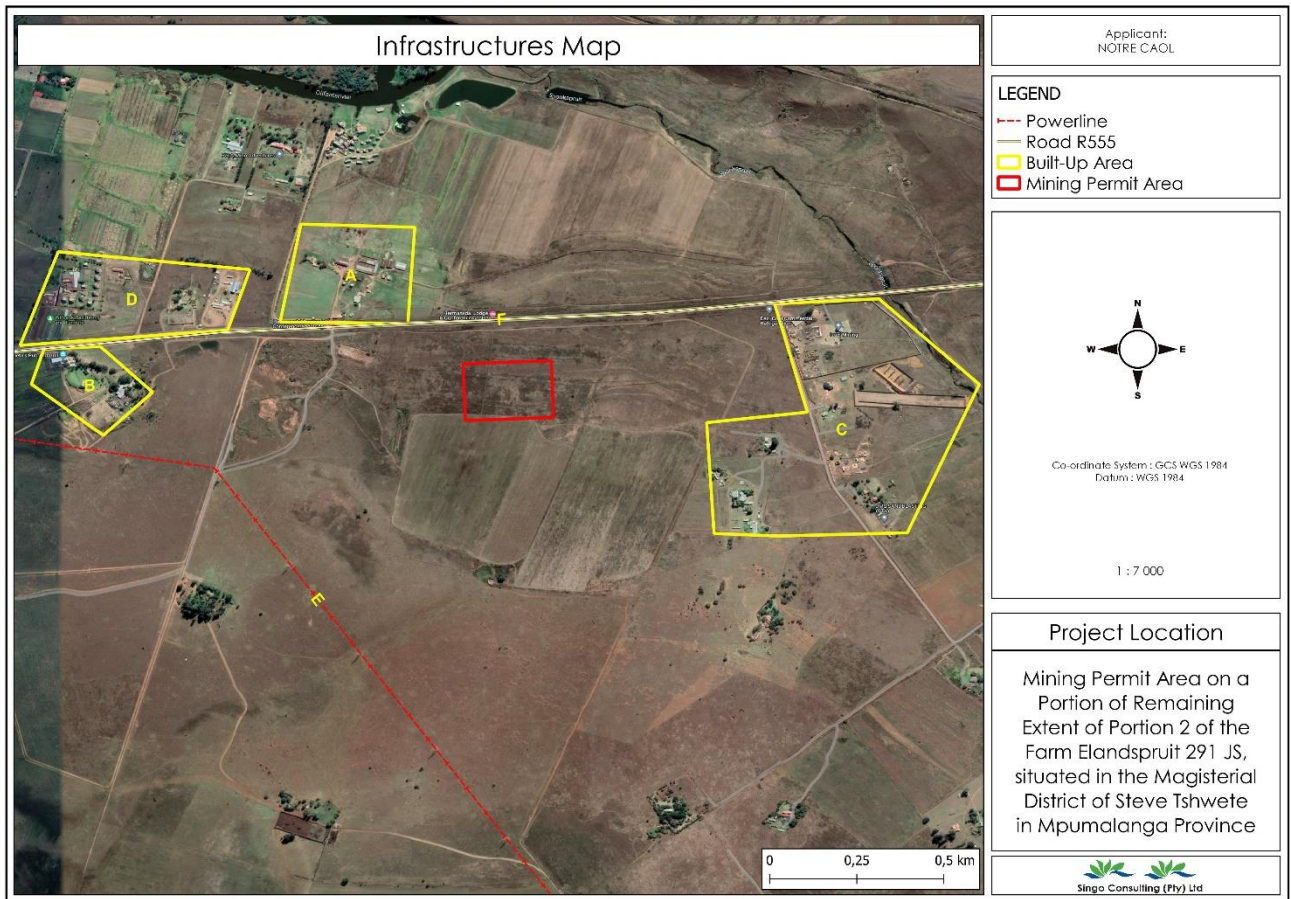


Figure 21: Land Use and Land Cover Map of the project area (Singo Consulting (Pty) Ltd (2022))

10. IMPACTS AND RISKS IDENTIFIED

10.1. Impact and Risk Identified

Impacts and risks were identified based on the proposed mining activities to take place on-site. Table 14 lists the potential impacts related to each of the significant activities related to the small-scale mining operation.

Table 14: List of potential impacts per activity.

Aspect	Main Activity/Action/Process	Impact
Socio-economic	Site establishment	Safety and security risks to landowners and lawful occupiers
	Site establishment	Sense of place
	Site establishment	Creation of employment
	General mine management	Crime and violence
	General mine management	Influx of migrant workers
	General mine management	Sense of place
	General mine management	Social vices
	Opencast mining	Coal supply
	Opencast mining	Economic growth
	Opencast mining	Education, skills development and training
	Opencast mining	Employment opportunity
Health and safety	Maintenance and operation of site infrastructure and facilities	Fire and explosion hazard
	Opencast mining	Fly rock
	Opencast mining	Health impacts
Land capability	Maintenance and operation of site	Loss of soil fertility, soil resource and its utilisation potential
Land use	Opencast mining	Damage/Disruption of services (such as water and power supply, etc.)
	Opencast mining	Interference with existing land uses

Aspect	Main Activity/Action/Process	Impact
Soil	Opencast mining	Soil compaction
	Opencast mining	Soil pollution/contamination
	Opencast mining	Erosion and sedimentation
Topography and landform	Opencast mining	Alteration of topography
	Opencast mining	Altered drainage patterns
Transportation, infrastructure and traffic	Opencast mining	Soil surface subsidence
	Opencast mining	Damage to infrastructure
	Opencast mining	Increased traffic
Visual	Opencast mining	Visual impact of mine infrastructure, stockpiles and dust
Air quality	Opencast mining	Fugitive emissions (dust)
Blasting and vibration	Opencast mining	Air blast
	Opencast mining	Ground vibration and human perception
	Opencast mining	Impact on infrastructure
	Opencast mining	Noxious fumes
Noise	Opencast mining	Disturbing and/or nuisance noise
Fauna and flora	Opencast mining	Direct and indirect mortality of flora and fauna
	Opencast mining	Habitat fragmentation and blockage of seasonal and dispersal movements
	Opencast mining	Introduction/invasion by alien (non-native) species
Surface water	Opencast mining	Pollution of surface water resources/decreased water quality
	Opencast mining	Decrease in surface water availability
Ground water	Opencast mining	Pollution of groundwater

Heritage	Opencast mining	Discovery and preservation of fossils
	Opencast mining	Destruction/damage of palaeontological resources
	Opencast mining	Destruction/damage of heritage resources
Geology	Opencast mining	Impact on geology

Each of the identified risks and impacts for these phases was assessed utilizing the assessment methodology described in Section 10.1.1. The assessment criteria include the Intensity(I), Frequency (F), Extent (E), duration(D), Probability(P), Consequence(C), Severity (S) and Impact Significance (IS) The full scoring of each impact is provided in the impact assessment table provided in Appendix F.

A summary of the impacts and their significance before and after mitigation is provided in Section 13 of this report (Table 22).

In order to calculate the Impact Significance(IS), Intensity, Probability, Duration, Extent and Frequency will be used. The pre- and post- mitigation scores will provide an indication of the extent to which an impact can be mitigated.

10.1.1. The Impact Assessment Methodology

The subsections below present the approach to assessing the identified potential environmental impact with the aim of determining the relevant environmental significance.

10.1.2. Method of Assessing Impacts

The impact assessment methodology is guided by the requirements of the NEMA 2014 EIA Regulations (as amended). The broad approach to the Risk Rating methodology is to determine impact significance.

10.1.3. Determination of Impact Significance

The Impact significance (S) is determined by the following equations:

Impact significance = (consequence x probability)

Where:

$$\text{Consequence} = \frac{\text{Severity} + \text{Extent}}{2}$$

and

$$\text{Severity} = \frac{\text{Intensity} + \text{Frequency} + \text{Extent}}{3}$$

Each individual aspect in the determination of the Consequence is represented by a rating scale as defined in Table 15.

Table 15: Criteria for determination of impact Consequence.

Aspect	Score	Definition
Extent	1	Activity (i.e. limited to the area applicable to the specific activity)
	2	Site (i.e. within the development property boundary),
	3	Local (i.e. the area within 5 km of the site),
	4	Regional (i.e. extends between 5 and 50 km from the site)
	5	Provincial / National (i.e. extends beyond 50 km from the site)

Duration	1	Immediate (<1 year)
	2	Short term (1-5 years)
	3	Medium term (6-15 years)
	4	Long term (the impact will cease after the operational life span of the project),
	5	Permanent (no mitigation measure of natural process will reduce the impact after construction).
Intensity	1	Minor (where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected)
	2	Low (where the impact affects the environment in such a way that natural, cultural and social functions and processes are slightly affected)
	3	Moderate (where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way)
	4	High (where natural, cultural or social functions or processes are altered to the extent that it will temporarily cease) or
	5	Very high / don't know (where natural, cultural or social functions or processes are altered to the extent that it will permanently cease)
Reversibility	1	Impact is reversible without any time and cost
	2	Impact is reversible without incurring significant time and cost
	3	Impact is reversible only by incurring significant time and cost
	4	Impact is reversible only by incurring prohibitively high time and cost

Aspect	Score	
	5	Irreversible Impact

Once the C has been determined the ER is determined in accordance with the standard risk assessment relationship by multiplying the C and the P. Probability is rated/scored as per Table 16.

Table 16: Probability scoring.

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

The result is a qualitative representation of relative ER associated with the impact. ER is therefore calculated as follows (Table 17):

$$ER = C \times P$$

Table 17: Determination of Environmental Risk.

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

The outcome of the environmental risk assessment will result in a range of scores, ranging from 1 through to 25. These ER scores are then grouped into respective classes as described in Table 18.

Table 18: Significance classes.

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

≥ 20	High (i.e. where the impact will have a significant environmental risk).
------	--

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

10.1.4. Impact Prioritisation

In accordance with the requirements of Appendix 3(1)(j) of the NEMA 2014 EIA Regulations (as amended) (GNR 326 of 2017), and further to the assessment criteria presented in the Section above, it is necessary to assess each potentially significant impact in terms of cumulative impacts and the degree to which the impact may cause irreplaceable loss of resources.

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

In an effort to ensure that these factors are considered, an impact Prioritisation Factor (PF) will be applied to each impact ER (post-mitigation). This prioritisation factor does not aim to detract from the risk ratings but rather to focus the attention of the decision-making authority on the higher priority/ significance issues and impacts. The PF will be applied to the ER score based on the assumption that relevant suggested management/ mitigation impacts are implemented (Table 19).

Table 19: Criteria for the determination of prioritisation.

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

	Medium (2)	Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.
	High (3)	Where the impact may result in the irreplaceable loss of resources of high value (services and/or functions).

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

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

The result is a priority score which ranges from 3 to 9 and a consequent PF ranging from 1 to 2 (Table 20). Table 20: Determination of prioritisation factor.

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

In order to determine the final impact significance the PF is multiplied by the ER of the post mitigation scoring. The ultimate aim of the PF is to be able to increase the post mitigation environmental risk rating by a full ranking class, if all the priority attributes are high (i.e. if an impact comes out with a medium environmental risk after the conventional impact rating, but there is significant cumulative impact potential, significant public response, and significant potential for irreplaceable loss of resources, then the net result would be to upscale the impact to a high significance (Table 21).

Table 21: Environmental significance rating.

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

10.2. Assessment and Evaluation of Potential Project Impacts and Mitigation Measures

The following potential impacts were identified during the Basic Assessment. Mitigation measures have also been provided for each environmental aspect assessed.

The draft BAR+EMPR was made available to I&APs for review and comment and their comments and concerns have been addressed in this final report that is submitted to the DMR for decision-making. The results of the public consultation were utilised to update the impact scores upon completion of the public review period. Furthermore, it is noted that the results of the public consultation were utilised to update the proposed potential mitigation measures.

10.2.1. Topography and Landform

Topography refers to the surface shape and features of an area. Opencast operations will remove surface material to access and mine an orebody and this can alter the natural topography of the site. Resultant changes to the topography can in turn impact on groundwater, surface water drainage, visual character and the safety of both people and animals if not properly mitigated. If mining extraction techniques are not carried out correctly, lack of support from underlying layers could cause the surface soil profile to vertically subside to a greater or lesser degree. This could result in limitations to the viability of potential post mining land uses.

Impacts on the topography and landform within the application area are expected to occur as follows:

- Alteration of topography.
- Altered drainage patterns.

- Soil surface subsidence.

10.2.1.1. Significance of Impacts

The above impacts on topography and landform will be negative but site specific. With mitigation, the impact can be controlled but not prevented and will remain low to moderate in significance.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Alteration of topography	-15,00	-13,75	-13,75
Altered drainage patterns	-11,00	-5,00	-5,00
Soil surface subsidence	-10,00	-4,00	-4,67

The following mitigation types are associated with potential impacts on topography and landform:

- ❖ Control through site planning and design.
- ❖ Control through proper soil management procedures.
- ❖ Avoidance through mine design and planning (depth of mining, safety factors, overburden and rock qualities).

10.2.2. Impact on Geology

Geology refers to the underlying mineral structure of an area. Alterations to the natural geology could have impacts on other aspects such as groundwater and topography. Mining operations will remove the entire ore body layer which will alter the geology of the site. Resultant changes to the geology can in turn impact on groundwater, soil forms, and palaeontological resources. Mining will have a permanent impact on the geology of the application area.

10.2.2.1. Significance of Impact

The impact on the local geology is permanent as an entire orebody and stratigraphic unit will be removed during the mining operations. There are no mitigation measures to reduce the impact on geology as the removal of a geological unit is the goal of the activity. The impact will remain high.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance Score
Impact on Geology	-14,00	-18,75	-25,00

The following mitigation types are associated with potential impacts on the geology:

- ❖ Control through site planning and design.
- ❖ Control through proper soil management procedures.
- ❖ Avoidance through mine design and planning (depth of mining, safety factors, overburden and rock qualities).

10.2.3. Impacts on Soil

Mining operations have the potential to damage soil resources through physical loss of soil and/or the contamination of soils, thereby impacting on the soils ability to sustain natural vegetation and altering land capability. Due to the increased activity of trucks and heavy machinery the possibility of soil contamination by leaking oils and fuels is increased. The contamination of soils may contribute to the contamination of surface and groundwater resources. Increased soil erosion can be caused by a loss in vegetative cover resulting in increased water runoff. This is especially likely to occur on sloping terrain. Impacts on soil structure can result in changes to soil drainage, increasing runoff and erosion, and may also result in further potential knock on effects impacting on surface and underground water resources. Loss of the topsoil resource reduces chances of successful rehabilitation and restoration.

Impacts on soil resources are expected to occur as follows:

- ❖ Erosion and sedimentation.
- ❖ Soil compaction.
- ❖ Soil pollution/contamination.

10.2.3.1. Significance of Impacts

The above impacts on soil resources will be negative but site specific. With mitigation, the impact can be controlled but not prevented and will remain low to moderate in significance.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance Score
Erosion and sedimentation	-11,00	-5,50	-7,33
Soil compaction	-11,00	-7,50	-10,00
Soil pollution/contamination	-11,00	-5,50	-7,33

The following mitigation types have been associated with potential impacts on soil:

- ❖ Avoid and control through preventative measures (soil placement, storm water infrastructure, erosion control structures).
- ❖ Avoid through implementation of EMPR mitigation measures
- ❖ Remedy through application of treatment measures (e.g. ripping).
- ❖ Avoid through preventative measures (e.g. bunding, spill kits).
- ❖ Remedy through clean-up and waste disposal.
- ❖ Modify through soil treatment if required.

10.2.4. Impacts on Land Capability

Land capability is closely linked to the soil. Mining operations have the potential to significantly transform the land capability, often irreparably. The types of impacts related to land capability involve post mining compaction, loss of fertility, impeded soil drainage and insufficient depth of the replaced soil. In many cases, mining may result in the land capability class changing from arable to grazing post closure. The loss of potentially productive agricultural land, along with a reduction in land capability may occur as a result of site sterilisation due to mining activities. Some impacts such as acidification and loss of original soil depth and volume can be permanent and will reduce the capability post closure.

Impacts on land capability are expected to occur as follows:

- Loss of soil fertility (denitrification, loss of soil nutrient store and organic carbon stores) and loss of land capability.
- Loss of soil resource and its utilisation potential.

10.2.4.1. Significance of Impacts

The above impacts on land capability will be negative but site specific. They are long term impacts and are expected to last for the duration of the life of the mine and in some cases the disturbance will be permanent. With mitigation, the impact can be controlled but not prevented and some impacts will be permanent.

Impact	Pre-Mitigation Score	Post-Mitigation	Final Significance
--------	----------------------	-----------------	--------------------

		Score	Score
Loss of soil fertility (denitrification, Loss of soil nutrient store and organic carbon stores) and loss of land capability	-12,00	-11,00	-12,83
Loss of soil resource and its utilisation potential	-12,00	-11,00	-12,83

The following mitigation types are associated with potential impacts on land capability:

- ❖ Avoid through preventative measures (e.g. limit area of disturbance).
- ❖ Remedy through soil remediation if required (e.g. fertilizer and organic matter applications).

10.2.5. Impacts on Land Use

The predominant land use in the surrounding area is Shrubland. Mining activities have the potential to affect land uses within the application area and in the surrounding areas. This can be caused by physical transformation of land through direct or indirect impacts. Impacts may be related to factors such as loss of soil, loss of biodiversity, pollution of water, dewatering, air pollution, noise pollution, and damage/destruction from blasting. The nature of opencast mining is such that it is unlikely that mining and other land uses can coexist. This means that any area utilised for opencast mining will be unavailable for other land uses.

Impacts on land use are expected to occur as follows:

- ❖ Damage/Disruption of services (such as water and power supply, etc.).
- ❖ Interference with existing land uses.

10.2.5.1. Significance of Impacts

The above impacts on land use will be negative but site specific. With mitigation, the impact can be controlled but not prevented and will remain low in significance.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance Score
Damage/Disruption of services (such as water and power supply, etc.)	-9,00	-5,00	-5,00
Interference with existing land uses.	-9,75	-7,50	-8,75

The following mitigation types have been associated with potential impacts on land use:

- ❖ Avoid through implementation of EMPR mitigation measures (e.g. service detection and communication with landowners).
- ❖ Remedy through repair or reinstatement of services if required.

10.2.6. Impacts on Fauna and Flora

The mining activities and the establishment of the supporting infrastructure have the potential to result in loss of vegetation, habitat disruption, loss of ecosystem functionality, habitat transformation, spread of alien invasive species, a reduction in overall biodiversity, increased hunting of animals, the introduction of new species to the site and disruption of migration routes.

Mining and associated activities may result in the removal and destruction of primary vegetation communities. These communities may be in threat categories according to NEMBA or important according to the Mpumalanga C-Plan.

Increased erosion may alter the drivers that affect wetland vegetation. Several pollutants associated with mining activities including oil, concrete and dust have the potential to inhibit plant growth and germination and could potentially result in plant mortality. Mining alters the movement of water through the landscape, potentially affecting the hydrological flow regime which is the main driver of natural vegetation.

Threatened animal species are affected primarily by the overall loss of habitat, as direct mining impacts on individuals can often be avoided due to movement of individuals from the area of disturbance. Direct impacts during mining activities are unlikely to have an impact on individual animals of concern, as most are highly mobile and will move out of the area. During operation, birds could potentially suffer mortality due to collisions with vertical infrastructure, especially infrastructure with low visibility, such as powerlines.

Impacts on fauna and flora are expected to occur as follows:

- ❖ Direct and indirect mortality of flora and fauna.
- ❖ Habitat fragmentation and blockage of seasonal and dispersal movements.
- ❖ Introduction/invasion by alien (non-native) species.

10.2.6.1. Significance of Impacts

The above impacts fauna and flora will be negative for the duration of the Mining Permit period. With mitigation, the impact can be controlled but not prevented and will remain low to moderate in significance.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance Score
Direct and indirect mortality of flora and fauna	-12,00	-7,50	-8,75
Habitat fragmentation and blockage of seasonal and dispersal movements	-10,00	-6,00	-6,00
Introduction/invasion by alien (non-native) species	-6,75	-3,50	-4,08

The following mitigation types are associated with potential impacts fauna and flora:

- ❖ Control through implementation of EMPR mitigation measures (e.g. limit area of disturbance, maintaining corridors and alien vegetation management plan).
- ❖ Avoid/stop through relocation of threatened or protected species.

10.2.7. Impacts on Surface Water Resources

Mining activities have the potential to alter surface water features through actual mining methods employed as well as the placement of infrastructure. Hydrocarbon spills from diesel machinery also pose threats to local water resources. Surface infrastructure can result in the diversion of surface runoff to storm water dams resulting in a decrease in the quantity of water entering local resources. Should surface water become contaminated it could have impacts on downstream users, resulting in affected livelihoods and supply problems.

Impacts on surface water are expected to occur as follows:

- ❖ Pollution of surface water resources/decreased water quality.
- ❖ Decrease in surface water availability.

10.2.7.1. Significance of Impacts

The above impacts on surface water will be negative and are expected to last for the duration of the Mining Permit period. With mitigation, the impact can be controlled but not prevented.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance Score
Pollution of surface water resources/decreased water quality	-8,25	-4,50	-5,25
Decrease in surface water quantity/availability	-5,50	-4,50	-5,25

The following mitigation types are associated with potential impacts on surface water resources:

- ❖ Avoid through implementation of preventative measures (e.g. bunding, hazardous materials management, pollution prevention measures and storm water management).

- ❖ Avoid and control through implementation of preventative measures (e.g. limitation of water usage, water conservation strategies, optimisation of water usage and recycling).

10.2.8. Pollution of Groundwater

Mining activities have the potential to impact on groundwater resources through potential pollution and/or contamination as a result of activities such as the actual mining method employed and resultant geological exposure of oxidising materials, seepage, spillages and both mineralised and non-mineralised waste streams.

10.2.8.1. Significance of Impact

The above impacts on groundwater will be negative and are expected to last for the duration of the Mining Permit period. Mitigation is possible and effective if implemented correctly.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance Score
Pollution of groundwater	-13,00	-6,00	-7,00

The following mitigation types have been associated with potential impacts on groundwater:

- ❖ Avoid and control through implementation of preventative measures (e.g. mine design and progressive rehabilitation).
- ❖ Avoid and control through implementation of preventative measures (e.g. bunding, hazardous materials management, Pollution prevention measures).

10.2.9. Impacts of Environmental Pollution

Environmental pollution refers to any contamination of the environment resulting from mining activities. The types of impacts related to environmental pollution include hydrocarbon spills, sewage spills, and decant from underground workings. Environmental pollution can affect surface water, groundwater, wetlands, soil resources, and air quality. Poorly designed wash bays, accidental spillages, related water facilities on site, hydrocarbon spills from heavy machinery and vehicles onsite, the removal or capping of waste products from the site, the intentional washing and rinsing of equipment, storage and use of hydrocarbons and other hazardous materials including cement, and improper waste handling, storage and disposal can all be sources of environmental pollution.

Impacts of environmental pollution are expected to occur as follows:

- ❖ General environmental pollution.
- ❖ Hydrocarbon spills/contamination.
- ❖ Sewage spills/contamination.

10.2.9.1. Significance of Impact

The above impacts of environmental pollution will be negative and are expected to last for the duration of the Mining Permit period. Mitigation is possible and effective in most cases.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance Score
General environmental pollution	-13,00	-6,00	-7,00
Hydrocarbon spills/contamination	-10,50	-4,00	-4,67
Sewage spills/contamination	-9,00	-4,50	-5,25

The following mitigation types have been associated with potential impacts on environmental pollution:

- ❖ Avoid through implementation of suitable progressive rehabilitation and soil management.
- ❖ Control/remedy through interception of decant and treatment of polluted water where required.
- ❖ Avoid and control through implementation of EMPR mitigation measures (e.g. spill prevention, hydrocarbon storage).
- ❖ Avoid through preventative measures (e.g. bunding, spill kits).
- ❖ Remedy through clean-up and waste disposal.
- ❖ Modify through soil treatment if required.
- ❖ Avoid and control through implementation of preventative measures (e.g. location of toilets, spill prevention, waste management).

10.2.10. Impacts on Heritage Resources

An evaluation of the study area and the surroundings has shown that various heritage resources occur outside of the application area. These include historical structures and artefacts as well as graves and cemeteries. Mining activities such as blasting may result in damage to heritage features. The disturbance, destruction or damage of such sites requires a permit from the responsible heritage authority. If graves are to be relocated, the community will need to be engaged in a consultation process. The relocation of graves and the associated consultation process will need to be conducted by a reputable organisation. Unexpected discovery of any unidentified graves and cemeteries during the operations may also delay mining activities due to the legal processes involved.

Impacts on heritage resources are expected to occur as follows:

- ❖ Discovery and preservation of fossils.
- ❖ Destruction/damage of palaeontological resources.
- ❖ Destruction/damage of heritage resources.

10.2.10.1. Significance of Impact

If the provided mitigation measures are implemented any disturbance to heritage features can be minimised. Any destruction of heritage features is considered permanent. If the provided mitigation measures are implemented any disturbance to heritage features can be minimised.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance Score
Discovery and preservation of fossils.	-10,00	-3,50	-4,67

Destruction/damage of palaeontological resources	-11,00	-3,50	-4,67
Destruction/damage of heritage resources	-7,50	-3,00	-4,00

The following mitigation types have been associated with potential impacts on heritage resources:

- ❖ Avoid and control through implementation of preventative measures (e.g. fencing of graveyards, chance finds procedure).
- ❖ Stop through relocation of graves if required.

10.2.11. Social Impacts

It is important to understand the difference between a social change process and a social impact. Social change processes are set in motion by project activities or policies. Social change processes can be measured objectively, independent of the local context. Examples of a social change process are increase in the population, relocation or presence of temporary workers. Under certain circumstances these processes may result in social

impacts, but if managed properly these changes may not create impacts. Whether impacts are caused will depend on the characteristics and history of the host community, and the extent of mitigation measures that are put in place (Vanclay, 2003). A social impact is something that is experienced or felt by humans. It can be positive or negative. Social impacts can be experienced in a physical or perceptual sense. Social impacts can be either objective or subjective. Objective social impacts can be quantified and verified by independent observers in the local context, such as changes in employment patterns, in standard of living or in health and safety. Subjective social impacts occur "in the heads" or emotions of people, such as negative public attitudes, psychological stress or reduced quality of life. It is very likely that a number of social changes processes will be set in motion by the project. Whether these processes result in social impacts will depend on the successful implementation of the suggested mitigation measures.

Impacts on the social environment are expected to occur as follows:

- ❖ Crime and violence.
- ❖ Influx of migrant workers.
- ❖ Loss of sense of place.
- ❖ Social vices.

10.2.11.1. Significance of Impacts

Social impacts will be negative and site specific. Social impacts will remain for the duration of the Mining Permit period and have an overall to moderate significance. With mitigation, the impacts can be controlled but not prevented.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance Score
Crime and violence	-12,00	-5,00	-5,00
Influx of migrant workers	-13,00	-12,00	-12,00
Loss of sense of place	-9,00	-5,25	-5,25
Social vices	-9,00	-8,25	-8,25

The following mitigation types have been associated with potential social impacts:

- ❖ Avoidance and control through preventative measures (e.g. site security, code of conduct).
- ❖ Avoidance and control through mitigation measures (e.g. recruitment procedure, grievance mechanism, code of conduct).

10.2.12. Socio-Economic Impacts

The study of economic development, which is generally broad in its scope, refers to the standard of living of citizens; most often measured by GDP per capita, literacy rate, and life expectancy. Economic development incorporates many elements of pure macro-economics, such as price stability, high employment, and sustainable growth. However, this is underpinned by the study of infrastructure and social development programmes, such as education, housing, and road networks. Mine operations have the potential to positively or negatively influence/affect the economic environment of the area. Mines contribute directly towards employment, procurement, skills development and taxes on a local, regional and national scale. In addition, mines indirectly contribute to economic growth in the local and regional economies because the increase in the number of income earning people has a multiplying effect on the trade of other goods and services in other sectors

However, the introduction of a mine into an area can have undesirable implications in the surrounding environment. This is because changes occur not only to the pre-existing land uses but also to the existing associated social structures and general way of life. The closure phase of the mine can have highly negative impacts because the surrounding environment loses the economic support that it receives during the operation of the mine. To ensure the economic safety of the communities which are affected by the mining operations, mitigation measures post closure of the mine will need to consider the economic environment of the communities and address these impacts effectively.

Impacts on the socio-economic environment are expected to occur as follows:

- ❖ Coal supply for metallurgical companies.
- ❖ Economic growth.
- ❖ Education, skills development and training.
- ❖ Employment opportunities.

10.2.12.1. Significance of Impacts

The socio-economic impact will be positive in nature and of short-term duration over the region. Considering the levels of unemployment in the area, the significance is moderate. The impact is definite but will only be temporary as employment positions will be lost once the mining activities cease. Implementation of mitigation measures will help maximise the positive impact of the mining operation.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance Score
Coal supply for metallurgical companies	13,00	18,75	21,88
Economic growth	6,00	12,00	14,00

Education, skills development and training	5,50	8,25	9,63
Employment opportunities	9,00	12,00	14,00

The following mitigation types are associated with potential socio-economic impacts:

- ❖ Maximise through optimisation of economic growth opportunities.
- ❖ Maximise employment opportunities, skills development and training.
- ❖ Minimise impacts of job loss through compensation, skills development and livelihood restoration.
- ❖ Avoid through implementation of preventative measures (e.g. consultation and communication).
- ❖ Maximise security of Coal supply through sound and responsible mine management.

10.2.13. Impacts on Health and Safety

It is important to recognise that mining activities, equipment, and infrastructure can increase community exposure to risks and impacts. The mining activities can result in a possible increase in crime due to increased number of strangers in the community. Hazardous structures and excavations may pose a threat to community safety if not correctly located, properly designed and correctly managed. By way of example, excavations may pose a risk to animals and people if not properly managed to prevent unauthorised access. The use of hazardous materials on the mine may result in a community health and safety risk if these materials are not stored, handled and disposed of in an appropriate manner. For example, the storage and use of explosives may represent a safety risk if appropriate controls and procedures are not followed.

Fly rock in particular may pose a risk to people, animals and infrastructure within close proximity to the mine. The use of public roads for hauling Coal will result in increased safety risks for members of the community and

public utilising these roads. Mining activities have the potential to increase the risk of accidental fires. Impacts on ecosystem services can impact on communities, particularly where these communities rely on these ecosystem services (e.g. water from watercourses) for their livelihoods. The contamination or degradation of natural resources, such as adverse impacts on the quality, quantity, and availability of freshwater, may result in health-related risks and impacts. Land use changes may result in the loss of natural buffer areas such as wetlands, and impacts to natural vegetation areas that mitigate the effects of natural hazards such as flooding, landslides, and fire, may result in increased vulnerability and community safety-related risks and impacts. An influx of people to the mining area seeking employment may increase the risk for community exposure to waterborne, water-based, water-related, and vector-borne and communicable diseases.

Impacts on health and safety are expected to occur as follows:

- ❖ Fire and explosion hazard.
- ❖ Fly rock.
- ❖ Health impacts.

10.2.13.1. Significance of Impacts

The socio-economic impact will be positive in nature and of short-term duration over the region. Considering the levels of unemployment in the area, the significance is moderate. The impact is definite but will only be temporary as employment positions will be lost once the mining activities cease. With mitigation, the impact can be controlled but not prevented.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance Score
Fire and explosion hazard	-7,50	-4,50	-5,25
Fly rock	-7,50	-4,50	-5,25
Health impacts	-12,50	-6,00	-7,00

The following mitigation types are associated with potential impacts on health and safety:

- ❖ Avoidance and control through preventative measures (e.g. HIV/AIDS awareness).
- ❖ Remedy through application of mitigation measures in EMPR.
- ❖ Avoid and control through implementation of preventative measures (e.g. fire breaks, blasting procedures, hazardous substances management).
- ❖ Avoid and control through implementation of preventative measures (e.g. blast procedures, monitoring, communication with landowners, emergency response procedures).

10.2.14. Impacts on Transportation, Infrastructure and Traffic

In terms of potential impacts, the mine will result in increased use of the local road network which may result in the deterioration of road surfacing, damage to bridges and culverts in the area, and safety risks to surrounding communities. This will be predominantly due to the increase in transport of heavy machinery, and vehicles carrying Coal and labour for mining activities. Increased traffic may have repercussions on safety for other road users, predominantly by increasing the potential for road accidents in nearby communities.

Impacts on transportation, infrastructure, and traffic are expected to occur as follows:

- ❖ Damage to road infrastructure.
- ❖ Increased traffic.

10.2.14.1. Significance of Impacts

The impacts on transportation, infrastructure, and traffic will be negative. With mitigation, the impact can be controlled but not prevented and will remain low to moderate in significance.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance Score
Damage to road infrastructure	-11,00	-4,00	-4,67
Increased traffic	-12,00	-10,00	-10,00

The following mitigation types have been associated with potential impacts on transportation, infrastructure and traffic:

- ❖ Avoid and control through implementation of EMPR mitigation measures (e.g. speed limit enforcement and vehicle maintenance).

10.2.15.. Visual Impact

Considering the rural setting of the application area and the mountain backdrop, it is anticipated that the introduction of mining structures and related activities would create strong contrast with the existing landscape characteristics. During mining, it is expected that there will be haul trucks and other mine vehicles on the roads. This, along with the removal of vegetation, dust generation and preparation of opencast mining areas will result in a negative impact on the visual aspect. Operational areas may require lighting at night for safety reasons.

The visual impact is expected to occur as follows:

- ❖ Visual impact of mine infrastructure, stockpiles and dust.

10.2.15.1. Significance of Impact

The impact on transportation, infrastructure, and traffic will be negative. Mitigation is possible and effective if implemented correctly.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance Score
Visual impact of mine infrastructure, stockpiles and dust	-9,00	-5,25	-5,25

The following mitigation types have been associated with the potential visual impact:

- ❖ Avoid and control through implementation of EMPR mitigation measures (e.g. directional down lighting, dust suppression, mine planning and progressive rehabilitation).

10.2.16.. Impacts on Air Quality

Existing sources of emissions in the region and the characterization of existing ambient pollution concentrations is fundamental to the assessment of cumulative air impacts. A change in the ambient air quality can result in a variety of impacts which in turn may cause a disturbance to and/or health impacts on nearby receptors. Sensitive receptor sites include residential areas, communities, and natural environments. Mining activities have the potential to result in increased levels of atmospheric dust, increased concentrations of PM10 (Particulate Matter with an aerodynamic diameter of less than 10µm) and increased concentrations of PM2.5 (Particulate Matter with an aerodynamic diameter of less than 2.5µm). Historical evidence indicates that the pollutant of concern associated with open-cast mining operations is particulate matter creating a dust source and resulting in human health concerns and nuisance.

Impact on air quality is expected to occur as follows:

- ❖ Fugitive emissions (Dust).

10.2.16.1. Significance of Impact

The impact on air quality will be negative. With mitigation, the impact can be controlled but not prevented and will remain low in significance.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance Score
Fugitive emissions (Dust)	-13,00	-7,50	-8,75

The following mitigation types have been associated with potential impacts on air quality:

- ❖ Avoid and control through implementation of EMPR mitigation measures (e.g. vehicle maintenance and progressive rehabilitation).
- ❖ Avoid through preventative measures (e.g. speed limit enforcement).
- ❖ Control through implementation of EMPR mitigation measures (e.g. dust suppression).

10.2.17. Noise Impact

Certain noise generating activities associated with mining operations can cause an increase in ambient noise levels in and around the site. Significant noise is associated with opencast and plant (including workshops) activities. A source of noise during the operational phase will be traffic to and from the site, traffic around the facility, RoM and product transport and activities associated with waste management. In some cases, mining and related activities may result in an increase in noise levels above the allowable thresholds. Whilst studies show that the response differs greatly between species, noise typically disturbs animals and results in them moving away from the source of noise or becoming adapted to the noise. Some of the typical effects that disturbing noise may have on sensitive receptors include interference with daily activities (work, leisure and sleeping), hindered speech communication, impeded thinking process and interference with concentration. Mine workers in very close proximity to noisy activities would be at risk to hearing damage if the proper precautions (e.g. use of personal protective equipment) are not taken.

The impact of noise is expected to occur as follows:

- ❖ Disturbing and/or nuisance noise

10.2.17.1. Significance of Impact

The impact of noise will be negative and will remain for the duration of the Mining Permit period. With mitigation, the impact can be controlled but not prevented and will remain low in significance.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance Score
--------	----------------------	-----------------------	--------------------------

Disturbing and/or nuisance noise	-9,00	-5,50	-6,42
----------------------------------	-------	-------	-------

The following mitigation types have been associated with the potential noise impact:

10.2.17.1.1. Avoid through preventative measures (e.g. communication with landowners and timing of activities).

10.2.17.1.2. Control through implementation of EMPR mitigation measures (e.g. noise abatement measures).

10.2.18.. Blasting and Vibration

The application of explosives for breaking rock will always have an effect on the surrounding environment. These effects can manifest in the form of ground vibration, air blast, fumes, fly rock and noxious fumes.

These short duration events may be noticeable by communities and individuals living in the immediate environment.

These

These events tend to cause nuisance and elicit an emotive response because of resonance because they are easily recognised as being related to blasting.

Impacts of blasting and vibration are expected to occur as follows:

- ❖ Air blast.
- ❖ Ground vibration and human perception.
- ❖ Impacts on infrastructure (roads, communications infrastructure, services, houses, boreholes).
- ❖ Noxious fumes.

10.2.18.1. Significance of Impacts

The impacts of blasting and vibration will be negative and will remain for the duration of the Mining Permit period. Mitigation is possible and is effective in most cases.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance Score
Air blast	-12,00	-6,00	-7,00
Ground vibration and human perception	-12,00	-8,25	-9,63
Impacts on infrastructure (roads, communications infrastructure, services, houses, boreholes)	-12,00	-8,25	-9,63
Noxious fumes	-12,00	-8,25	-9,63

The following mitigation types are associated with potential blasting and vibration impacts:

- ❖ Avoid and control through implementation of preventative measures (e.g. blast procedures, monitoring, communication with landowners, emergency response procedures).

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

The impact assessment process may be summarised as follows:

- ❖ Identification of proposed mining activities including their nature and duration.
- ❖ Screening of activities likely to result in impacts or risks.
- ❖ Utilisation of the above mentioned methodology to assess and score preliminary impacts and risks identified.

- ❖ Inclusion of I&AP comments regarding impact identification and assessment.
- ❖ Finalisation of impact identification and scoring.

The impact significance rating methodology is guided by the requirements of the NEMA 2014 EIA Regulations (as amended). Please refer to Section 9.1 for a full description of the impact assessment methodology. Please refer to Table 20 for a description of the activities and associated impacts.

12. IMPACT ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK

Table 22: Impact significance table.

IMPACT DESCRIPTION						
Aspect	Main Activity/Action/Process	Impact	Phase	Pre-Mitigation	Post-Mitigation	Final Score
Social	Site establishment	Safety and security risks to landowners and lawful occupiers	Planning	-12,00	-8,00	-9,33
Social	Site establishment	Interference with existing land uses	Planning	-7,50	-5,25	-5,25
Social	Site establishment	Sense of place	Planning	-9,00	-5,25	-5,25
Social	Site establishment	Safety and security risks to landowners and lawful occupiers	Construction	-12,00	-8,00	-9,33
Social	Site establishment	Interference with existing land uses	Construction	-7,50	-5,25	-5,25
Social	Site establishment	Sense of place	Construction	-9,00	-5,25	-5,25
	General					

Social	mine management	Crime and violence	Operation	-12,00	-5,00	-5,00
Social	General mine management	Influx of migrant workers	Operation	-13,00	-12,00	-12,00
Social	General mine management	Sense of place	Operation	-9,00	-5,25	-5,25
Social	General mine management	Social vices	Operation	-9,00	-8,25	-8,25
Socio-economic	Mining	Coal supply	Operation	13,00	18,75	21,88
Socio-economic	Mining	Economic growth	Operation	6,00	12,00	14,00
Socio-economic	Mining	Education, skills development and training	Operation	5,50	8,25	9,63
Socio-economic	Mining	Employment opportunity	Operation	9,00	12,00	14,00
Health and safety	Maintenance and operation of site infrastructure and facilities	Fire and explosion hazard	Operation	-7,50	-4,50	-5,25
Health and safety	Opencast mining	Fly rock	Operation	-7,50	-4,50	-5,25

IMPACT DESCRIPTION						
Aspect	Main Activity/Action/Process	Impact	Phase	Pre-Mitigation	Post-Mitigation	Final Score
Health and safety	Opencast mining	Health impacts	Operation	-12,50	-6,00	-7,00
Land capability	Maintenance and operation of site	Loss of soil fertility, soil resource and its utilisation potential	Operation	-12,00	-11,00	-12,83
Land use	Opencast mining	Impacts on services	Operation	-9,00	-5,00	-5,00
Land use	Opencast mining	Interference with existing land uses	Operation	-9,75	-7,50	-8,75
Soil	Opencast mining	Soil compaction	Operation	-11,00	-7,50	-10,00
Soil	Opencast mining	Soil pollution/contamination	Operation	-11,00	-5,50	-7,33
Soil	Opencast mining	Erosion and sedimentation	Operation	-11,00	-5,50	-7,33
Topography and landform	Opencast mining	Alteration of topography	Operation	-15,00	-13,75	-13,75
Topography and landform	Opencast mining	Altered drainage patterns	Operation	-11,00	-5,00	-5,00

Transportation, infrastructure and traffic	Opencast mining	Soil surface subsidence	Operation	-10,00	-4,00	-4,67
Transportation, infrastructure and traffic	Opencast mining	Damage to infrastructure	Operation	-11,00	-4,00	-4,67
Transportation, infrastructure and traffic	Opencast mining	Increased traffic	Operation	-12,00	-10,00	-10,00
Visual	Opencast mining	Visual impact of mine infrastructure, stockpiles and dust	Operation	-9,00	-5,25	-5,25
Air quality	Opencast mining	Fugitive emissions (dust)	Operation	-13,00	-7,50	-8,75
Blasting and vibration	Opencast mining	Ground vibration and human perception	Operation	-12,00	-8,25	-9,63
Blasting and vibration	Opencast mining	Impact on infrastructure	Operation	-12,00	-8,25	-9,63
Blasting and vibration	Opencast mining	Noxious fumes	Operation	-12,00	-8,25	-9,63
Noise	Opencast mining	Noise generation	Operation	-9,00	-5,50	-6,42
Fauna and flora	Opencast mining	Direct and indirect mortality of flora and fauna	Operation	-12,00	-7,50	-8,75

Fauna and flora	Opencast mining	Habitat fragmentation and blockage of seasonal and dispersal movements	Operation	-10,00	-6,00	-6,00
Fauna and flora	Opencast mining	Introduction/invasion by alien (non-native) species	Operation	-6,75	-3,50	-4,08

IMPACT DESCRIPTION						
Aspect	Main Activity/Action/Process	Impact	Phase	Pre-Mitigation	Post-Mitigation	Final Score
Surface water	Opencast mining	Pollution of surface water resources/decreased water quality	Operation	-8,25	-4,50	-5,25
Surface water	Opencast mining	Decrease in surface water availability	Operation	-5,50	-4,50	-5,25
Ground water	Opencast mining	Pollution of groundwater	Operation	-13,00	-6,00	-7,00
Heritage	Opencast mining	Discovery and preservation of fossils	Operation	-10,00	-3,50	-4,67
Heritage	Opencast mining	Destruction/damage of palaeontological resources	Operation	-11,00	-3,50	-4,67
Heritage	Opencast mining	Destruction/damage of heritage resources	Operation	-7,50	-3,00	-4,00
Geology	Opencast mining	Impacts on geology	Operation	-14,00	-18,75	-25,00
Environmental Pollution	Opencast mining	General environmental pollution	Operation	-13,00	-6,00	-7,00

Environmental Pollution	Opencast mining	Hydrocarbon spills/contamination	Operation	-10,50	-4,00	-4,67
Environmental Pollution	Opencast mining	Sewage spills/contamination	Operation	-9,00	-4,50	-5,25
Soil	Decommissioning of surface infrastructure	Soil compaction	Decommissioning	-11,00	-7,50	-10,00
Visual	Decommissioning of surface infrastructure	Visual impact of mine infrastructure, stockpiles and dust	Decommissioning	-9,00	-5,25	-5,25
Noise	Decommissioning of surface infrastructure	Noise generation	Decommissioning	-9,00	-5,50	-6,42
Surface water	Decommissioning of surface infrastructure	Pollution of surface water resources/decreased water quality	Decommissioning	-8,25	-4,50	-5,25
Ground water	Decommissioning of surface infrastructure	Pollution of groundwater	Decommissioning	-13,00	-6,00	-7,00
Environmental Pollution	Decommissioning of surface infrastructure	General environmental pollution	Decommissioning	-13,00	-6,00	-7,00
Soil	Surface rehabilitation	Erosion and sedimentation	Rehab and closure	-11,00	-5,50	-7,33
Topography and landform	Surface rehabilitation	Altered drainage patterns	Rehab and closure	-11,00	-5,00	-5,00
Environmental	Surface	General environmental	Rehab and	-13,00	-6,00	-7,00

tal Pollution	rehabilitation	pollution	closure			
------------------	----------------	-----------	---------	--	--	--

Refer to Appendix F for a summary of the full scoring for each of the assessed impacts.

13. SUMMARY OF SPECIALIST REPORTS

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

List of studies undertaken	Recommendations of specialist reports	Specialist recommendations included in the EIA report Mark with an X where applicable	Reference to applicable report section Where specialist recommendations have been included
Hydrology Study	<ul style="list-style-type: none"> • Proper stormwater management is recommended to prevent the risk of water resources contamination. • The numerical model will be recalibrated as soon as more data such as monitoring holes are made available. This would enhance model predictions and certainty. • It is recommended that there should be regular testing or monitoring of surrounding soil, water resources to detect any change in chemistry so that remedial measures are implemented in time. • The monitoring process throughout the existence of the project, the chemical and physical parameters of the water samples should be tested and compared with the SANS241: 2015 • There should be soil, water resources and land pollution mitigation measures on site. • Wastewater source should be identified, and mitigation measures put in place to prevent groundwater contamination. 	x	The possible mitigation measures that could be applied and the level of risk

Draft Basic Assessment Report and Environmental Management Programme report- 13516 MP

List of studies undertaken	Recommendations of specialist reports	Specialist recommendations included in the EIA report Mark with an X where applicable	Reference to applicable report section Where specialist recommendations have been included
	<ul style="list-style-type: none"> • ➤The stockpile, there should be regular monitoring of any heavy metal which could be exposed, as such could result in leaching during rainfall. stormwater infrastructure must be made at preliminary design stage. • Water use licence application for this project is mandatory as the activities will be within the 500m regulated area of the Olifants River, the proposed project is triggering Section 21 c and i of the National Water Act water uses. 		
Soil Study	<ul style="list-style-type: none"> • The proposed mining land should be returned to its origin as before mining activities and the rehabilitation performance assessment in the proposed land must be done progressively (annually) during the operational phase by a soil specialist. • Final surface rehabilitation of all disturbed areas during mine activities. Rehabilitation of unnecessary water management facilities once appropriate to do so. • Specialists should be used to evaluate the erosion and other possible impacts during the entire mining process. • Limit impacts to the footprints to keep physical impacts as small as possible. Areas for road, • site lay-out should be minimized, dust generation. 	x	The possible mitigation measures that could be applied and the level of risk
Geohydrology	<ul style="list-style-type: none"> • The designing of the infrastructures will take into consideration the slope types 		

Draft Basic Assessment Report and Environmental Management Programme report- 13516 MP

List of studies undertaken	Recommendations of specialist reports	Specialist recommendations included in the EIA report Mark with an X where applicable	Reference to applicable report section Where specialist recommendations have been included
	<p>identified around the mining permit to effectively manage water.</p> <ul style="list-style-type: none"> • The area falls on weathered aquifer, wastewater will be properly diverted from seepage, as the aquifer is weathered, and contamination is highly likely. • Proper stormwater management is recommended to prevent the risk of water resources contamination. • The study area falls on a fractured aquifer system, the mine planning will take into consideration the fracture zones in the Vryheid formation, drilling activities will not contact the fractures as that is where most groundwater in the area is found and to prevent possible groundwater pollution from residual explosive material used. • The numerical model will be recalibrated as soon as more hydrogeological data such as monitoring holes are made available. This would enhance model predictions and certainty. • There will be regular testing or monitoring of surrounding soil, water resources to detect any change in chemistry so that remedial measures are implemented in time. • The monitoring process throughout the existence of the project, the chemical and physical parameters of the water samples will be tested and compared 		

Draft Basic Assessment Report and Environmental Management Programme report- 13516 MP

List of studies undertaken	Recommendations of specialist reports	Specialist recommendations included in the EIA report Mark with an X where applicable	Reference to applicable report section Where specialist recommendations have been included
	<p>with the SANS241: 2015</p> <ul style="list-style-type: none"> • There will be soil, water resources and land pollution mitigation measures on site. • Wastewater source will be identified, and mitigation measures put in place to prevent groundwater contamination. • The stockpile, there will be regular monitoring of any heavy metal which could be exposed, which could result in leaching during rainfall. • Proper and competent structure of the tailings dam will be built, to contain liquid, or solid waste and to prevent such waste from entering the outside environment. • it is recommended that to protect the wetlands onsite, there will be fencing to prevent encroachment of activities which will harm the waterbodies. • It is recommended that compliance of relevant legislations be ensured, NEMA Act 107 of 1998, NWA Act 36 of 1998, NEM: waste Management Act 58 of 2008. • Regular dust monitoring will take place weekly, to detect any change in dust being produced, so that mitigation measures are implemented early. • it is recommended that during the existence of the project there will also be regular maintenance of the mobile ablutions, to avoid leakage of waste into 		

Draft Basic Assessment Report and Environmental Management Programme report- 13516 MP

List of studies undertaken	Recommendations of specialist reports	Specialist recommendations included in the EIA report Mark with an X where applicable	Reference to applicable report section Where specialist recommendations have been included
	<p>the ground.</p> <ul style="list-style-type: none"> • There will be boreholes in and around the permit area, to monitor the groundwater quality and quantity. • Prior to the mining operations, Notre Coal (Pty) Ltd will conduct tests on the soil and groundwater, to trace the residues of any chemicals used during the cultivation process, and to implement measures to lower those effects. 		
<p>Rehabilitation Plan</p>	<ul style="list-style-type: none"> • It is recommended that the financial provision for closure and rehabilitation be annually updated as per the requirements of the MPRDA. • Surface water monitoring of the pans and associated wetlands surrounding the project area is to be undertaken to determine the impacts associated with operations of the mine. • Regular audits should be undertaken by a soil scientist during the soil stripping process. This will guarantee that soil is stripped and stockpiled correctly. • Regular audits should be undertaken to monitor the progress of areas that have been rehabilitated. • Long term management of the rehabilitated areas will be required via contractual agreements with landowners in the area and rehabilitation should 		

Draft Basic Assessment Report and Environmental Management Programme report- 13516 MP

List of studies undertaken	Recommendations of specialist reports	Specialist recommendations included in the EIA report Mark with an X where applicable	Reference to applicable report section Where specialist recommendations have been included
	also be undertaken to best practice. <ul style="list-style-type: none"> An independent Environmental Assessment Practitioner shall be appointed to ensure compliance with requirements of the Final Rehabilitation, decommissioning and Closure Plan. 		

Attach copies of specialist reports as appendices.

14. ENVIRONMENTAL IMPACT STATEMENT

Based on the impact assessment conducted by the EAP and various specialists, the environmental impacts associated with the mining activities are expected to be localised and of low to medium significance, with one impact (impact on geology) remaining permanently high even if mitigation measures are implemented. Mitigation measures have been recommended by the EAP and specialists in order to eliminate and/or reduce environmental impacts. These mitigation measures and monitoring programmes have been included as commitment in the Environmental Management Programme. The Environmental Management Programme aims to present management measures that will eliminate, offset or reduce adverse environmental impacts, as well as to provide the framework for environmental monitoring. The primary purpose of the Environmental Management

Programme is to ensure that negative environmental impacts of the proposed project are effectively managed within acceptable limits and that the positive impacts are enhanced.

In terms of site sensitivities, the most sensitive features which will require protection on site may be summarized as follows:

- 14.2. Critical Biodiversity Areas.
- 14.3. Ecological Support Areas.
- 14.4. Protected Areas.
- 14.5. Important Bird Areas.
- 14.6. National Freshwater Ecosystem Priority Areas.
- 14.7. Watercourses and wetlands.
- 14.8. Heritage sites (cemeteries).

In terms of positive impacts, the following key benefits have been identified:

- 14.9. Coal supply for the market.
- 14.10. Economic growth.
- 14.11. Employment opportunities.

15. COMBINED SENSITIVITY

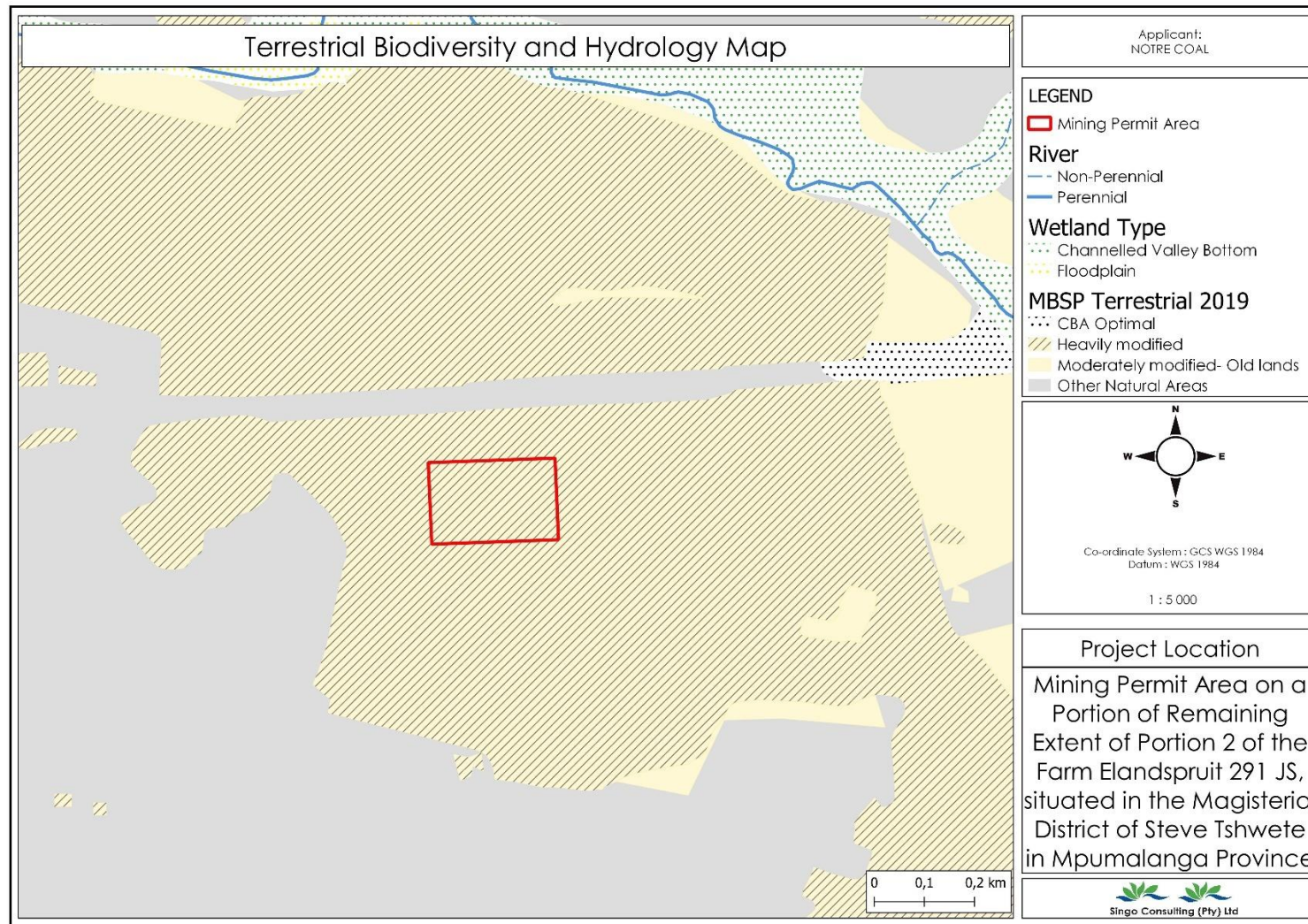


Figure 22: Composite sensitivity map of the application area

16. SUMMARY OF POSITIVE AND NEGATIVE IMPLICATIONS AND RISKS

The positive implications of the Elandspruit Mining Permit include (i) economic growth, (ii) employment, (iii) Coal supply, (iv) education, (v) skills development and (vi) training. In terms of risks and negative implications, the mine will have an adverse effect on the environment. These include impacts to the geophysical, hydrological, biological, and social aspects of the local environment. The most severe risks relate to the potential for water pollution and the destruction of heritage resources. These potential impacts also have legal implications and risks should they not be minimised through the application of mitigation measures.

This Basic Assessment Report and the associated EMPR has identified appropriate mechanisms for avoidance and mitigation of negative impacts. It is anticipated that the implementation of the measures stipulated in this report will result in effective mitigation of the negative impacts. Conversely, the implementation of the mitigation measures is designed to maximise the positive aspects of the project and it will result in a significant positive influence as a result of the small-scale mine's operation.

17. PROPOSED IMPACT MANAGEMENT OBJECTIVES AND OUTCOMES

The following potential mitigation measures and residual risks have been provided for each environmental aspect assessed. It is noted that the draft BAR and EMPR report was made available to I&APs for review and comment, and their comments and concerns were addressed in this final report that is submitted to the DMR for adjudication. Furthermore, it is noted that the results of the public consultation were utilised to update the proposed potential mitigation measures prior to the submission of this finalised BAR and EMPR to the DMR for decision-making.

As a result of the impact assessment and the specialist studies undertaken, the following principles and objectives have been identified for the management of the Elandspruit Mining Permit:

Socio-Economic

The following socio-economic objectives should be attained during the planning, construction, operation, and decommissioning phases of the mining operations:

- 17.2. Adhere to an open and transparent communication procedure with stakeholders at all times.
- 17.3. Ensure that accurate and regular information is communicated to I&APs.
- 17.4. Ensure that information is communicated in a manner which is understandable and accessible to I&APs.
- 17.5. Enhance project benefits and minimise negative impacts through intensive consultation with stakeholders.

- 17.6. Assemble adequate, accurate, appropriate, and relevant socio-economic information relating to the context of the operation.
- 17.7. Ensure that recruitment strategies for the mine prioritises the sourcing of local labour, and share in gender equality.
- 17.8. Ensure an atmosphere of equality and non-discrimination among the workforce.
- 17.9. Contribute to the development of functional literacy and numeracy among employees.
- 17.10. Empower the workforce to develop skills that will equip them to obtain employment in other sectors of the economy.

Historical and Cultural Aspects

The following objectives should be attained during the planning, construction, operation, and decommissioning phases of the mining operations:

- 17.11. All heritage sites must be demarcated as No-Go Zones to prevent accidental damage by mining activities.
- 17.12. A Cultural Heritage Management Plan must be established.

Topography

The following objectives should be attained during the planning, construction, operation, and decommissioning phases of the mining operations:

- 17.13. Maintain the integrity of the landscape as far as possible by reinstating the topography to match the surroundings.
- 17.14. Reinstatement of vegetation cover to match the surroundings.
- 17.15. Monitor the reinstated areas to ensure that erosion does not occur.
- 17.16. Ensure drainage lines are not disturbed as far as possible.
- 17.17. Create pollution control structures to ensure pollution on site is minimised.

Geology

The following objectives should be attained during the planning, construction, operation, and decommissioning phases of the mining operations:

- 17.18. Stockpile slopes should be kept as flat as possible.
- 17.19. Areas of high danger should be checked regularly for potential subsidence.

Soil

The following objectives should be attained during the planning, construction, operation, and decommissioning phases of the mining operations:

- 17.20. Only clear areas needed and keep footprints as small as possible.
- 17.21. Vegetate topsoil stockpiles as soon as possible. Implement storm water management infrastructures
- 17.22. Keep active pit area as small as possible and implement continual rehabilitation.
- 17.23. Conduct waste classification of overburden material. Backfill opencast as soon as possible to reduce volume of overburden stored on site.

Land Use

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- 17.24. Preserve soil so that land capability class can be re-established post mining (as

far as this is possible).

Surface Water

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- 17.25. Ensure minimal impact to the surface water resources.
- 17.26. Ensure that the construction activities are carried out so as to aid rehabilitation during decommissioning.

Groundwater

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- 17.27. Prevent construction material becoming a source for pollution to the local aquifers.
- 17.28. Ensure effective management of any accidental spills.

Flora

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- 17.29. Ensure awareness amongst all staff, contractors and visitors to site to not needlessly damage flora.
- 17.30. A management plan for the control of invasive alien species needs to be implemented. Specialist advice should be used in this regard. This plan should include pre-treatment, initial treatment and follow-up treatment and should be planned and budgeted for in advance. The cleared areas after removal should be re-vegetated with indigenous naturally occurring species to decrease large patches of bare soil. The best mitigation measure in this regard is avoiding invasive and/or exotic species from being established. It is vital that the control of alien invasive species is ongoing.
- 17.31. No foraging, food and wood collecting within the veld should be allowed.
- 17.32. Eliminate alien invasive and exotic plants.
- 17.33. Minimise and limit the destruction or disturbance of vegetation of the proposed mining areas and mine infrastructure. The vegetation removal should be controlled and should be very specific.
- 17.34. Prevent the destruction of natural and/or pasture vegetation of the surrounding areas that will not be mined.
- 17.35. Prevent heavy machinery and light vehicles driving through natural vegetation that will not be disturbed by the proposed activities.
- 17.36. Prevent the destruction of vegetation in areas prone to soil erosion.
- 17.37. Remove and relocate any rare and endangered species within the areas where the natural vegetation will be destroyed.
- 17.38. Prevent any pollution of natural vegetation, wetlands and red data species.

Fauna

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- 17.39. Fauna (wildlife and domestic animals) may under no circumstances be handled, removed, killed or interfered with by the Contractor, his employees, his Sub-Contractors or his Sub-Contractors' employees.
- 17.40. Activities on site must comply with the regulations of the Animal Protection Act, 1962 (Act 71 of 1962). Workers should also be advised on the penalties associated with the needless destruction of wildlife, as set out in this act.
- 17.41. Appoint an ECO to oversee the activities and ensure that ecological aspects

are kept in mind.

- 17.42. Priority species, specifically nests if encountered, should be identified first and a management plan should be established for each of the priority species.
- 17.43. Continuous rehabilitation and clean-up of the area should be implemented during the operational phase.
- 17.44. Limit activities (transport etc.) to the smallest area possible. This is to prevent fragmentation that may have irreversible changes to faunal communities. It also increases the invasion of alien/foreign species.
- 17.45. A management plan for the control of invasive and exotic plant species needs to be implemented (if required).
- 17.46. Restrict movement to the proposed footprint of the activities. Control of access should be implemented for all other natural areas to prevent unnecessary destruction of habitats or disturbance of species. Human and vehicles movement should stay out of the natural areas associated with the proximity of the Pilanesberg Game Reserve. It is also vital that no additional fragmentation occur and that all roads are

clearly demarcated and kept to a minimum without any exceptions. No vehicles or personnel are permitted outside of these demarcated roads.

- 17.47. No camping activities or other contractor camps should be allowed and this practice will be a good investment in preventing more impacts, noise and waste or possibly the spread of fires to the Pilanesberg Game Reserve.

Air Quality

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- 17.48. Implement dust suppression in and around site as needed.
- 17.49. Vehicles must be regularly serviced.
- 17.50. Vehicles utilising public gravel roads must adhere to the speed limits.
- 17.51. By minimising the removal of vegetation and topsoil in affected area, this will minimise the potential for dusty conditions.

Noise

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- 17.52. All vehicles and machinery must be maintained in good working order.
- 17.53. When working or traveling past noise sensitive receptors, no unnecessary hooting or noise should occur.

Visual

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- 17.54. To limit the visual impact of mining and related infrastructure as far as possible during mining.
- 17.55. To enhance the visual aspect and maintain the aesthetics of the region post mining.

Transportation, Infrastructure and Traffic

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- 17.56. Ensure trucks and vehicles remain on roads and areas designated as a construction site to limit disturbance to areas unaffected by construction.
- 17.57. Ensure drivers are informed that off-road travelling is prohibited except where otherwise not practically feasible.
- 17.58. Ensure speed limits are set on all roads and enforce speed limits. Ensure all

drivers at the site are informed about speed limits.

17.59. Drip trays must be placed under vehicles.

17.60. Any spills or leaks must immediately be cleaned up and the contaminated soil suitably disposed of.

17.61. During refuelling of vehicles or equipment, drip trays must be utilised to prevent spills or leaks.

17.62. Spill clean-up equipment must be available on site at all times.

17.63. In the event of large spills, this must be reported to the authorities and a specialist spill contractor immediately sought to assist with the clean-up

17.64. Create safe entry roads into the construction and mining areas.

17.65. Repair damage to road infrastructure.

17.66. Maintain safety to pedestrians and motorists.

Health and Safety

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- 17.67. Undertake mining and ancillary activities in safe and responsible manner so as to protect the safety of people and the environment.
- 17.68. Manage hazardous materials and explosives in a safe and responsible manner so as to protect the safety of people and the environment.

Environmental Pollution

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- 17.69. Any excess or waste material or chemicals must be removed from the site and must preferably be recycled (e.g. oil and other hydrocarbon waste products).
- 17.70. Any waste materials or chemicals that cannot be recycled must be disposed of at a suitably licensed waste facility.
- 17.71. All permanent facilities must be removed from site upon closure. This will include the associated equipment, material and waste on site.
- 17.72. Under no circumstances is any form of waste to be disposed of on site.

18. ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION

- 18.2. The approval of the project is for opencast mining of a 5 ha area only.
- 18.3. Palm Coal will only be required to rehabilitate areas that will be disturbed by their mining activities only:
 - 18.3.17. Mining area footprint (5 ha).
 - 18.3.18. Cleared areas for associated infrastructure (stockpile areas, access road/s, screening plant, on-site offices, loading zone, ablution facilities, waste storage area, etc).
- 18.4. Areas of high ecological and heritage sensitivity must be regarded as No-Go areas.
- 18.5. A 100 m buffer zone around watercourses must be regarded as a No-Go area for mining activities.
- 18.6. A 100 m buffer zone around existing structures (such as dwellings, pipelines, Eskom underground and overhead powerlines, cemeteries, any fences, etc.) must be regarded as No-Go areas for mining activities unless permission is granted by landowners and/or relevant authorities.
- 18.7. The Mining Permit holder must appoint a suitably qualified Environmental

Control Officer (ECO) who must oversee the mining activities and monitor compliance with the EMPR and relevant legislation.

18.8. The EMPR must be made binding on all contractors, sub-contractors or agents operating on behalf of the Mining Permit Holder.

18.9. Stakeholder engagement will continue throughout the mining activities to ensure the community and landowners are kept informed and allowed to raise issues. These issues will then be addressed through a grievance mechanism.

18.10. No animal burrows found on site should be destroyed, and no wild animals found during the operations should be killed.

18.11. Any pit left open temporarily (not backfilled during the operations) should be fenced off to prevent humans and animals from falling into the pits.

18.12. All topsoil stockpiles must be removed and the soil be reused as topsoil again on the denuded areas.

18.13. All denuded backfill and the surfaces revegetated upon completion of operations.

18.14. The Mining Permit holder should adhere to the conditions of the EA, EMPR and the specialist reports for this project.

18.15. Arrangements for Financial Provision for the decommissioning, closure and rehabilitation must be made prior to the commencement of the mining activities.

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

Certain assumptions, limitations, and uncertainties are associated with the BAR. These are detailed for each aspect below:

21.1 Heritage

Although all efforts were made to locate, identify and record all possible cultural heritage sites and features (including archaeological remains) there is always a possibility that some might have been missed as a result of grass cover and other factors. The subterranean nature of these resources (including low stone-packed or unmarked graves) should also be taken into consideration. Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward. From a cultural heritage point of view the development can therefore continue, taking cognisance of the recommendations.

21.2 Surface Water

The Surface Water specialist report is a desktop assessment and the assessment is thus based on available information. It is not expected that the proposed opencast activities will have a significant impact on the water resource mostly due to the fact that the activities are located more than 100 m from the nearest water resource.

21.3 Flora

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- Ensure awareness amongst all staff, contractors and visitors to site to not needlessly damage flora.
- A management plan for the control of invasive alien species needs to be implemented. Specialist advice should be used in this regard. This plan should include pre-treatment, initial treatment and follow-up treatment and should be planned and budgeted for in advance. The cleared areas after removal should be re-vegetated with indigenous

naturally occurring species to decrease large patches of bare soil. The best mitigation measure in this regard is avoiding invasive and/or exotic species from being established. It is vital that the control of alien invasive species is ongoing.

- No foraging, food and wood collecting within the veld should be allowed.
- Eliminate alien invasive and exotic plants.
 - Minimise and limit the destruction or disturbance of vegetation of the proposed mining areas and mine infrastructure. The vegetation removal should be controlled and should be very specific.
 - Prevent the destruction of natural and/or pasture vegetation of the surrounding areas that will not be mined.
 - Prevent heavy machinery and light vehicles driving through natural vegetation that will not be disturbed by the proposed activities.
 - Prevent the destruction of vegetation in areas prone to soil erosion.
 - Remove and relocate any rare and endangered species within the areas where the natural vegetation will be destroyed.
 - Prevent any pollution of natural vegetation, wetlands and red data species.

21.4 Fauna

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- Fauna (wildlife and domestic animals) may under no circumstances be handled, removed, killed or interfered with by the Contractor, his employees, his Sub-Contractors or his Sub-Contractors' employees.
- Activities on site must comply with the regulations of the Animal Protection Act, 1962 (Act 71 of 1962). Workers should also be advised on the penalties associated with the needless destruction of wildlife, as set out in this act.
- Appoint an ECO to oversee the activities and ensure that ecological aspects are kept in mind.
- Priority species, specifically nests if encountered, should be identified first and a management plan should be established for each of the priority species.
- Continuous rehabilitation and clean-up of the area should be implemented during the operational phase.
- Limit activities (transport etc.) to the smallest area possible. This is to prevent fragmentation that may have irreversible changes to faunal communities. It also increases the invasion of alien/foreign species.
- A management plan for the control of invasive and exotic plant species needs to be implemented (if required).
- Restrict movement to the proposed footprint of the activities. Control of access should be implemented for all other natural areas to prevent unnecessary destruction of habitats or disturbance of species. Human and vehicles movement should stay out of the natural areas. It is also vital that no additional fragmentation occur and that all roads are clearly demarcated and kept to a minimum without any exceptions. No vehicles or personnel are permitted outside of these demarcated roads. No camping activities or other contractor camps should be allowed on Project and this practice will be a good investment in preventing more impacts, noise and waste or possibly the spread of fires.

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

This BAR and EMPR has assessed the potential impacts associated with the proposed mining activities and mitigation measures have been developed to address the impacts identified.

Furthermore, this BAR and EMPR has been compiled in accordance with the most recent guidelines and legislation. The draft BAR and EMPR was also be made available to I&APs review and comments, and appropriate changes have been made to this final BAR and EMPR as a result of the I&APs consultation process. Furthermore, appropriate measures are included in the BAR and EMPR wherever possible, to ensure I&APs concerns are addressed. As such, the EAP is of the opinion that the activity should be authorised.

21. PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

The Environmental Authorisation is required for 2 years and may be renewed for three periods of which may not exceed one year.

22. UNDERTAKING

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

23. FINANCIAL PROVISION

The Regulations pertaining to the Financial Provision for Prospecting, Mining and Production Operations promulgated under Section 44(A) (e), (f), (g), (h) read with sections 24(5)(b)(ix), 24(5)(d), 24N, 24P and 24R of the National Environmental Management Act, 1998 (Act 107 of 1998) (20 November 2015) have been considered and this is anticipated to result in an increase in the rehabilitation costs estimated using the above-mentioned quantum. The amount that is required to both manage and rehabilitate the environment in respect of rehabilitation is reflected in the quantum of financial provision in Section 35 (Part B) of the report.

CALCULATION OF THE QUANTUM								
						DMRE REF No	MP/30/5/1/3/2/13516 MP	
Applicant:	NOTRE COAL					Date	04-Aug-22	
Evaluator:	Tsedzuluso Mundalamo							
No.	Description	Unit	A	B	C	D	E=A*B*C*D	
			Quantity	Master Rate	Multiplication factor	Weighting factor 1	Amount (Rands)	
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	19	1	1	0	
2 (A)	Demolition of steel buildings and structures	m2	0	271	1	1	0	
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	400	1	1	0	
3	Rehabilitation of access roads	m2		49	1	1	0	
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	471	1	1	0	
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	257	1	1	0	
5	Demolition of housing and/or administration facilities	m2	0	542	1	1	0	
6	Opencast rehabilitation including final voids and ramps	ha	4,5	284292	0,5	1	639657	
7	Sealing of shafts adits and inclines	m3	0	146	1	1	0	
8 (A)	Rehabilitation of overburden and spoils	ha	0,18	189528	0	1	0	
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	236054	1	1	0	
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha		685612	1	1	0	
9	Rehabilitation of subsided areas	ha	0	158701	1	1	0	
10	General surface rehabilitation	ha	4,5	150138	0,4	1	270248,4	
11	River diversions	ha	0	150138	1	1	0	
12	Fencing	m	0	171	1	1	0	
13	Water management	ha	0,08	57087	0,08	1	365,3568	
14	2 to 3 years of maintenance and aftercare	ha	0	19980	1	1	0	
15 (A)	Specialist study	Sum	0			1	0	
15 (B)	Specialist study	Sum				1	0	
						Sub Total 1	910270,7568	
1	Preliminary and General		109232,4908	weighting factor 2			109232,4908	
						1		
2	Contingencies		91027,07568				91027,07568	
						Subtotal 2	1110530,32	
SIGN	Tsedzuluso Mundalamo					VAT (15%)		166579,55
DATE	2022/09/04					Grand Total		1277110

Figure 23: Financial provision

24. SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

As part of the consultation process, the Competent Authority has requested proof of consultation of the community concerned that is supported by a resolution taken in a meeting attended/facilitated by the Department of Rural Development and Land Reform. This proof will be submitted to the DMRE in due course.

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

27.1 Impact on the Socio-Economic Conditions of any Directly Affected Person

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

25.2. Education, skills development and training

25.2.17. The implementation of skills development and training programmes will have a direct positive effect on a number of individuals.

25.3. Employment opportunities

25.3.17. The operation of the mine will result in both direct and indirect employment opportunities.

25.4. Influx of migrant workers

25.4.17. The mining operations can result in the influx of migrant workers seeking jobs and thereby reducing the number of jobs available to local labour. This is addressed through the recruitment procedure which focuses on employment of local labour.

25.5. Loss of jobs and economic opportunities

25.5.17. Upon closure and downscaling of mining operations, there will be a loss of jobs and income for a large number of individuals. Training and skills development aim to equip employees with portable skills, thereby opening up other employment opportunities post mining.

25.6. Perceptions and expectations

25.6.17. When a new mine operation commences in an area there is often false perceptions and expectations, particularly surrounding potential employment. There are inevitably more people seeking jobs than the number of jobs

available at the mine, especially for unskilled labour. The manner in which false perceptions and expectations is addressed is through extensive consultation and communication to ensure people are fully aware of the potential employment opportunities and recruitment process.

The consultation process allows directly affected parties to raise their concerns. It is noted that I&APs, including directly affected parties such as landowners, were given the opportunity to review and comment on the draft BAR and EMPR. The results of the public consultation are included in this final report that is submitted to the Department for adjudication.

27.2 Impact on any National Estate Referred to in Section 3(2) of the National Heritage Resources Act

A Heritage Assessment was undertaken over the application area. A number of known cultural heritage sites (archaeological and/or historical) exist in the larger geographical area surrounding the study area. No heritage resource sites were identified in the specific study area during the assessment. Six (6) sites of cultural heritage (archaeological and/or historical) origin and significance were identified outside of the application area during the field assessment. However, the close proximity of their locations to the application area and the high significance of some of these sites does warrant the implementation of mitigation measures to prevent any possible (even if indirect) negative impacts on them by the proposed mining related activities.

Notice of the proposed Mining Permit Application has been uploaded onto the South African Heritage Resources Agency's (SAHRA) website, South African Heritage Information System (SAHRIS).

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

There are no other matters required in terms of Section 24(4)(A) and (B) of the Act.

PART B:
ENVIRONMENTAL MANAGEMENT PROGRAMME

27. INTRODUCTION

29.1 Details of the EAP

The details and expertise of the EAP are detailed in Sections 1.3 and 1.4 above as required.

29.2 Description of the Aspects of the Activity

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

28. ENVIRONMENTAL MANAGEMENT PRINCIPLES

It is extremely important for effective environmental management that the Applicant be aware of the general principles upon which sound environmental management is based and that these principles are considered in all aspects of the mining operation. NEMA has established a general framework for environmental law, in part by prescribing national environmental management principles that must be applied when making decisions that may have a significant impact on the environment. These principles are briefly summarised in the sections that follow.

30.1 Holistic Principle

The Holistic principle, as defined by NEMA (Section 2(4)(b)) requires that environmental management must be integrated, acknowledging that all elements of the environment are linked and inter-related and it must take into account the effect of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option (defined below). Holistic evaluation does not mean that a project must be looked at as a whole. It rather means that it must be accepted that there is a whole into which a project introduced. If the indications are that the project could have major adverse effects, the project must be reconsidered and where appropriate re-planned or relocated to avoid an adverse impact or to ensure a beneficial impact.

30.2 Best Practicable Environmental Option

When it is necessary to undertake any action with environmental impacts, the different options that could be considered for the purpose must be identified and defined. The Best Practicable Environmental Option (BPEO) is defined in NEMA as "the option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term." Other guidelines typically used for environmental management in terms of other legislation include: BPM which is the Best Practicable Means and BAT which is the Best Available Technology.

30.3 Sustainable Development

The concept of sustainable development was introduced in the 1980's with the aim to ensure that the use of natural resources is such that our present needs are provided without compromising the ability of future generations to meet their own needs. The constitution of South Africa is built around the fact that everyone has the right to have the environment protected through reasonable legislative and other measures that secure

ecologically sustainable development. The National Environmental Principles included in the NEMA require development to be socially, environmentally and economically sustainable.

30.4 Preventative Principles

The preventative principle is fundamental to sustainable development and requires that the disturbance to ecosystems and the pollution, degradation of the environment and negative impacts on the environment be avoided, or, where they cannot be altogether avoided, are minimised and remedied.

30.5 The Precautionary Principles

The precautionary principle requires that where there is uncertainty, based on available information, that an impact will be harmful to the environment, it is assumed, as a matter of precaution, that said impact will be harmful to the environment until such time that it can be proven otherwise. The precautionary principle requires that decisions by the private sector, governments, institutions and individuals need to allow for and recognise conditions of uncertainty, particularly with respect to the possible environmental consequences of those decisions. In South Africa, the DWA (then DWAF, now DWS) adopted a BPEO guideline in 1991 for water quality management and in 1994 in the Minimum Requirements document for waste management.

In terms of DWAF Minimum Requirements for the Handling and Disposal of Hazardous Waste, 1994, the precautionary principle is defined as, "Where a risk is unknown; the assumption of the worst case situation and the making of provision for such a situation." Here the precautionary principle assumes that a waste or an identified contaminant of a waste is "both highly hazardous and toxic until proven otherwise."

In the context of the EIA process in South Africa, the precautionary principle also translates to a requirement to provide sound, scientifically based, information that is sufficient to provide the decision making authority with reasonable grounds to understand the potential impacts on the environment, the extent thereof and how impacts could be mitigated. If such information is not adequate for this purpose, the relevant authority cannot be satisfied as is required and then the authority should require that further information be collected and provided.

30.6 Duty of Care and Cradle to Grave Principle

In terms of the NEMA Section 28, "Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as

such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment."

By way of example, the principle of "duty of care" in terms of waste management emphasises the responsibility to make sure that waste is correctly stored and correctly transported, as it passes through the chain of custody to final point of disposal. This means that waste must always be stored safely and securely. The company removing and disposing of waste also holds the responsibility to hold the relevant licenses, and that waste is transported alongside the necessary paperwork.

"Cradle to Grave" refers to the responsibility a company takes for the entire life cycle of a product, service or program, from design to disposal or termination. In terms of the DWAF Minimum Requirements for the Handling and Disposal of Hazardous Waste, 1994, "any person who generates, transports, treats or disposes of waste must ensure that there is no unauthorised transfer or escape of waste from his control. Such a person must retain documentation describing both the waste and any related transactions. In this way, he retains responsibility for the waste generated or handled." This places responsibility for a waste on the Generator, and is supported by the "Cradle to Grave" principle, according to which a "manifest" accompanies each load of Hazardous Waste until it

is responsibly and legally disposed. This manifest is transferred from one transporter to the next along with the load, should more than one transporter be involved. Once the waste is properly disposed of at a suitable, permitted facility, a copy of the manifest must be returned to the point of origin." Duty of Care offers one strategy to implement sustainable development.

30.7 Polluter Pays Principle

The "polluter pays principle" entails that the person or organisation causing pollution is liable for any costs involved in cleaning it up or rehabilitating its effects. It is noted that the polluter will not always necessarily be the generator, as it is possible for responsibility for the safe handling, treatment or disposal of waste to pass from one competent contracting party to another. The polluter may therefore not be the generator, but could be a disposal site operator or a transporter. Through the 'duty of care' principle, however, the generator will always be one of the parties held accountable for the pollution caused by the waste. Accordingly, the generator must be able to prove that the transferral of management of the waste was a responsible action. The polluter pays principle acceding to NEMA dictates that "the cost of remedying pollution, environmental degradation and consequent adverse effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment."

30.8 Duty of Care Responsibilities

The principle of duty of care is especially important to understand when it comes to pollution that arises as a result of mining. Notwithstanding any licences or permits that may exist, the mine still has a responsibility to take suitable measures should pollution arise as a result of the mining activities.

Training and awareness should be fostered in all staff working to ensure that they can perform their duties. Failure to comply with the provisions in the EMPR and NEMA would be a contravention of the Act. The relevant sections of NEMA are provided below, to outline the duty of care and responsibility that the applicant and all employees have towards the environment. The National Environmental Management Act (Act 107 of 1998) (NEMA) Section 28 makes provision for Duty of care and remediation of environmental damage. The binding principals are described below:

- Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such

harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.

- Without limiting the generality of the duty in subsection (1), the persons on whom subsection (1) imposes an obligation to take reasonable measures, include an owner of land or premises, a person in control of land or premises or a person who has a right to use the land or premises on which or in which-
 - any activity or process is or was performed or undertaken or
 - any other situation exists, which causes, has caused or is likely to cause significant pollution or degradation of the environment
- The measures required in terms of subsection (1) may include measures to-
 - investigate, assess and evaluate the impact on the environment
 - inform and educate employees about the environmental risks of their work and the manner in which their tasks must be performed in order to avoid causing significant pollution or degradation of the environment
 - cease, modify or control any act, activity or process causing the pollution or degradation;
 - contain or prevent the movement of pollutants or the cause of degradation
 - eliminate any source of the pollution or degradation or
 - remedy the effects of the pollution or degradation
- No person may-
 - unlawfully and intentionally or negligently commit any act or omission which causes significant or is likely to cause significant pollution or degradation of the environment
 - unlawfully and intentionally or negligently commit any act or omission which detrimentally affects or is likely to affect the environment in such manner or
 - refuse to comply with a directive issued under this section

Any person who contravenes or fails to comply with subsection (14) is guilty of an offence and liable on conviction to a fine not exceeding R1million or to imprisonment for a period not exceeding 1 year or to both such a fine and such imprisonment.

30.9 Failure to Comply with Environmental Considerations

Within the provisions of the relevant environmental legislation, there are a number of penalties for non-compliance or offences. Below a few extracts are presented for information purposes, however these must not be read in isolation and the reader is reminded that there are other acts that may be applicable to the relevant project:

- NEMA Section 24F(2): It is an offence for any person to fail to comply with or to contravene the conditions applicable to any environmental authorization granted for that listed activity. 24F(4) A person convicted for an offence under subsection 2 is liable to a fine not exceeding 5 million rand or to imprisonment not exceeding 10 years or to both such a fine and imprisonment
- NEMA Section 34(6): Whenever any manager, agent or employee does or omits to do an act which it had been his or her task to do, or to refrain from doing on behalf of the employer and which would be an offence under any provision listed in Schedule 3 (relates to all environmental related acts) for the employer to do or omit to do, he or she shall be liable to be convicted and sentenced in respect thereof as if he or she were the employer
- NWA Section 151 (1): "No person may fail to comply with any condition attached to a permitted water use (Water Use License)"
- NWA Section 151 (2): "Any person who contravenes any provision of subsection 1 is guilty of an offence and liable, on the first conviction, to a fine or imprisonment for a period not exceeding 5 years or to both a fine and such imprisonment (10 years for second conviction)"
- In addition, if anyone is convicted of an offence under the act which has resulted in harm, loss or damage to any other person, the court may award damages to be paid by the accused or convicted
- NWA Section 154: Makes provision that it's not only the applicant that may be liable but also an employee or agent acting on their behalf
- In terms of the MPRDA, Section 98, any person is guilty of an offence if he or she fails to comply with the requirements of the issued mining permit
- MPRDA Section 99 (1a): any person convicted of an offence in terms of the MPRDA is liable to a fine not exceeding R100, 000 or to imprisonment to a period not exceeding 2 years or to both such fine and imprisonment.

It is recommended that a procedure for non-compliances (i.e. incentives or disincentives for conformance and non-conformance with the EMPR requirements) must be employed to ensure that the EMPR is adequately

implemented. The system to be used must be determined before mining commences, included in the tender documents and contracts, and made clear to all project workers. The system may include that the independent ECO can be authorised to impose spot fines on the Contractor and/or his subcontractors for any of the transgressions detailed below:

- Littering on site
- Lighting of illegal fires on site
- Persistent or un-repaired oil leaks

- Any persons, vehicles or equipment related to the Contractor's operations found within the designated "No - Go" areas
- Any vehicles being driven in excess of designated speed limits
- Removal and/or damage to fauna, flora or heritage objects on site
- Legal contraventions

Such fines should be issued in addition to any remedial costs incurred as a result of non-compliance with the Environmental Specifications and or legal obligations.

29. DESCRIPTION OF IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

31.1 Determination of Closure Objectives

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

The receiving environment within which the mining activities will be undertaken includes the following key land uses:

- Low shrubland.
- Woodland/Open bush.
- Grassland.
- Bare/none vegetation.

Concerns raised by the stakeholders consulted during the public participation process for the basic assessment have been taken into consideration and will be included in the final BAR and EMPR which will be submitted to the DMR.

In practice the post closure land-use will depend on the pre-mining land use of the study area. Considering that the exact location of the planned mining have been identified and assessed, it can be said that the closure plan will sufficiently address the objectives for the site. This EMPR does, however, aim to address the key closure objectives which are likely to remain consistent for the majority of the mining activities.

The EMPR includes a monitoring and a rehabilitation plan. The plan shall outline the closure objectives which are aimed at reinstating the landform, land use and vegetation units to the same as before mining operations take place unless a specific, reasonable alternative land use is requested by the landowner.

As such, the intended end use for the disturbed mining area and the closure objectives will be defined in consultation with the relevant landowner. Proof of such consultation will be submitted together with the Application for Closure Certificate. The overall aim of the rehabilitation plan is to rehabilitate the environment to a condition as close as possible to that which existed prior to mining.

This shall be achieved with a number of specific objectives.

- Making the area safe. i.e. decommission mining activities so as to ensure that the environment is safe for people and animals. This entails refilling excavations, etc.
- Recreating a free draining landform. This entails earthworks infilling, reshaping, levelling, etc. to recreate as close as possible the original topography and to ensure a free draining landscape.
- Re-vegetation. This involves either reseeded or allowing natural succession depending on the area, climate etc.
- Storm water management and erosion control. Management of stormwater and prevention of erosion during rehabilitation. E.g. cut off drains, berms etc. and erosion control where required.
- Verification of rehabilitation success. Entails monitoring of rehabilitation.

31.2 Volumes and Rate of Water Use Required for the Operation

Limited water will be consumed by the surface dust suppression activities (water mist added for dust suppression when required), approximately <500 litres per day. No water will be required for the mining operations.

31.3 Has a Water Use License Been Applied For?

No mining activities will occur within identified watercourses. No water use license has been applied for as part of this this Mining Permit application. Water required for dust suppression will be trucked in.

30. IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

Table 23: Impacts to be mitigated.

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
Environmental Management					
General opencast management	Planning and Design Construction Operation Decommissioning Rehabilitation and Closure	No direct physical disturbance	The small-scale mine shall ensure that social and environmental human resources have the knowledge, skills, and experience necessary to perform their work with competence and efficiency.	Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	Throughout
General opencast management	Planning and Design Construction Operation Decommissioning Rehabilitation and Closure	No direct physical disturbance	The small-scale mine shall appoint a suitably qualified and competent Environmental Control Officer (ECO) who shall preferably be independent from the Applicant and the Contractor. The ECO must preferably have a tertiary qualification in an Environmental Management or appropriate field. The ECO should have	Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	Throughout

			<p>appropriate qualification and experience in the implementation of environmental management specifications. The ECO shall be tasked with auditing the mines environmental compliance on a regular basis (annually). The Applicant shall provide</p>		
--	--	--	---	--	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			the ECO with the necessary support to ensure that the environmental aspects relating to the development is adhered to.		
General opencast management	Planning and Design Construction Operation Decommissioning Rehabilitation and Closure	No direct physical disturbance	All contractors and sub-contractors must have a copy of this EMPR at the point of use and should be briefed by the Pit Environmental Officer (EO) or ECO with regards to the use and implementation of the EMPR.	Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	Throughout
General opencast management	Planning and Design Construction Operation Decommissioning Rehabilitation and Closure	No direct physical disturbance	The EMPR must be binding for all contractors operating on behalf of the Mining Permit Holder.	Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	Throughout

<p>General opencast management</p>	<p>Planning and Design Construction Operation Decommissioning Rehabilitation and Closure</p>	<p>No direct physical disturbance</p>	<p>The small-scale mine shall ensure that all sub-contractors working under the main mining contractor abide by the requirements of the EMPR through the inclusion of the EMPR and applicable environmental requirements in contractual agreements for all sub-contractors.</p>	<p>Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards</p>	<p>Throughout</p>
--	--	---	---	---	-------------------

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
Health and Safety					
General opencast management	Planning and Design Construction Operation Decommissioning Rehabilitation and Closure	Health and safety risks are classified as high significance due to the value of human life	The small-scale mine shall ensure that reasonable measures are taken to ensure the safety of all site staff, including induction training for all employees and visitors.	OHS MHSA	Throughout
General opencast management	Construction Operation Decommissioning Rehabilitation and Closure	Health and safety risks are classified as high significance due to the value of human life	The small-scale mine shall provide appropriate Personal Protective Equipment (PPE) to employees wherever required and in accordance with the risks associated with their activities.	OHS MHSA	Throughout
General opencast management	Construction Operation	Health and safety risks are classified	The small-scale mine shall undertake safety audits to ensure compliance with	OHS MHSA	Throughout

	Decommissioning Rehabilitation and Closure	as high significance due to the value of human life	the (i) Occupational Health and Safety Act (Act No. 85 of 1993) and associated regulations and (ii) Mine Health and Safety Act (Act 29 of 1996) as amended and associated regulations.		
General opencast management	Construction Operation Decommissioning Rehabilitation and	Health and safety risks are classified as high significance due to the value of	The small-scale mine shall implement a safety reporting procedure to ensure that all accidents and incidents (safety and environmental) are recorded and	OHS MHSA	Throughout

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Closure	human life	reported to the pit manager and EO.		
General opencast management	Construction Operation Decommissioning Rehabilitation and Closure	Health and safety risks are classified as high significance due to the value of human life	Any containers in which hazardous substances (e.g. fuel, paints, solvents) are stored shall be clearly marked as to the contents therein (in accordance with OHSA regulations).	OHS MHSA	Throughout
Site Access and Security					
General opencast management	Construction Operation Decommissioning Rehabilitation and Closure	Security risks can have a highly significant impact although minimise	On-site vehicles must be limited to approved access routes and areas (including turning circles and parking) on the site so as to minimise excessive environmental disturbance to the soil and vegetation off site, and to minimise disruption of traffic.	OHS MHSA	Throughout

General opencast management	Construction Operation	The creation of roads can have a significant and relatively widespread impact, especially as roads create corridors	Any new access (if required) shall first be approved by the pit manager and ECO (method statement may be required) and should be provided with erosion and silt pollution prevention measures where required.	OHS MHSA	Throughout
General opencast management	Construction Operation Decommissioning	Security risks can have a highly significant impact	No person will be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares	OHS MHSA	Throughout

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Rehabilitation and Closure	although localised	or otherwise dangerous objects on-site, or to enter the site while under the influence of alcohol or drugs.		
Environmental Awareness					
General opencast management	Construction Operation Decommissioning Rehabilitation and Closure	No direct physical disturbance	All employees and visitors to the site must undergo a site induction which shall include basic environmental awareness and site specific environmental requirements (e.g. site sensitivities and relevant protocols/procedures). This induction should be presented or otherwise facilitated by the Contractors EO/Pit EO wherever possible.	NEMA	Throughout
Social and Socio-Economic					
General opencast management	Planning Construction Operation Decommissioning Rehabilitation	No direct physical disturbance	The small-scale mine shall develop and implement a recruitment policy that allows equal opportunity to all people (woman, disabled) and give preference to local labour from the	Adherence to corporate policies and compliance with legislation including Labour Act and	Throughout

	and Closure		local Municipality.	Employment Act	
General opencast management	Planning Constructio n Operation Decommissioning	No direct physical disturbance	The procurement policy for the mine should focus on utilising service providers from the local area so as to encourage the growth of businesses.	Adherence to corporate policies and compliance with legislation including Labour Act and	Throughout

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Rehabilitation and Closure			Employment Act	
General opencast management	Planning Construction Operation Decommissioning Rehabilitation and Closure	No direct physical disturbance	The small-scale mine shall attempt, where possible, to recruit local service providers and contractors to undertake construction activities.	Adherence to corporate policies and compliance with legislation including Labour Act and Employment Act	Throughout
General opencast management	Planning Construction Operation Decommissioning Rehabilitation and Closure	No direct physical disturbance	The small-scale mine and contractor(s) shall comply with all relevant legislation pertaining to labour recruitment and employment.	Compliance with legislation including Labour Act and Employment Act	Throughout

General opencast management	Planning Construction Operation Decommissioning Rehabilitation and Closure	No direct physical disturbance	The small-scale mine shall appoint a community liaison officer that deals specifically with the surrounding communities. The mine shall communicate frequently with the affected stakeholders to ensure that they understand the processes and do not develop more unrealistic expectations.	Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	Appointment as early as possible and implemented throughout
General opencast management	Planning Construction Operation	No direct physical disturbance	The small-scale mine shall establish a detailed grievance mechanism for communities to lodge concerns,	Shall adhere to the ESMS Framework guided by	Developed as early as possible and

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Decommissioning Rehabilitation and Closure		<p>suggestions and grievances which can be dealt with by the Project in a timely manner. The grievance mechanism shall aim to accomplish the following objectives:</p> <ul style="list-style-type: none"> • Receive and register external communications from the public. • Screen and assess the issues raised and determine how to address them. • Identify roles and responsibilities relating to the reporting, recording and addressing of grievances. • Maintenance of a grievance register to record and track, and document responses and actions taken to address grievances. • Reporting of grievances to DMR. 	Equator Principles, and IFC Performance Standards	implemented throughout

			<ul style="list-style-type: none"> Adjust the management program, as appropriate. 		
General opencast management	Planning Construction Operation Decommissioning Rehabilitation and	No direct physical disturbance	A grievance register must be maintained by the mine to log grievances from landowners, communities, occupants and other Interested and Affected Parties, and	Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance	Developed as early as possible and implemented throughout

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Closure		<p>response to such grievances. The grievance register should be provided to authorities at any point in time if so requested. The grievance register shall contain, at a minimum, the following information:</p> <ul style="list-style-type: none"> • Date of the grievance being lodged. • Location relating to the grievance. • Contact details of the complainant. • Grievance description (detailed as possible). • Person receiving grievance. • Agreed corrective action. • Responsible party for corrective action. • Summary of actions taken (and date action was 	Standards	

			<p>taken).</p> <ul style="list-style-type: none"> • Status of grievance (open, closed- out, awaiting feedback etc.). 		
General opencast management	Planning Construction Operation Decommissioning Rehabilitation and Closure	No direct physical disturbance	Employees should be sourced from the local area where possible.	Adherence to corporate policies and compliance with legislation including Labour Act and Employment Act	Throughout

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
General opencast management	Operation	No direct physical disturbance	The workforce should undergo up-skilling during the operation of the mine so that they may be productively absorbed into the local economy after mine closure.	Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	During operation
General opencast management	Planning Construction Operation Decommissioning Rehabilitation and Closure	No direct physical disturbance	Stakeholder engagement will continue throughout to ensure local communities are kept informed and allowed to raise issues. These issues will then be addressed through the grievance mechanism.	Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	Throughout
General opencast management	Operation	No direct physical disturbance	Where retrenchments are unavoidable, they should be managed humanely according to legislative requirements.	Legislative requirements	When retrenchments are required
General opencast management	Operation	No direct physical disturbance	Upon closure, the contracting company for the mining operations should attempt to redeploy employees to its other operations.		As required when scaling down operations and prior to closure

Site Establishment					
Construction camp sewage management Dust suppression	Construction	Construction impacts are temporary in nature and have a limited	The physical footprint of any construction or site camp shall be minimised and vegetation clearance should be kept to the minimum required	Shall adhere to the ESMS Framework guided by Equator Principles and IFC Performance	Throughout constructio n

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
<p>Earthworks</p> <p>Fencing</p> <p>Fuel storage and refueling</p> <p>Hazardous substances management</p> <p>Site security</p> <p>Soil management</p> <p>Truck and heavy machinery operation</p> <p>Utilisation of portable toilets and generation of sewage</p>		<p>extent but may include significant impacts</p>	<p>area. Topsoil shall be handled in accordance with the soil management principles presented in this EMPR and the soil management guide developed for the Mine.</p> <hr/> <p>All construction and/or site camps shall be enclosed with a fence. The mesh size should be small enough for the fence to act as a catch net for blown debris and as a demarcation of the site. The fence shall be maintained as required to ensure access control remains effective. All temporary fences erected by the contractor shall be removed and the site restored on completion of construction, unless otherwise agreed in writing with the Applicant.</p>	<p>Standards</p> <p>s OHSA</p> <p>MHSA</p> <p>NEMA</p> <p>MPRDA</p>	

Vegetation clearance		Site and construction camps must be kept in a clean, neat and tidy condition at all times. The contractor shall maintain good housekeeping practises and shall comply with the relevant HSE regulations in terms of materials storage. Stockpiles of construction materials may only be placed within	
----------------------	--	---	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			<p>demarcated areas within the construction camp. Laydown areas must be kept neat and tidy and free of litter or waste at all times.</p> <p>A waste storage area must be established within the site camp/construction camp that provides for appropriate and adequate waste storage and waste separation for recycling. All waste must be adequately contained so as to prevent ground and/or water pollution. The total volume of general waste stored shall not exceed 100 m³. In the case that a storage capacity exceeding this amount is required or planned for, the necessary waste permits must be obtained in accordance with the NEMWA beforehand (GN 718).</p>		

		<p>The site camp/construction camp shall have adequate provision for the storage of hazardous waste (e.g. old oil filters, soil from spills etc.) and the waste shall be contained within closed containers to prevent the possibility of spillages.</p>	
		<p>All fuel storage areas shall be bunded.</p>	

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			<p>Fuel storage areas may not be located within 100 m of the watercourse and the total volume of fuel stored on site may not exceed 30 m³ (30 000 liters) without the necessary authorisation in terms of the NEMA. Fuel storage areas must be provided with an impervious surface with the provision to contain any potential fuel spillages during re-fueling (e.g. a bunded, sealed concrete slab which drains to a sump/oil separator). No person smoke or take part in any activity that may results in sparks in the vicinity of fuels and other flammable substances to prevent ignition.</p>		

		<p>All hazardous substances shall be stored within designated areas that comply with the relevant HSE standards (e.g. access control, HSE signage, fire-fighting equipment etc.) and that provide for spill prevention and containment. It is recommended that a dedicated, bunded and fenced Hazardous Storage Area is provided within the construction camp for this</p>	
--	--	--	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			<p>purpose.</p> <p>Site camps/construction camps shall be provided with portable fire extinguishing equipment, in accordance with all relevant legislation and this equipment must be readily accessible.</p> <p>No open fires shall be permitted within the site camp/construction camp, except where approved by the responsible safety officer and ECO and within a designated structure designed for that purpose. In such cases fire fighting equipment must be readily available in the vicinity of the fire place and an appropriate safety representative should be present at all times during burning of the fire.</p> <p>All fires shall be fully extinguished after use.</p>		
Flora					

General surface rehabilitation	Planning and Design	Impacts on flora may occur over a large area (active mine areas) and has the potential to be a relatively high	The small-scale mine, in consultation with the ECO, shall develop an appropriate weed management plan, to be implemented throughout the lifespan of the project. The weed management plan shall aim to eradicate and control	NEMA NEMBA CARA Shall adhere to the ESMS Framework guided by	Development of plan as soon as possible and implementation throughout
Infrastructure removal	Construction Operation Decommissioning Rehabilitation and Closure				
Maintenance and operation of site					

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
<p>infrastructure and facilities</p> <p>Mining Permit area site preparation</p> <p>Filling opencast voids</p> <p>Post closure monitoring and maintenance</p>		significance	<p>alien vegetation in accordance with NEMBA. Control involves killing the plants present, killing the seedlings which emerge, and establishing and managing an alternative plant cover to limit re-growth and re-invasion.</p> <p>Specialist input shall be sought in developing the plan to ensure the potential for residual or latent</p>	Equator Principles IFC Performance Standards	

<p>Site establishment</p>			<p>impacts resulting from alien vegetation removal are minimised and mitigated.</p> <p>The weed management plan shall include appropriate measures for removal/control of alien vegetation across the entire site. The weed management plan shall include the following measures as a minimum:</p> <ul style="list-style-type: none"> • Weeds and invader plants will be controlled in the manner prescribed for that category by the Conservation of Agricultural Resources Act or in terms of Working for Water guidelines. • Alien invasive tree species such as 		
---------------------------	--	--	---	--	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			<p>black wattle and blue gum should be eradicated.</p> <ul style="list-style-type: none"> • Institute an eradication/control programme for early intervention if invasive species are detected, so that their spread to surrounding natural ecosystems can be prevented. • Institute a monitoring programme to detect alien invasive species early, before they become established and, in the case of weeds, before the release of seeds (including closure and post closure monitoring). • The Plan must clearly define the areas from which alien vegetation must be removed as well as the plant, equipment, materials and methodology to be used (including safe disposal). 		

	Planning and Design Construction Operation	Impacts on red data species has a very high significance	All Red Data Plants within the Mining Permit area, roads and all other infrastructure areas should be transplanted and relocated within either	NEMBA Threatened or Protected Species (TOPS) regulations	Prior to commencement of activities or disturbance
--	---	---	--	---	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			<p>a nursery or any neighbouring piece of land where it can be conserved until rehabilitation can take place. These species can either be replanted during the rehabilitation process of the Opencast pit mining areas as rehabilitation of mined out areas progresses, or left in their new location if this is not to be disturbed in future.</p>	<p>National Forests Act DAFF permitting requirements</p>	
	<p>Planning and Design Construction Operation</p>	<p>Impacts on red data species has a very high significance</p>	<p>The small-scale mine shall ensure that the relevant permits are obtained to remove and relocate protected species. Plan activities carefully so that only vegetation that needs to be impacted is impacted. Incorporate herbaceous vegetation into soil stockpiles to maintain a seed bank. Limit activity to area of disturbance and revegetate impacted areas as soon as possible.</p>	<p>NEMBA TOPS regulations National Forests Act DAFF permitting requirements</p>	<p>Prior to commencement of activities or disturbance</p>

	Planning and Design Construction Operation Decommissioning Rehabilitation and Closure	Impacts on flora may occur over a large area (active mine areas) and has the potential to be a relatively high significance	No unnecessary clearing of vegetation will take place, to enable seeds from undisturbed areas to move into disturbed area through natural processes of succession.	NEMA	Throughout
--	---	---	---	------	------------

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Planning and Design Construction Operation Decommissioning Rehabilitation and Closure	Impacts on flora may occur over a large area (active mine areas) and has the potential to be a relatively high significance	The small-scale mine shall plan activities carefully so that only vegetation that needs to be impacted is impacted. Incorporate herbaceous vegetation into soil stockpiles to maintain a seed bank. Limit activity to area of disturbance and revegetate impacted areas as soon as possible. Allow pioneer species to establish in disturbed areas. Erosion prevention measures will be implemented along infrastructure areas.	NEMA CARA	Throughout
	Planning and Design Construction Operation Decommissioning Rehabilitation and Closure	Impacts on flora may occur over a large area (active mine areas) and has the potential to be a relatively high significance	The harvesting of plants by construction and mine workers is prohibited on site. This includes the harvesting of plants for firewood, construction material, the making of crafts and medicinal purposes.	NEMA	Throughout

	Planning and Design Construction Operation Decommissioning Rehabilitation and Closure	Impacts on flora may occur over a large area (active mine areas) and has the potential to be a relatively high significance	Damage or harm to threatened plant species is illegal in terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004). Threatened species are defined in terms of the most recent Red Data list of Southern African Plants. Employees	NEMBA TOPS regulations National Forests Act DAFF permitting requirements	Throughout
--	---	---	--	---	------------

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			and workers shall be educated with regards to any potential threatened species that may be encountered on site, and shall take the necessary actions to prevent of harm to any such species found on site.		
	Construction Operation Decommissioning Rehabilitation and Closure	Impacts on flora may occur over a large area (active mine areas) and has the potential to be a relatively high significance	All alien vegetation occurring on the site must be controlled in accordance with NEMBA. The area should be assessed and the alien invasive species controlled prior to the commencement of the construction activities. The area should be monitored for the establishment and spread of alien invasive species throughout. The weed management plan and principles for weed management presented in this EMPR must be implemented throughout the lifespan of the project.	NEMA NEMBA CARA Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	Throughout

	<p>Construction Operation</p>	<p>Impacts on flora may occur over a large area (active mine areas) and has the potential to be a relatively high significance</p>	<p>All soil stockpiles shall be kept free of any weeds or alien invader plant species.</p>	<p>Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards</p>	<p>Throughout</p>
--	-----------------------------------	--	--	---	-------------------

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Construction Operation Decommissioning Rehabilitation and Closure	Impacts on flora may occur over a large area (active mine areas) and has the potential to be a relatively high significance	<p>Alien species removal must take place in an appropriate manner, which includes:</p> <ul style="list-style-type: none"> • Avoid disturbance to the soil. • Use an appropriate control for each species. Some species may require manual and herbicide control. • Where appropriate, use biological control. • Where herbicide control is used, ensure that the correct herbicide as registered for the species is used. • Use only herbicides that are registered for use near water close to the wetland areas. • In most cases herbicide control is only successful in the growing season. All herbicides must be applied appropriately. 	<p>NEMA NEMBA CARA Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards</p>	Throughout

<p>Construction Operation Decommissioning Rehabilitation and Closure</p>	<p>Impacts on flora may occur over a large area (active mine areas) and has the potential to be a relatively high</p>	<p>Where large clumps of invasive trees are to be controlled, do not clear all invasive species at once, since this will lead to large areas bare of vegetation and may lead to erosion and a large sediment load in the adjacent water</p>	<p>NEMA NEMBA CARA Shall adhere to the ESMS Framework guided by Equator Principles, and</p>	<p>Throughout</p>
--	---	---	---	-------------------

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
		significance	resources. Aliens must be removed gradually over a long period and the trees replaced with grassland.	IFC Performance Standards	
	Rehabilitation and Closure	Impacts on flora may occur over a large area (active mine areas) and has the potential to be a relatively high significance	The small-scale mine should consider the use of excess vegetation (tree stumps etc.) to create 'safe sites' for seedling recruitment as well as animal habitats in rehabilitated areas.	Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	During Rehabilitation
	Rehabilitation and Closure	Impacts on flora may occur over a large area (active	Disturbed surfaces will be re-vegetated as soon as they become available, by seeding with an appropriate seed mix	Adherence to Rehabilitation and Closure Plan	During rehabilitation

		mine areas) and has the potential to be a relatively high significance	as per direction by a vegetation specialist.		
Fauna					
General surface rehabilitation	Planning and Design Construction Operation Decommissioning	Impacts on fauna has the potential to be a relatively high significance	Visitors and workers will be informed that the killing of fauna is prohibited within the boundaries of the mining area, as well as neighbouring areas.	Induction training shall comply with ESMS Framework guided by Equator Principles, and	Throughout

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
Infrastructure removal Maintenance and operation of site infrastructure and facilities	Rehabilitation and Closure	especially where threatened or protected species are impacted upon		IFC Performance Standards	
Mining Permit area site preparation Filling opencast voids Post closure monitoring and maintenance	Planning and Design Construction Operation Decommissioning Rehabilitation and Closure	Impacts on fauna has the potential to be a relatively high significance especially where threatened or protected species are impacted upon	The small-scale mine shall educate and inform all workers, contractors and visitors about any rare and endangered species through an environmental awareness plan and the distribution of posters, containing pictures of any potential rare and endangered species.	NEMA NEMBA CARA Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	Throughout

Site establishment	Planning and Design Construction Operation Decommissioning Rehabilitation and Closure	Impacts on fauna has the potential to be a relatively high significance especially where threatened or protected species are impacted upon	The sighting of any rare or endangered species needs to be reported to management which will keep record of all such species. Should there be a risk of an impact to such a species, the mine shall notify a specialist who shall advise on the best course of action. Should relocation or destruction of any species be required, the necessary permits shall be obtained.	NEMBA TOPS Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	Throughout
	Construction Operation	Impacts on sensitive landscapes have the potential to be	The destruction of sensitive landscape features shall be avoided where possible and otherwise minimised through effective planning. In areas	In accordance with Rehabilitation and closure plan	During construction and operation

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
		a relatively high significance with widespread effects	where the destruction cannot be avoided, these features should be re- introduced in the post mining landscape.		
	Construction Operation	Impacts on sensitive landscapes have the potential to be a relatively high significance with widespread effects	Infrastructure should be designed to rather follow the edge of natural areas than crossing it. If crossing it is the only option, then the area should be transected so that one large area remains rather than two equally sized areas. Infrastructure should be condensed to prevent unnecessary sprawl into sensitive areas.	In accordance with Rehabilitation and closure plan	During construction and operation

<p>Planning and Design Construction Operation Decommissioning Rehabilitation and Closure</p>	<p>Impacts on fauna has the potential to be a relatively high significance especially where threatened or protected species are impacted upon</p>	<p>No construction workers or mine employees may disturb, hunt, set traps/snares, utilise dead or alive fauna/livestock/wildlife/fish. This includes the killing of any animal caught in construction works. No construction workers or mine employees may collect or remove firewood or medicinal plants or other plants/crops/fruits from the site or areas adjacent to the site. Disciplinary action must be taken in the event that any flora or fauna is willfully disturbed or killed.</p>	<p>NEMA NEMBA CARA Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards</p>	<p>Throughout</p>
--	---	--	---	-------------------

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Planning and Design Construction Operation Decommissioning Rehabilitation and Closure	Impacts on fauna has the potential to be a relatively high significance especially where threatened or protected species are impacted upon	Any animals found within excavations should be carefully returned without harm to an adjacent area away from potential harm, but preferably not further than 200 m away from where it was found unless otherwise agreed to by the ECO.	NEMA NEMBA CARA Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	Throughout
	Planning and Design Construction Operation Decommissioning Rehabilitation and Closure	Impacts on fauna has the potential to be a relatively high significance especially where threatened or protected species are impacted upon	The contractor shall ensure that any snakes discovered in excavated areas, on or near the construction site are not killed or otherwise harassed. The Pit EO must be notified should a snake be found on or near the site. The Pit EO will be responsible to ensure that an appropriately skilled person is summoned to remove the snake from the site for relocation to a suitable	NEMA NEMBA CARA Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	Throughout

		nearby location.		
Planning and Design Construction Operation Decommissioning Rehabilitation and Closure	Impacts on fauna has the potential to be a relatively high significance especially where threatened or protected species	The small-scale mine shall take the necessary measures to limit the speed of trucks and vehicles on the roads on site and enforce these speed limits.	Internal speed limits for haul roads and declared legal speed limits for public roads	Throughout

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
		are impacted upon			
	Planning and Design Construction Operation Decommissioning	Impacts on fauna has the potential to be a relatively high significance especially where threatened or protected species are impacted upon	Any Red Data species recorded within the areas that will be cleared for the newly Opencast pit mining areas should be relocated within re-vegetated areas where a good vegetation cover has been established. The mine must ensure relevant permits are in place if any threatened or protected species are relocated.	NEMA NEMBA CARA Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	Throughout
	Planning and Design Construction Operation Decommissioning Rehabilitation and Closure	Impacts on fauna has the potential to be a relatively high significance especially where threatened or protected species are impacted upon	No person should willfully disturb the movement of any mammals, birds, amphibians, insects or reptiles on the mine site.	NEMA NEMBA CARA Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	Throughout

Soils					
Filling opencast voids	Construction	Impacts on soils	Topsoil shall be removed from all	CARA	As required
General decommissioning activities	Operation Decommissioning	can have significant impact both in terms of severity and scale. Impacts on soil can	areas where physical disturbance of the surface will occur (up to a maximum of 30 cm depth). Topsoil must be stockpiled for re-use in subsequent rehabilitation activities outside of areas	NEMA GN70 4 In accordance with Rehabilitation and closure plan	

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
General surface rehabilitation Infrastructure removal		in turn affect land use and land capability	prone to erosion and 1:100 year floodplain demarcation.		
Maintenance and operation of site infrastructure and facilities Mining Permit area site preparation Opencast mining Post closure monitoring and	Construction Operation Decommissioning Rehabilitation and Closure	Impacts on soils can have significant impact both in terms of severity and scale. Impacts on soil can in turn affect land use and land capability	Soils must be stripped from the area of activity. Topsoils and subsoils should be stripped separately. The stripped soils should be utilised to create a berm up-slope of the proposed development area to divert runoff water around the site. Re-vegetate any bare soil immediately. Activity should be limited to area of disturbance. Where required the compacted soils should be ripped to an adequate depth and re-vegetated with indigenous plants.	CARA NEMA In accordance with Rehabilitation and closure plan	As required

maintenance Re-vegetation Site establishment	Construction Operation Decommissioning Rehabilitation and Closure	Impacts on soils can have significant impact both in terms of severity and scale. Impacts on soil can in turn affect land use and land capability	To the greatest extent possible topsoil shall only be handled twice, only-once during the initial stripping of topsoil and a second time to replace it.	CARA NEMA In accordance with Rehabilitation and closure plan	Throughout
	Construction Operation	Impacts on soils can have	It must be ensured that the topsoil is separated from the subsoil and that the	CARA NEMA	Throughout

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
		significant impact both in terms of severity and scale. Impacts on soil can in turn affect land use and land capability	topsoil is stockpiled separately from the subsoil and construction materials.	In accordance with Rehabilitation and closure plan	

<p>Construction Operation Decommissioning Rehabilitation and Closure</p>	<p>Impacts on soils can have significant impact both in terms of severity and scale. Impacts on soil can in turn affect land use and land capability</p>	<p>Topsoil and sub-soil stockpiles must be located such that the potential for erosion is minimised. Areas with existing erosion and stability issues must be avoided. Topsoil stockpiles will not be placed within the 1:100 year floodline of a water course, and will not be placed within the path of a stormwater channel, and if necessary, will be provided with a silt fence around the perimeter of the foot of the stockpile. Stockpiles are to be stabilised if signs of erosion are visible. Any evidence of erosion, scouring, sedimentation, and/or undercutting must be rectified and rehabilitated immediately.</p>	<p>CARA NEMA GN 704 In accordance with Rehabilitation and closure plan</p>	<p>Throughout</p>
<p>Construction Operation</p>	<p>Impacts on soils can have</p>	<p>There must be no contamination of topsoil. The biological, chemical and</p>	<p>MPRDA CARA</p>	<p>Throughout</p>

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Decommissioning Rehabilitation and Closure	significant impact both in terms of severity and scale. Impacts on soil can in turn affect land use and land capability	physical properties of the topsoil must not be changed by introducing detrimental foreign material, gravel, rock, rubble or mine residue to such soil (MPRDA Regulation 70(7)). This also includes littering, waste disposal, fuel or chemical contamination, plant matter dumping or other activity occurs that may introduce pollutants or foreign plant species into stockpiled soils. Material laydown areas and stockpiles of construction materials must be clearly separated from topsoil stockpiles in order to limit any contamination of the topsoil.		

<p>Construction Operation Decommissioning Rehabilitation and Closure</p>	<p>Impacts on soils can have significant impact both in terms of severity and scale. Impacts on soil can in turn affect land use and land capability.</p>	<p>Care must be taken to protect topsoil resources on site and thereby avoid the need to obtain additional topsoil from outside the site for rehabilitation. However, in the event that additional topsoil needs to be sourced from outside the site, this shall be done with extreme caution not to introduce any alien or invasive species to the site.</p>	<p>NEMBA NEMA</p>	<p>Throughout</p>
<p>Construction Operation</p>	<p>Impacts on soils can have</p>	<p>Compacting of soil must be avoided as far as possible. The contractor should</p>	<p>MPRDA CARA</p>	<p>Throughout</p>

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Decommissioning Rehabilitation and Closure	significant impact both in terms of severity and scale. Impacts on soil can in turn affect land use and land capability.	restrict the use of heavy machinery, particularly in areas outside of the physical mining footprint area to reduce the compaction of soils. No vehicles or machines will be allowed to drive over or be parked on the topsoil stockpiles.		
	Construction Operation Decommissioning Rehabilitation and Closure	Impacts on soils can have significant impact both in terms of severity and scale. Impacts on soil can in turn affect land use and land capability.	Stockpiles and berms should be vegetated with a suitable seed-mix.	MPRDA CARA	As required

<p>Construction Operation Decommissioning Rehabilitation and Closure</p>	<p>Impacts on soils can have significant impact both in terms of severity and scale. Impacts on soil can in turn affect land use and land capability.</p>	<p>A monitoring system shall be implemented which will include inspecting soil stockpiles and berms for any degradation or erosion, and ensure immediate action if these are noted.</p>	<p>Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards</p>	<p>Ongoing throughout</p>
--	---	---	---	---------------------------

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Construction Operation Decommissioning Rehabilitation and Closure	Impacts on soils can have significant impact both in terms of severity and scale. Impacts on soil can in turn affect land use and land capability.	The regular inspections shall aim to identify negative effects such as acidification and erosion of cover-soil, poor quality leachate seeping from the residue deposits and deterioration of vegetation cover. The mine shall take measures to re-vegetate any bare soil immediately.	Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	Ongoing throughout
	Construction Operation Decommissioning Rehabilitation and Closure	Impacts on soils can have significant impact both in terms of severity and scale. Impacts on soil can in turn affect land use and land capability	Trucks, machinery and equipment will be regularly serviced to ensure they are in proper working condition and to reduce risk of leaks. All leaks will be cleaned up immediately using spill kits or as per the emergency response plan. For large spills a hazardous materials specialist shall be utilised.	NEMA NWA Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	Ongoing throughout

	<p>Construction Operation Decommissioning Rehabilitation and Closure</p>	<p>Impacts on soils can have significant impact both in terms of severity and scale. Impacts on soil can in turn affect land use and land</p>	<p>Accidental hydrocarbon spillages should be reported immediately, and then the affected soil should be removed, and rehabilitated or if this is not possible, disposed of at a waste sites designated to accept such waste.</p>	<p>NEMWA DWA minimum requirement for waste disposal</p>	<p>Throughout</p>
--	--	---	---	--	-------------------

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Construction Operation Decommissioning Rehabilitation and Closure	capability Impacts on soils can have significant impact both in terms of severity and scale. Impacts on soil can in turn affect land use and land capability	Activity should be limited to area of disturbance. This can be encouraged by pegging out the area of activity. Where required the compacted soils should be disked/ripped to an adequate depth and re-vegetated with indigenous plants.	In accordance with Rehabilitation and closure plan	Throughout
	Construction Operation Decommissioning Rehabilitation and Closure	Impacts on soils can have significant impact both in terms of severity and scale. Impacts on soil can in turn affect land use and land capability	All vehicles will be regularly serviced to ensure they are in proper working condition and to reduce risk of leaks. All leaks will be cleaned up immediately using spill kits or as per the emergency response plan.	NEMWA Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	Throughout

	<p>Rehabilitation and Closure</p>	<p>Impacts on soils can have significant impact both in terms of severity and scale. Impacts on soil can in turn affect land</p>	<p>The small-scale mine shall reinstate the soil over the open cast mining areas to the following standards at least 1.5 m deep, preferably the same as before construction in the correct soil profile order add mulching.</p>	<p>In accordance with Rehabilitation and closure plan</p>	<p>During rehabilitation</p>
--	-----------------------------------	--	---	---	------------------------------

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
		use and land capability	and soil stabilisation measures ensure that the vegetation cover is as evenly spaced as possible with an initial basal cover of at least 15% with pioneer species.		
Land use					
General surface Rehabilitation Infrastructure removal Mining Permit area site preparation	Construction Operation	Impacts on alternative land uses are considered highly significant and can occur over a large area	Soil stockpiles shall be designed to have free drainage of water with minimal soil erosion potential.	MPRDA	Throughout
Opencast mining Filling opencast voids Storm water	Operation	Impacts on alternative land uses are considered highly significant and can occur over a large	The ongoing rehabilitation should occur soon after the area has been mined out so that alternative land use can commence.	In accordance with Rehabilitation and closure plan	During rehabilitation

managem nt construction		area			
	Rehabilitation and Closure	Impacts on alternative land uses are considered highly significant and can	Rehabilitation should follow procedures with regard to seed bed preparation and fertilising, and advice on seed mixtures to seed with.	In accordance with Rehabilitation and closure plan	During rehabilitation

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
		occur over a large area.			
	Operation Decommissioning Rehabilitation and Closure	Impacts on alternative land uses are considered highly significant and can occur over a large area.	Rehabilitated areas should be mowed or grazed (where appropriate) as soon as they become available.	In accordance with Rehabilitation and closure plan	During rehabilitation
	Operation Decommissioning Rehabilitation and Closure	Impacts on alternative land uses are considered highly significant and can occur over a large area.	Areas that have been rehabilitated and are suitable for grazing must be fenced off from the adjacent mining areas and made available to landowners.	In accordance with Rehabilitation and closure plan	During rehabilitation

	Operation Decommissioning Rehabilitation and Closure	Impacts on alternative land uses are considered highly significant and can occur over a large area.	The post mining land use must be predetermined in order to ensure it is rehabilitated to suit the use of the land.	In accordance with Rehabilitation and closure plan	Established early during operations and implemented during rehabilitation
Pollution Prevention					
General	Construction	Small scale and	Vehicles/machinery will be regularly	NEMA Polluter Pays	Throughout

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
decommissioning activities	Operation	localised	serviced to reduce risk of leaks. Drip trays will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan. For large spills a hazardous materials company (specialist spill cleanup company) will be appointed.	Principle	operations
General surface Rehabilitation	Decommissioning Rehabilitation and Closure				
Infrastructure removal	Construction	localised	Any equipment that may leak, and does not have to be transported regularly, shall be placed on watertight drip trays to catch any potential spillages of pollutants. The drip trays shall be of a size that the equipment can be placed inside it. Daily inspections shall be carried out to ensure such spill prevention measures are in place and remain effective. Drip trays shall be cleaned regularly and shall not be allowed to overflow. All spilled hazardous substances must be	NEMA Duty of Care NWA OHSA MHSA Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	operations
Maintenance and operation of site infrastructure and facilities	Operation				
Mining Permit area site preparation	Decommissioning Rehabilitation and Closure				
Opencast mining					
Filling opencast voids					
Post closure monitoring and maintenance					
Re-vegetation					

			<p>collected and adequately disposed of at a suitably licensed facility.</p>		
	<p>Construction Operation Decommissioning</p>		<p>Appropriate measures must be implemented to ensure that rainwater does not run into areas containing</p>		

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			cement, oil, diesel etc. as this could result in a pollution threat. Storage areas for these substances should be placed on high-lying ground, and surrounded by erosion control measures e.g. rows of filled hessian bags, silt fences etc.		
	Construction Operation Decommissioning Rehabilitation and Closure		Servicing and maintenance of vehicles may only take place in the workshop area (subject to suitable spill prevention and containment measures). If emergency repairs are required elsewhere on site, this shall be undertaken with the necessary spill prevention measures in place.		
	Construction Operation		Cement and liquid concrete are hazardous to the natural environment		

		<p>on account of the very high pH of the material, and the chemicals contained therein. As a result, the contractor shall ensure that:</p> <p>Concrete shall only be mixed on mortar boards, and not directly on the ground</p> <p>The visible remains of concrete, either solid, or from washings, shall be physically removed immediately and</p>	
--	--	---	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			<p>disposed of as waste, (Washing of visible signs into the ground is not acceptable). All excess aggregate shall also be removed.</p>		
	<p>Construction Operation Decommissioning Rehabilitation and Closure</p>	<p>Small scale and localised</p>	<p>All hazardous substances (e.g. fuel, grease, oil, brake fluid, hydraulic fluid) must be handled, stored and disposed of in a safe and responsible manner so as to prevent pollution of the environment or harm to people or animals. Appropriate measures must be implemented to prevent spillage and appropriate steps must be taken to prevent pollution in the event of a spill.</p>		

	<p>Construction Operation Decommissioning Rehabilitation and Closure</p>	<p>High significance and potentially a moderate scale disturbance</p>	<p>Hazardous substances shall be confined to specific and secured areas, and in such a way that does not pose any danger of pollution even during times of high rainfall. Hazardous storage areas shall be banded (impermeable) with adequate containment (at least 110% the largest volume stored) for potential spills or leaks. Banded storage areas shall be either be provided with an oil separator</p>	<p>NEMA Polluter Pays Principle NEMA Duty of Care NEMA NWA OHSA MHSA</p>	<p>Throughou t operations</p>
--	--	---	---	---	---------------------------------------

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			<p>or sump. Waste from spillages will then be removed and recycled or disposed of responsibly.</p>	<p>Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards</p>	
	<p>Construction Operation Decommissioning Rehabilitation and Closure</p>	<p>High significance and potentially a moderate scale disturbance</p>	<p>All fuel storage areas shall be bunded to contain at least 110 % of the volume stored and will comply with the relevant environmental and safety regulations.</p> <p>Fuel storage areas must be provided with an impervious surface with the provision to contain any potential fuel spillages during refueling (e.g. a sealed concrete slab which drains to a sump/oil separator). The applicant</p>		

			and Contractor(s) must ensure that employees and labourers do not smoke or take part in any activity that may results in sparks in the vicinity of fuels and other flammable substances to prevent ignition.	
Construction	High significance		Refueling may only take place within a	
Operation	and potentially a		dedicated area inside the mine that is	
Decommissioning	moderate scale		subject to appropriate spill prevention	
Rehabilitation and Closure	disturbance		and containment measures refueling and transfer of hazardous chemicals and other potentially hazardous substances must be carried out so as to	

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			<p>minimise the potential for leakage and to prevent spillage onto the soil. Drip trays should be utilised in relevant locations (inlets, outlets, points of leakage, etc.) during transfer so as to prevent such spillage or leakage. Any accidental spillages shall be contained and cleaned up promptly.</p>		
	<p>Construction Operation Decommissioning</p>	<p>High significance and potentially a moderate scale disturbance</p>	<p>Any excess or waste material or chemicals should be removed from the site and should preferably be recycled (e.g. oil and other hydrocarbon waste products). Any waste materials or chemicals that cannot be recycled shall be disposed of at a suitably licensed waste facility.</p>	<p>NEMWA DWA minimum requirement for waste disposal</p>	<p>Throughout operations</p>

Construction Operation Decommissioning Rehabilitation and Closure	High significance and potentially a moderate scale disturbance	Hazardous waste may only be disposed of at a licensed hazardous waste disposal facility. A specialist waste contractor shall dispose of such waste and shall be required to provide waste manifests and safe disposal certificates. The 'cradle-to-grave' principle must be complied with.	NEMA Polluter Pays Principle NEMA Duty of Care NEMWA DWAF minimum requirement for waste disposal	Throughout operations
Construction Operation	Potential health risks are	All relevant personnel on site must be properly trained concerning the proper	MSDS specifications OHSA	Throughout operations

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Decommissioning Rehabilitation and Closure	considered high significance	use, handling and disposal of hazardous substances applicable to their line of work. If required, advice shall be obtained from the manufacturer with regard to the safe handling and storage of hazardous materials.	MHSA	
	Construction Operation Decommissioning	Small scale and localised	The contractor shall supply the Pit EO with a list of all hazardous materials that would be present on site during the construction period. The same applies to any sub-contractor that should provide the contractor with this information. The Pit EO shall develop and maintain a hazardous substance register for all hazardous materials that shall be kept on site during all phases of the project. The register shall be provided to the ECO upon request. Material Safety Data Sheets (MSDS) must be available on site at the point of use and readily accessible	OHSA MHSA	Throughout operations

			for all hazardous substances stored.		
Waste Management					
Maintenance and operation of site	Construction Operation	Waste has the potential to pollute	The small-scale mine shall develop and implement a waste management plan	NEMWA NEMA Cradle to Grave	Throughout operations

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
<p>infrastructure and facilities</p> <p>Infrastructure construction</p> <p>General construction</p> <p>Mining Permit area site preparation</p>	Decommissioning Rehabilitation and Closure	the environment and can vary from localised to large scale impacts	<p>which complies with the principles of the NEMWA and provides a mechanism for the effective management of waste throughout. This plan shall ensure the appropriate management of all solid waste, including construction debris (cement bags, wrapping material, timber, cans, wire, nails, etc.), waste and surplus food, food packaging, organic waste etc.</p>	<p>DWAF minimum requirement for waste disposal</p> <p>Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards</p>	
<p>General opencast management</p> <p>Opencast mining General decommissioning activities</p> <p>Infrastructure removal</p>	Construction Operation Decommissioning Rehabilitation and Closure	Waste has the potential to pollute the environment and can vary from localised to large scale impacts	The waste management system shall provide for adequate waste storage (in the form of waste skips and bins with lids), waste separation for recycling, and frequent removal of non-recyclable waste for permanent disposal at an appropriately licensed waste disposal facility. No waste material is to be disposed of on site. Under no circumstances may there be	<p>NEMWA</p> <p>NEMA Cradle to Grave</p> <p>DWAF minimum requirement for waste disposal</p>	Throughout operations

		any burial of waste underground or on the site.		
Construction Operation Decommissioning Rehabilitation and	Waste has the potential to pollute the environment and can vary from	Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored	NEMWA NEMA Cradle to Grave DWAF minimum requirement for waste	Throughout operations

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Closure	localised to large scale impacts	on site for excessive periods to reduce risk of environmental contamination.	disposal	
	Construction Operation Decommissioning Rehabilitation and Closure	Waste has the potential to pollute the environment and can vary from localised to large scale impacts	The small-scale mine shall implement a waste removal regime that ensures waste skips do not exceed their capacity before being removed from site for disposal.	NEMWA NEMA cradle to grave	Throughout operations
	Construction Operation Decommissioning Rehabilitation and Closure	Waste has the potential to pollute the environment and can vary from localised to large scale impacts	Littering shall be strictly prohibited. The site shall remain in a neat and tidy condition at all times. If required, the mine shall make use of regular litter patrols to remove litter and ensure the site remains clean, neat and tidy.	NEMWA NEMA Cradle to Grave	Throughout operations

Construction Operation Decommissioning Rehabilitation and Closure	Waste has the potential to pollute the environment and can vary from localised to large scale impacts	The small-scale mine shall maintain a waste register which shall be used to track all waste removed from site. Proof of appropriate waste disposal shall be kept on file at the site for auditing purposes.	NEMA Cradle to Grave	Throughout operations
Construction Operation Decommissioning Rehabilitation and Closure	Waste has the potential to pollute the environment and can vary from localised to large scale impacts	The small-scale mine will adopt a cradle-to-grave approach to ensure that the waste is removed and disposed of in the prescribed and correct manner.	NEMA Cradle to Grave	Throughout operations

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
Sewage and Sanitation					
General Construction Mining Permit area site preparation General opencast management Opencast mining	Construction Operation Decommissioning Rehabilitation and Closure	Sewage has the potential to result in localised impacts of low to medium significance	There must be adequate provision for safe and effective sanitation (i.e. ablution facilities) at the mine and work sites and these shall conform to all relevant health and safety standards and codes. The Mine shall ensure compliance with the OHSA and MHSA in terms of sewage and sanitation. Under no circumstances will pit latrines, french drain systems or soak away systems be allowed.	NEMWA NWA NEMA Cradle to Grave	Throughout operations

<p>Maintenance and operation of site infrastructure and facilities</p> <p>General decommissioning activities</p> <p>Infrastructure removal</p>		<p>Portable toilets will be managed by reputable contractors and inspected daily for any potential leaks. The Contractor (or reputable toilet-servicing company) shall be responsible for the cleaning, maintenance and servicing of the toilets. Chemical toilets shall be emptied/serviced frequently to avoid offensive odours (at least weekly).</p> <p>Toilets must be kept in a clean, neat and hygienic condition. Chemical toilets shall be cleaned and emptied before the contractor's long weekends or</p>	
--	--	--	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			<p>public holidays.</p> <p>Toilets must be easily accessible. Toilets shall be placed outside areas susceptible to potential flooding and shall not be placed within 100 m of any wetland or watercourse. Ablution facilities shall be located a sufficient distance from any offices or eating areas to prevent nuisance from offensive odours.</p> <p>Disposal of sewage from chemical toilets shall be in a safe and responsible manner and at an approved facility specifically for that purpose. Proof of sewage removal and disposal shall be kept on file for auditing purposes.</p>		
Noise					

<p>General decommissioning activities</p> <p>General surface rehabilitation</p>	<p>Construction</p> <p>Operation</p> <p>Decommissioning</p> <p>Rehabilitation and Closure</p>	<p>Noise has the potential to result in significant impacts to sensitive receptors at a small to medium scale</p>	<p>The small-scale mine shall take reasonable measures to limit exceedingly noisy activities. Where noise is generated which may impact on sensitive receptors, the mine shall apply measures to control the noise cannot be avoided, mitigation measures</p>	<p>SANS10103</p> <p>ECA Noise Regulations</p> <p>World Bank EHS Guidelines</p> <p>OHSA</p> <p>MHSA</p>	<p>Throughout</p>
---	---	---	---	--	-------------------

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
------------	-------	-------------------------------------	---------------------	---------------------------------	-----------------------------------

<p>Infrastructure removal</p> <p>Maintenance and operation of site infrastructure and facilities</p> <p>Mining Permit area site preparation</p> <p>Mineral Processing Opencast mining Filling opencast voids Re-vegetation Site establishment – contractors camp</p>			<p>to be applied shall include but is not limited to:</p> <ul style="list-style-type: none"> • Using the smallest/quietest equipment for the particular purpose. • Ensuring that equipment is well- maintained and fitted with the correct and appropriate noise abatement measures. • Where possible, stationary noisy equipment (for example compressors, pumps, pneumatic breakers,) should be encapsulated in acoustic covers, screens or sheds. Proper sound insulation can reduce noise by up to 20 dBA. All construction vehicles and equipment are to be kept in good repair. • Machines in intermittent use should be shut down in the intervening periods between work or throttled down to a minimum. 		
--	--	--	--	--	--

			<ul style="list-style-type: none">• The contractor must attempt to restrict noisy activities as far as is possible to times and locations		
--	--	--	---	--	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
------------	-------	-------------------------------------	---------------------	---------------------------------	-----------------------------------

			<p>whereby the potential for noise nuisance is reduced.</p> <ul style="list-style-type: none"> • When working near (within 800 meters) to a potential sensitive receptor(s), the Contractor shall limit the number of simultaneous activities to the minimum. • All machines should be equipped with appropriate noise reduction equipment. • All machines should be roadworthy (including meeting maximum noise specifications). • The vehicles exhaust and baffle systems must be maintained regularly to ensure that the noise from these vehicles is within the required noise specification. • All plant and equipment must be operated in accordance with the specifications provided by the manufacturer. • Safety measures that generate noise, including reverse 		
--	--	--	---	--	--

			gear alarms, should be adjusted to		
--	--	--	---------------------------------------	--	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			<p>minimise noise where possible.</p> <p>A maintenance programme will be investigated for the ventilation machinery and shall be implemented should feasible options exist.</p> <p>Community involvement needs to continue throughout the project. Good public relations are essential. At all stages surrounding receptors should be educated with respect to the potential increase of noise from the mine. The information presented to stakeholders should be factual and should not set unrealistic expectations.</p>		

		<p>Trucks, machinery and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. Quieter equipment will be sought where possible when purchasing new equipment. Silencers will be utilised where possible. Point sources will be enclosed where possible. Acoustic screens will be considered if I&AP complaints are received.</p>	
--	--	---	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			<p>Local residents should be notified of any potentially noisy activities or work and these activities should be undertaken at reasonable times of the day. These works should not take place at night or on weekends.</p> <p>A channel of communication should be established and promoted between the mine and surrounding stakeholders. All noise complaints must be recorded and investigated. If required, the complaints should be investigated by an acoustical consultant.</p>	<p>SANS10103</p> <p>ECA Noise Regulations World Bank EHS Guidelines</p> <p>OHSA</p> <p>MHSA</p>	<p>Throughout</p>

		<p>As a general rule, construction operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No 85 of 1993). The Applicant and Contractor(s) shall obtain a copy of the relevant noise regulations and take all reasonable measures to abide by these regulations. Sound pressure levels should not exceed the specified threshold level for the relevant area in accordance with SANS10103, as experienced by the nearest noise</p>	
--	--	--	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			sensitive receivers (i.e. local residents). In the event that noise levels exceed the specified thresholds in terms of the noise regulations, the Applicant shall appoint a suitably qualified acoustic engineer to identify sources of the elevated noise levels and to suggest suitable and reasonable mitigation measures.		
Air Quality					
General decommissioning activities General surface rehabilitation	Construction Operation Decommissioning Rehabilitation and Closure	Localised and low significance	Areas of high risk for spontaneous combustion will be inspected regularly for signs of possible combustion. An emergency procedure will be set up in the case of spontaneous combustion.	NEMAQA Dust Regulations	Throughout

<p>Infrastructure removal</p> <p>Maintenance and operation of site infrastructure and facilities</p> <p>Mining Permit area site preparation</p>	<p>Construction</p> <p>Operation</p> <p>Decommissioning</p> <p>Rehabilitation and Closure</p>	<p>Wide scale of disturbance and low to medium significance.</p> <p>Some localised high significant impacts</p>	<p>It is important to note that dust could be a major disturbance, especially during the dry winter periods to people residing around the site. All reasonable measures must be utilised to minimise the generation of dust as a result of activities on site. Such measures shall include, but shall not be limited to:</p> <ul style="list-style-type: none"> • Traffic control measures aimed at reducing the entrainment of 	<p>NEMAQA</p> <p>Dust</p> <p>Regulations</p>	<p>Throughout</p>
---	---	---	--	--	-------------------

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
------------	-------	-------------------------------	---------------------	---------------------------	--------------------------------

<p>Opencast mining</p> <p>Post closure monitoring and maintenance</p> <p>Re-vegetation</p>			<p>material by restricting traffic volumes and reducing vehicle speeds.</p> <ul style="list-style-type: none"> • Regular and effective measures aimed at binding the surface material or enhancing moisture retention, such as wet suppression and chemical stabilization. • Application of chemical dust palliatives and the optimal selection of wearing course materials (where possible environmentally friendly products should be utilised). • Appropriate scheduling of dust-generating activities (e.g. the clearing of parking areas should be postponed until the construction programme requires the clearing of that specific area). • Avoid excavation and stockpiling activities during periods of strong winds. • Increase dust suppression efforts during conditions 		
--	--	--	---	--	--

			conducive to excessive dust creation (e.g. dry and windy conditions).		
--	--	--	---	--	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			<ul style="list-style-type: none"> • Limit the height of soil stockpiles where possible, and wetting down of soil stockpiles when excessive dust is generated from these stockpiles. • Areas where excessive or difficult to manage fallout dust and erosion occur remain may be treated with chemical dust suppressant or paved as opposed to using water. 		

<p>Construction Operation Decommissioning Rehabilitation and Closure</p>	<p>Wide scale of disturbance and low to medium significance. Some localised high significant impacts</p>	<p>The small-scale mine shall comply with the National Dust Control Regulations, Promulgated under the National Environmental Management: Air Quality Act (Act 39 of 2004). In the event that dust levels exceed the specified thresholds in terms of the dust control regulations, the Mining Permit holder shall appoint a suitably qualified specialist to identify sources of the excessive dust levels and to suggest suitable and reasonable mitigation measures.</p>	<p>NEMAQA Dust Regulations</p>	<p>Throughout</p>
<p>Construction Operation</p>	<p>Localised and low significance</p>	<p>The small-scale mine must ensure that no transported materials escape from</p>	<p>NEMAQA Dust Regulations</p>	<p>Throughout</p>

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Decommissioning		the construction and mine vehicles (no spillage on roads or dust clouds). If necessary, the load bin of the vehicle shall be covered with a tarpaulin to prevent dust.		
	Construction Operation Decommissioning Rehabilitation and Closure	No direct Impacts	The small-scale mine shall maintain open and transparent communication with the community and surrounding landowners regarding air quality and shall supply monitoring records to the public upon request.	NEMAQA Dust Regulations	Throughout
	Construction Operation	Localised and low significance	A skirt (dust barrier) shall be placed around the base of dry drills to minimise the generation of airborne dust.	NEMAQA Dust Regulations	Throughout

Construction Operation Decommissioning Rehabilitation and Closure	Health impacts have a localised but high significance	Employees will receive training on the use of personal dust respirators, whenever high dust levels are experienced.	NEMAQA Dust Regulations	Throughout
Construction Operation Decommissioning Rehabilitation and Closure	Wide scale of disturbance and low to medium significance. Some localised high significant impacts	Speed limits will be established and enforced on the mine to minimise dust generation.	NEMAQA Dust Regulations	Throughout

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Construction Operation Decommissioning Rehabilitation and Closure	Localised and low significance	Machinery and equipment will be regularly serviced to ensure they are in proper working condition and to reduce risk of excessive emissions.	NEMAQA Dust Regulations	Throughout
Heritage					
	Construction Operation Decommissioning Rehabilitation and Closure	Impacts on heritage affect a limit extent but have a very high significance due to the value of heritage resources which are protected by law	Should artefacts or archaeological items be observed, then all activity should cease immediately, the area marked off and a specialists consulted prior to any further activity.	NHRA	Throughout

<p>Construction Operation Decommissioning Rehabilitation and Closure</p>	<p>Impacts on heritage affect a limit extent but have a very high significance due to the value of heritage resources which are protected by law</p>	<p>Should graves be observed on site during activity progress then all activity should cease and the area demarcated as a no-go zone. A specialist will need to be consulted and responsible action considered, whether grave relocation or ceasing activity completely within the area and a 100 m buffer zone.</p>	<p>NHRA</p>	<p>Throughout</p>
<p>Construction Operation</p>	<p>Impacts on heritage affect a</p>	<p>The small-scale mine must develop a heritage management plan. This should</p>	<p>NHRA</p>	<p>As soon as possible and</p>

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Decommissioning Rehabilitation and Closure	limit extent but have a very high significance due to the value of heritage resources which are protected by law	include the relevant measures to protect and monitor all known heritage resources on site. Furthermore, the plan should include a chance finds procedure.		implemented throughout
	Construction Operation Decommissioning Rehabilitation and Closure	Impacts on heritage affect a limit extent but have a very high significance due to the value of heritage resources which are protected by law.	All identified gravesites will be fenced off, or relocated. Access to gravesites will be arranged for family members/friends of the deceased if requested. Grave sites that remain in- situ shall be inspected on a regular basis as per the heritage management plan to ensure no damage has occurred.	NHRA	As soon as possible and implemented throughout

<p>Construction Operation Decommissioning Rehabilitation and Closure</p>	<p>Impacts on heritage affect a limit extent but have a very high significance due to the value of heritage resources which are protected by law.</p>	<p>In the event that graves or cemeteries must be relocated, a full grave relocation process must be undertaken that includes comprehensive social consultation. The grave relocation process must include:</p> <ul style="list-style-type: none"> • A detailed social consultation process, that will trace the next-of- kin and obtain their consent for the 	<p>NHRA Human Tissue Act</p>	<p>Throughout</p>
--	---	---	----------------------------------	-------------------

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
------------	-------	-------------------------------------	---------------------	---------------------------------	-----------------------------------

			<p>relocation of the graves, which will be at least 60 days in length.</p> <ul style="list-style-type: none"> • Site notices indicating the intent of the relocation. • Newspaper notice indicating the intent of the relocation. • A permit from the local authority. • A permit from the Provincial Department of Health. • A permit from the South African Heritage Resources Agency, if the graves are older than 60 years, or unidentified and thus presumed older than 60 years. • An exhumation process that keeps the dignity of the remains and family intact. The whole process must be done by a reputable company that is well versed in relocations. • The exhumation process must be conducted in such a manner as to safeguard the legal rights of the families as 		
--	--	--	--	--	--

			well as that of the development company.		
--	--	--	---	--	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
Land Capability					
General surface rehabilitation	Construction Operation Decommissioning	Impacts on land capability have long term effects and can be of a high significance	The small-scale mine will ensure that overburden stockpiles are located in accordance with the rehabilitation plan to allow for minimal handling when returning soils during rehabilitation.	In accordance with Rehabilitation and Closure Plan	Throughout
Maintenance and operation of site infrastructure and facilities	Construction Operation Decommissioning Rehabilitation and Closure		The small-scale mine shall preserve soil potential as far as possible, thus conserving land capability.	In accordance with Rehabilitation and Closure Plan	Throughout
Mining Permit area site preparation	Construction Operation Decommissioning Rehabilitation		Soil stockpiles should be vegetated with prescribed seed mixtures to prevent soil erosion.	In accordance with Rehabilitation and Closure Plan	Throughout

	Rehabilitation		During rehabilitation care must be taken to return the correct soil types and depths to specific sections of rehabilitated land to ensure land capability potential is restored to that area.	In accordance with Rehabilitation and Closure Plan	During Rehabilitation
	Construction Operation Decommissioning Rehabilitation and Closure		Re-vegetate rehabilitated areas as soon as possible to prevent soil erosion.	In accordance with Rehabilitation and Closure Plan	Throughout

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
Surface Water					
Maintenance and operation of site infrastructure and facilities	Construction Operation Decommissioning	Impacts on surface water can have a high significance and extent	Where clean water is diverted away from construction and/or mining areas, its point of re-entry into the natural watercourse should be well protected against erosion. In addition, sediments should be effectively trapped before re-entry.	NWA GN 704 DWAf best Practise Guidelines Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	As soon as possible and implemented throughout
Mining Permit area site preparation	Construction Operation Decommissioning		No wastewater may run freely into any of the surrounding environment or neighbouring properties. The contractor shall implement the storm water design in accordance with the approved Storm Water Management Plan. The Applicant and Contractor(s) shall ensure compliance with the requirements of the National Water Act and GN 704		
Opencast mining					
Post closure monitoring and maintenance					
Re-vegetation Site establishment					

Construction
Operation
Decommissioning
Rehabilitation
and Closure

All areas susceptible to erosion shall be protected by ensuring that there is no undue soil erosion resultant from construction and/or mining activities.
Berms shall be constructed where necessary to direct all runoff into the stormwater system. Care must be taken

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			<p>to avoid scouring and erosion and suitable measures should be placed in areas where runoff concentrates, in order to detain the sediment load and slow down the runoff. All erosion damage shall be repaired as soon as possible as directed by the ECO.</p>		
	<p>Construction Operation Decommissioning Rehabilitation and Closure</p>		<p>All storm water and erosion control mechanisms must be inspected frequently and shall be maintained on a regular basis to ensure they remain effective. Appropriate remedial action, including the rehabilitation of eroded areas, shall be undertaken under direction from the ECO.</p>		
	<p>Construction</p>		<p>Materials capable of resulting in poor quality leachate will not be used for</p>		

		the construction of haul roads. This will entail testing for acid generation potential.	
	Construction	Where possible, the disturbance of land during the construction phase will be confined to areas which are disturbed for the operation of the mine.	
	Construction Operation	Soil stockpiles must be stabilised with vegetation to reduce erosion and	

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Construction Operation Decommissioning Rehabilitation and Closure		siltation into streams and dams. Hydrocarbon spills will require immediate attention and should be disposed of at a reputable facility. All used hydrocarbons will be collected and recycled.		
	Construction Operation Decommissioning Rehabilitation and Closure		All licenses and permits required as per the National Water Act will be applied for as per the relevant water uses and mining will adhere to regulations stipulated in the water license.		
	Construction Operation Decommissioning Rehabilitation and Closure		The small-scale mine shall ensure soil erosion control measures are established in all high risk areas to reduce silt-loading in storm water runoff. Construct a down-stream drain		

		<p>and silt traps at the outlet of water diversion areas. Clean out silt build up in trenches and silt traps over dry season or more frequently if needed. Conduct construction activities in the dry winter months as far as possible.</p>		
	<p>Construction Operation</p>	<p>Storm water runoff will be diverted around the opencast pit on the upslope side but the area enclosed within these</p>		

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Construction Operation		boundaries will be kept as small as possible. The small-scale mine shall ensure that water management facilities are operating adequately and will remain operational during a 50 year 24 hr storm event until such time that all disturbed areas are stabilised.		
	Rehabilitation and Closure		On gentle slopes, water will be encouraged to flow off the rehabilitated surface, as surface flow, as quickly as possible without causing erosion. This will ensure that water does not infiltrate too deeply and come into contact with carbonaceous material. On steeper slopes, water will be encouraged to infiltrate slightly to help prevent soil erosion.		
Wetlands					

Maintenance and operation of site infrastructure and facilities	Construction	Impacts on wetlands are considered to be highly significant due to the sensitivity of these	The small-scale mine shall limit the extent of the development footprint to exclude aquatic resources as far as possible.	NWA GN 704 Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance	Throughout
Opencast mining	Construction Operation		The small-scale mine shall take the necessary precautions to avoid any		Throughout

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
Site establishment	Decommissioning Rehabilitation and Closure	areas. Impacts can range from localised to impacts which are large in extent	impacts to wetlands outside of the required construction and/or mining footprint. These areas should be considered as no-go areas, and the restriction should be enforced.	Standards	
	Construction Operation Decommissioning Rehabilitation and Closure		The small-scale mine shall set up a 100 m buffer zone around sensitive areas, including pans, wetlands and streams. These areas should be considered as no-go areas, and the restriction should be enforced.		Throughout
	Construction Operation Decommissioning Rehabilitation and Closure		Any wetlands impacted during the construction or mining process on site should be rehabilitated in accordance with the principles and guidelines presented in this EMPR.		Throughout

	<p>Construction Operation Decommissioning Rehabilitation and Closure</p>	<p>Re-vegetate all bare wetland areas not directly within the footprint of the developments as soon as possible. The extent of the disturbance should be limited to a minimum.</p>		<p>Throughout</p>
	<p>Rehabilitation and Closure</p>	<p>Regular monitoring of the success of wetland rehabilitation measures must be undertaken. Where required, the necessary adjustments should be made to ensure the complete re-</p>		<p>Throughout</p>

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			establishment of the natural vegetation.		
	Construction Operation		Construction of a low berm, approximately 1m high by 2-3m wide between the stockpiles and the wetlands. These berms would serve to intercept flows containing suspended sediments and create a depositional environment. They should be located outside the wetland boundaries and should be created prior to construction and vegetation clearing on the stockpile footprint commencing.		Throughout
	Construction Operation Decommissioning Rehabilitation and Closure		Inform all construction contractors and other personnel to not disturb the fauna and flora in wetland areas and not to wash or bath in local streams.		Throughout

<p>Construction Operation Decommissioning Rehabilitation and Closure</p>	<p>Control dust emissions to prevent dust from settling in the wetland areas.</p>	<p>Throughout</p>
<p>Construction Operation Decommissioning Rehabilitation and</p>	<p>The small-scale mine shall implement an aquatic bio-monitoring and water quality programme. Where target endpoints are not met,</p>	<p>Throughout</p>

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Closure		recommendations should translate directly into follow-up action that is recorded and auditable.		
	Construction Operation Decommissioning Rehabilitation and Closure		No dirty water may be discharged into any wetland or water resource on site unless treated to the required standards.		Throughout

	<p>Construction Operation Decommissioning Rehabilitation and Closure</p>	<p>No stockpiling of material may take place within the wetland areas and temporary construction camps and infrastructure should also be located away from these areas, with a minimum buffer of 100 m maintained from delineated wetland boundaries.</p> <p>In cases where historical mining activities have encroached within 100 m of wetlands, exemption must be obtained for the provisions of GN 704 and the necessary protection measures shall be implemented to minimise the impact on wetlands as far as is possible.</p>		<p>Throughout</p>
	<p>Construction Operation</p>	<p>No abstraction of water from the wetlands or dams should be allowed</p>		<p>Throughout</p>

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
	Decommissioning Rehabilitation and Closure		unless expressly authorised in the Water Use License.		
	Construction Operation Decommissioning Rehabilitation and Closure		Where storm water and/or diverted clean water is discharged into wetlands, appropriate measures such as gabions should be constructed to contain erosion.		Throughout
Topography and Landform					
General surface rehabilitation Infrastructure removal Maintenance and operation	Construction Operation Decommissioning Rehabilitation and Closure	Impacts on topography tend to be large in extent and can have a significant effect on the environment	Levelling out of the mine site area will be supervised by a qualified engineer in conjunction with an environmental consultant. Where possible, natural drainage lines will be followed to reduce loss of water in the natural catchments.	In accordance with Rehabilitation and Closure Plan Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards	Throughout

<p>of site infrastructure and facilities</p> <p>Mining Permit area site preparation</p> <p>Opencast mining</p> <p>Post closure monitoring and maintenance</p>		<p>A post mining topographical plan should be developed during the start of the project in order to ensure compliance during and after mining. This plan must be adhered to at all stages of the project.</p> <p>Overburden will be temporarily stockpiled and will be placed back into the pit once the Coal has been</p>	
---	--	--	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
Site establishment			mined out, therefore attempting to maintain the natural topography.		
			The overburden should be replaced in a manner that replicates the previous topography, and ensures that the final topography has a surface that is free-draining.		
			There will be checks to ensure that the planned post mining topography is being followed.		
			All heavy machinery operators and truck drivers should be instructed to stay in designated areas, such as operation sites and roads.		
			Soils should be stockpiled separately according to their forms and their potentials.		

		<p>During ongoing rehabilitation, soil horizons should be replaced in the same order as they occur in nature to prevent mixing of soil horizons.</p>	
		<p>Topsoil depth should be related to the proposed post-mining land capability plans.</p>	
		<p>Rehabilitated areas should not be compacted more than is necessary,</p>	

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			<p>and activity, particularly that of heavy machinery and vehicles, on these areas should be limited.</p> <p>Rehabilitated areas should be landscaped to prevent water logging and vegetated to prevent soil erosion.</p> <p>Erosion control measures such as contour banks and cut off berms should be constructed and soil vegetated in rehabilitated areas.</p> <p>Accidental hydrocarbon spillages should have sawdust applied immediately, and rehabilitated or if this is not possible then the affected soil should be removed and the area rehabilitated.</p> <p>Final profiling of the last cut will take place to ensure the area is rehabilitated</p>		

		as close to its natural state as possible.	
		Additional debris and soil will be brought in if required.	
		The area where pans once were will require additional attention to help restore its functions and form.	
		Regular surveyance to ensure the rehabilitation conforms to the final	

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			topographical plan and that no final void will be left.		
Transportation, Infrastructure and Traffic					
Mining Permit area site preparation Opencast mining Site establishment – Contractors Camp Site establishment Water management Infrastructure construction	Construction Operation Decommissioning Rehabilitation and Closure	Impacts on transportation infrastructure and traffic can have a significant extent although typically low in significance	The small-scale mine shall ensure that the internal haul roads are adequately maintained, including monthly scraping where required. Together with road maintenance, the storm water system to direct storm water that falls within the roads shall be kept maintained and settlement ponds shall be cleared of silt on a regular basis. On-site vehicles must be limited to approved access routes and areas (including turning circles and parking) on the site so as to minimise excessive environmental disturbance to the soil and	Road Traffic Act OHSA MHSA	Throughout

		<p>vegetation on site, and to minimise disruption of traffic.</p>	
		<p>In the case of dual or multiple use of access roads by other users, arrangements for multiple responsibility must be made with the other users. If not, the maintenance of access roads will be the responsibility of the Applicant</p>	

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			<p>and/or Contractor(s). Road condition must be assessed regularly for signs of damage.</p> <p>Damage caused to public roads as a result of the construction and/or mining activities shall be repaired in consultation with the relevant municipal authorities.</p> <p>Materials for the haul road will be sourced locally from a legal source and the Department of Roads and Transport will be consulted with regard to the construction of haul roads.</p> <p>All intersections with main tarred roads will be clearly signposted.</p>		

		<p>Road signs and safety features such as rumble strips will be maintained to ensure the writing is legible and the haul road crossings are visible to motorists.</p>	
		<p>All construction and mining vehicles using public roads shall be in a roadworthy condition and their loads secured. They must adhere to the speed limits and all local, provincial and national regulations with regards to</p>	

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			road safety and transport.		
Visual					
General surface rehabilitation	Rehabilitation and Closure	Visual impacts have an impact on the perception and sense of place in the area and although hard to quantify can have a significant impact over a large extent of the area	Final shaping will be implemented, such that, the final profile of the rehabilitated mining areas are formed to emulate natural contours of the area.	In accordance with Rehabilitation and Closure Plan Closure and final land use objectives	Throughout
Mining Permit area site preparation	Construction Operation Decommissioning		Directional lighting and soft lighting will be utilised to ensure that only areas required to be lit are lit. Screens will be considered if I&AP complaints are received.		
Opencast mining Site establishment	Construction Operation Decommissioning		Where possible, and in consideration of the rehabilitation plan and objectives, the mine shall create screening using soil stockpiles, berms and natural vegetation to reduce the visual impact of the mining operations and infrastructure.		

	Construction Operation Decommissioning Rehabilitation and Closure		Dust suppression methods must be applied when necessary to restrict the visual impact of dust emissions.		
Blasting and Vibration					
Opencast mining	Operation	Blasting and	Prior to mining commencing, local	MHSA	Throughout

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
		Vibration can have a significant impact which increases in significance with proximity to the blast	<p>infrastructure should be inspected to determine and document the extent of existing damage. These properties will be periodically evaluated to determine any damage. Records of blasting times and distance to properties will also be used to determine likelihood of damage.</p> <p>The reduction of ground vibration is fundamental in different ways and shall include the following measures:</p>	<p>Explosives Act No. 26 of 1956 and amended No. 15 of 2003</p> <p>United States Bureau of Mines (USBM) criteria for safe blasting for ground vibration</p>	Operation

		<ul style="list-style-type: none">• Detailed blast design for each blast with consideration the effects from blasting i.e. ground vibration and air blast.• Calculate expected ground vibration levels for blast to be done and if necessary re-design to reduce charge mass per delay, use of electronic initiation of blast, drilling smaller diameter blastholes that will reduce charge per blasthole and per delay.	
		<p>The reduction of air blast is fundamental in different ways and shall</p>	

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			<p>include the following measures:</p> <ul style="list-style-type: none"> • Detailed blast design for each blast with consideration the effects from blasting i.e. ground vibration and air blast. • Use of proper stemming lengths of between 25 and 30 blasthole diameters. • Use of crushed aggregate of 10% the blasthole diameter as stemming material • Record stemming lengths for each blast and correct if necessary prior to every blast blasted. • Monitor each blast done. <p>The small-scale mine should liaise with local residents on how best to minimise the impact of blasting. Information that should be provided to the potential sensitive receptor(s) includes:</p>		

		<ul style="list-style-type: none">• Proposed blasting schedules.• How long the activity is anticipated to take place.• What is being done, or why the	
--	--	---	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			<p>activity is taking place.</p> <ul style="list-style-type: none"> Contact details of a responsible person where any complaints can be lodged should there be an issue of concern. 		
Groundwater					
<p>General decommissioning activities</p> <p>General surface rehabilitation</p> <p>Maintenance and operation of site infrastructure and facilities</p>	<p>Construction</p> <p>Operation</p> <p>Decommissioning</p> <p>Rehabilitation and Closure</p>	<p>The mining impact on groundwater potentially affected a very large area and has a potentially high significance impact</p>	<p>The small-scale mine must take all reasonable measures to avoid and limit pollution of ground water resources as a result of site activities. Pollution could result from the release, accidental or otherwise, of chemicals, oils, fuels, sewage, waste water containing organic waste, detergents, solid waste and litter etc. The Mining Permit holder and Contractor(s) shall comply with the requirements relating to hazardous materials and spill management presented in this EMPR.</p>	<p>NEMA Duty of care NWA GN 704</p> <p>DWAF best practice guidelines</p> <p>Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards</p>	<p>Throughout</p>

<p>Mining Permit area site preparation</p> <p>Opencast mining</p> <p>Post closure monitoring and maintenance</p>	<p>Construction Operation Decommissioning Rehabilitation and Closure</p>	<p>In the event of pollution caused as a result of construction or mining activities, the responsible party, according to Section 20 of the National Water Act (Act No. 36 of 1998) shall be responsible for all costs incurred by</p>		
--	--	--	--	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
Re-vegetation Site establishment			organisations called to assist in pollution control and/or to clean up polluted areas.		
	Construction		Materials capable of resulting in poor quality leachate will not be used for the construction of haul roads.		
	Operation		Water accumulating within the opencast workings will be pumped and it will be re-used in the operation.		
	Construction Operation Decommissioning Rehabilitation and Closure		The small-scale mine shall ensure that the ground water monitoring programme is implemented.		

	<p>Operation Decommissioning Rehabilitation and Closure</p>	<p>The rehabilitation of mined cuts need to be done to minimise infiltration and then need to mine water. To achieve this, the area must be free draining in its entirety, the soil cover needs to be replaced and sufficient vegetation cover needs to be established.</p>		
	<p>Operation Decommissioning Rehabilitation and Closure</p>	<p>Water decanting from the opencast workings where the floor cannot be flooded will be collected and treated prior to release, unless monitoring indicates that the water quality meets</p>		

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			the water management objectives.		
Decommissioning					
<p>General decommissioning activities</p> <p>General opencast management</p> <p>Filling opencast voids</p>	Decommissioning	Decommissioning of infrastructure can result in negative impacts. The extent is localised to the extent of the infrastructure and mining footprint.	<p>All infrastructure, equipment, plant, temporary housing and other items used during the mining period will be removed from the site (section 44 of the MPRDA). Infrastructure should be removed down to foundations to prevent loss of soil productivity.</p> <p>All vehicles, equipment and other assets belonging to the Mining Permit holder/Contractor(s) must be removed from the property upon completion of the mining operation, including any excess aggregate, gravel, stone, concrete, temporary fencing and the like.</p>	<p>MPRDA</p> <p>In accordance with Rehabilitation and Closure Plan</p> <p>Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards</p>	During decommissioning activities

		<p>No discard materials of whatsoever nature shall be buried on the site, or on any vacant or open land in the area.</p> <p>Waste material of any description, including receptacles, scrap, rubble and tyres, will be removed entirely from the Mining Permit area and disposed of at a recognised landfill facility. It will not be</p>	
--	--	---	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			permitted to be buried or burned on the site.		
Rehabilitation					
<p>General surface rehabilitation</p> <p>Re-vegetation</p>	Rehabilitation and Closure	Rehabilitation has limited negative impacts. The scale of the impact is limited to the disturbance footprint.	<p>An Integrated Rehabilitation and Closure Plan shall be developed by the small-scale mine early in the life of the operations (preferably prior to operation). The Plan must be viewed as a dynamic document and shall be subjected to independent review on an annual basis (together with the quantum for financial provision).</p> <p>As a minimum the Integrated Rehabilitation and Closure Plan shall include the following;</p>	<p>MPRDA</p> <p>In accordance with Rehabilitation and Closure Plan Shall adhere to the ESMS Framework guided by Equator Principles, and IFC Performance Standards</p>	As soon as possible in operational phase and implemented throughout Annually updated

		<ul style="list-style-type: none">• Desired end land use objectives.• Methodology and proposed schedule for progressive rehabilitation to be undertaken concurrently with mining operations.• Details of soil preparation procedures including proposed measures to improve soil fertility (if	
--	--	--	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
------------	-------	-------------------------------	---------------------	---------------------------	--------------------------------

			<p>so required) and the sustainability thereof.</p> <ul style="list-style-type: none">• A list of the plant species that will be used in the rehabilitation process. Only indigenous species may be utilised and these species should be representative of the relevant vegetation unit/landscape type of the area.• Procedures for ensuring vegetation growth and survival (watering, fertilisation etc.).• Details of proposed storm water and erosion control measures to ensure re-vegetation is successful and not hampered by scouring and erosion.• Monitoring procedures that will be implemented to assess re-vegetation efforts (duration and frequency of monitoring, criteria for determining success of rehabilitation).• Procedures for preventing the establishment of alien invasive		
--	--	--	--	--	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			<p>vegetation in rehabilitated areas.</p> <p>Upon completion of the mining operation and closure of the facility, the Mining Permit holder shall ensure that all cleared and/or disturbed areas (as a result of the activity) within and outside the boundaries of the site shall be rehabilitated in accordance with the Rehabilitation and Closure Plan.</p> <p>Rehabilitation will include returning the slope to the minimum possible gradient (preferably less than 1:3), the topsoil will be replaced for vegetation re- establishment and contour drains will be built to prevent erosion if necessary.</p>		

		<p>The area must be rehabilitated using indigenous vegetation from the area in such a way that it will return as close as possible to the original production potential. Rehabilitation shall be overseen by a suitably qualified specialist who shall approve the indigenous seed mix to be used. The rehabilitated area must be returned to a self-sustaining ecosystem that is</p>	
--	--	---	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			<p>consistent with the original vegetation type.</p> <p>Any access road or portions thereof, constructed by the mine which will no longer be required by the landowner/tenant, shall be removed and/or rehabilitated to the satisfaction of the ECO and Regional Manager (DMR).</p> <p>Erosion control measures shall be implemented where necessary (such as berms, brush packing, silt fences etc.). Erosion control and silt prevention measures shall be inspected regularly and shall be maintained whenever required to ensure they remain effective.</p>		

		<p>No alien or invader plant species should be introduced on site during rehabilitation. The weed management plan shall be implemented throughout the rehabilitation and closure phase. Regular monitoring of the rehabilitated area shall be undertaken and all alien vegetation shall be eradicated and/or controlled prior to it setting seed.</p> <p>Weed</p>	
--	--	---	--

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
			management shall be to satisfaction of the ECO and Regional Manager (DMR). Where required, the necessary adjustments should be made to ensure the complete re-establishment of the natural vegetation.		
Closure					
Post closure monitoring and maintenance	Rehabilitation and Closure	Very limited potential for impacts during closure. The Mine remains responsible for the mining right area until such time as a closure certificate is obtained.	Following the expiration of the Mining Permit, the Mining Permit holder shall undertake the required closure process in accordance with Section 43 of the MPRDA.	MPRDA and Regulations	In accordance with legislated timeframes in force at the time of closure.
Post-Closure Monitoring					

Post closure monitoring and maintenance	Rehabilitation and Closure	Very limited potential for impacts during closure. The Mine remains responsible for the	The post-closure monitoring and management period following cessation of mining activities will be implemented by a suitable qualified independent party for a minimum of one (1) year unless otherwise specified by the	MPRDA and Regulations	Minimum of one (1) year post closure or as agreed upon with DMR
---	----------------------------	---	--	-----------------------	---

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
		<p>mining right area until such time as a closure certificate is obtained.</p>	<p>competent authority. The monitoring activities during this period will include but not be limited to:</p> <ul style="list-style-type: none"> • Biodiversity monitoring. • Ground and surface water. • Air quality monitoring. • Re-vegetation of disturbed areas where required. <p>Provision must be made to monitor any unforeseen impact that may arise as a result of the proposed Mining Permit activities and incorporated into post closure monitoring and management.</p>		

31. FINANCIAL PROVISION

The requirement for final rehabilitation, decommissioning and closure stems primarily from the legislative requirements of the MPRDA and NEMA. On 20th November 2015 the Minister promulgated the Financial Provisioning Regulations under the NEMA. The Regulations aim to regulate the determination of financial provision as contemplated in the NEMA for the costs associated with the undertaking of management, rehabilitation and remediation of environmental impacts from prospecting, mining or production operations through the lifespan of such operations and latent or residual environmental impacts that may become known in the future. These regulations provide for, inter alia:

- Determination of financial provision: An Applicant or holder of a right or permit must determine and make financial provision to guarantee the availability of sufficient funds to undertake rehabilitation and remediation of the adverse environmental impacts of prospecting, mining or production operations, as contemplated in the Act and to the satisfaction of the Minister responsible for mineral resources.
- Scope of the financial provision: Rehabilitation and remediation; decommissioning and closure activities at the end of operations; and remediation and management of latent or residual impacts.
- Regulation 6: Method for determining financial provision – An applicant must determine the financial provision through a detailed itemisation of all activities and costs, calculated based on the actual costs of implementation of the measures required for:
 - Annual rehabilitation – annual rehabilitation plan.
 - Final rehabilitation, decommission and closure at end of life of operations – rehabilitation, decommissioning and closure plan.
 - Remediation of latent defects.
- Regulation 10: An applicant must-
 - ensure that a determination is made of the financial provision and the plans contemplated in regulation 6 are submitted as part of the information submitted for consideration by the Minister responsible for mineral resources of an application for environmental authorisation, the associated environmental management programme and the associated right or permit in terms of the Mineral and Petroleum Resources Development Act, 2002.

- Provide proof of payment or arrangements to provide the financial provision prior to commencing with any prospecting, mining or production operations.
- Regulation 11: Requires annual review, assessment and adjustment of the financial provision. The review of the adequacy of the financial provision including the proof of payment must be independently audited (annually) and included in the audit of the EMPR as required by the EIA Regulations.

Appendix 4 of the Financial Provisioning Regulations provides the minimum content of a final rehabilitation, decommissioning and closure plan (FRDCP).

33.1 Other Guidelines

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

- Best Practice Guideline G5: Water Management Aspects for Mine Closure: This guideline was prepared by the DWS and aims to provide a logical and clear process that can be applied by mines and the competent authorities to enable proper mine closure planning that meets the requirements of the relevant authorities. This guideline is aimed mining activities, however certain principles related to closure and water management are relevant. The following technical factors which should be considered during closure, and which are likely to relate to mining activities, have been considered:
 - Land use plan: directly interlinked with water management issues insofar as water is required to support the intended land use- in this regard the surrounding communities and the land uses implemented rely on available ground and surface water to be sustained. Management of water quality and quantity has been identified as an aspect to be covered in the FRDCP.
 - Public participation and consultation: consultation is fundamental to closure and there is a need for full involvement of stakeholders in the development of the final closure plans, and in the agreement of closure objectives- in this regard this FRDCP has been made available through the Basic Assessment public participation process for comment by relevant stakeholders.
- Guideline for the Evaluation of the Quantum of Closure Related Financial Provision Provided by a Mine: The objectives of the guideline include the need to improve the understanding of the financial and legal aspects pertaining to the costing of remediation measures as a result of mining activities. Whilst this guideline predates the recent NEMA Financial Provisioning Regulations, it does contain certain principles and concepts that remain valid and have been considered in the FRDCP.

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

The closure objectives are aimed at re-instating the landform, land use and vegetation units to the same as before mining operations take place unless a specific, reasonable alternative land use is requested by the landowner. As such, the intended end use for the disturbed Mining Permit area and the closure objectives will be defined in consultation with the

relevant landowner. Proof of such consultation will be submitted together with the Application for Closure Certificate. The overall aim of the rehabilitation plan is to rehabilitate the environment to a condition as close as possible to that which existed prior to mining. This shall be achieved with a number of specific objectives

1. Making the area safe, i.e. decommission mining activities to ensure that the environment is safe for people and animals. This entails refilling the excavations.
2. Recreating a free draining landform. This entails earthworks infilling, reshaping, levelling, etc. to recreate as close as possible the original topography and to ensure a free draining landscape.
3. Re-vegetation. This involves either reseeded or allowing natural succession depending on the area, climate etc.
4. Storm water management and erosion control. Management of storm-water and prevention of erosion during rehabilitation (e.g. cut off drains, berms etc. and erosion control where required).

5. Verification of rehabilitation success (entails monitoring of rehabilitation).
6. Successful closure (obtain closure certificate).

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

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

The PPP which forms part of the Mining Permit application needs to be managed sensitively and according to best practises in order to ensure and promote:

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

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

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

Landowners and I&APs were consulted and provided an opportunity to comment on the draft Basic Assessment Report, EMPR including all decommissioning, closure and rehabilitation plans. Their comments have been included in this final BAR and EMPR for consideration by the DMR as part of their decision-making.

34. REHABILITATION PLAN

36.1 Integrated Rehabilitation and Closure Plan

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

The overall rehabilitation objectives for this project are as follows:

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

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

It is noted that an application for environmental authorisation must be submitted for closure in accordance with Listing Notice 1 Activity 22:

The decommissioning of any activity requiring –

- I. A closure certificate in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) or
- II. A prospecting right, mining permit, production right or exploration right, where the throughput of the activity has reduced by 90% or more over a period of 5 years excluding where the competent authority has in writing agreed that such reduction in throughput does not constitute closure.

36.2 Phase 1: Making Safe

The Mining activity will result in an open pit. The purpose of rehabilitation will be to ensure the site becomes safe for humans and animals. The open pit will be filled with overburden. The overburden will be loaded, trucked and placed into the pit, and the topography in the area adjacent to the pit shaped to ensure that a free draining topography results.

Once the pit has been backfilled, 300mm thick topsoil or soft overburden in place of soil will be spread on rehabilitated areas. Once placed, the “growth medium” should then be fertilised, ripped and revegetated. A small topsoil stockpile should be left for remedial work.

The following actions are required to meet the objectives of this phase:

- Remove all the facilities and equipment from the site.
- Inert waste with a salvage value to individuals such as scrap metal, building materials, etc. will be removed and disposed of at a proper facility.
- The company contracted to supply fuel will be requested to remove all fuel storage and reticulation facilities.
- Those sections of haul road where a lot of Coal spillage has occurred, will be picked

up and the waste material taken back to the discard dump.

- Remove or control residual hazardous materials. Identify any potential toxic overburden or exposed strata and manage them so as to prevent environmental damage.
- Access roads around the site should be ripped for all areas except those needed to access the facilities for inspection after closure. Roads that can and will be used by other users post closure should, however, be left provided this is agreed upon by all parties concerned. For the rehabilitation of roads, a cost has been allocated to rip the area, add 300 mm topsoil and vegetate.
- Negotiations will take place with land owners to establish which sections of haul road they will require. The extra portions not required will be left and the remainder ripped. This would normally mean that the edges or verges are ripped and the centre portion remains. They will be responsible for maintaining the roads after closure.

36.3 Phase 2: Landform Design, Erosion Control and Revegetation

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

This requires the following:

- Deep rip compacted surfaces to encourage infiltration, allow plant root growth and key the topsoil to the subsoil, unless subsurface conditions dictate otherwise.
- Reinststate natural drainage patterns disrupted by mining wherever possible.
- Characterise the topsoil and retain it for use in rehabilitation. It is preferable to reuse the topsoil immediately rather than storing it in stockpiles. Only discard if it is physically or chemically undesirable, or if it contains high levels of weed seeds or plant pathogens.
- If topsoil is unsuitable or absent, identify and test alternatives substrates, e.g. overburden that may a suitable substitute after addition of soil improving substances.
- Lime and superphosphate are applied to the surface.
- These ameliorants are then incorporated by deep ripping, which penetrated 100 mm through the soil into the underlying overburden material.
- Fertilizer is applied as part of seedbed preparation.
- Consider spreading the cleared vegetation on disturbed areas.
- Re-vegetate the area with plant species consistent with the post mining land use.
- The site is then mulched together with an indigenous grass seed mix. This is to stimulate the long term establishment of indigenous vegetation and to reduce erosion during early plant growth.

36.4 Phase 3: Monitoring and Maintenance

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

Maintenance will specifically focus on annual fertilising the rehabilitated area (where required), control of all other alien plants and general maintenance, including rehabilitation of cracks, subsidence and erosion gullies. Continuous erosion monitoring of rehabilitated

areas and slopes should be undertaken and zones with excessive erosion should be identified. The cause of the erosion should be identified, and rectified. Zones with erosion will need to be repaired with topsoil.

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

- Biodiversity monitoring.
- Re-vegetation of disturbed areas where required.

Provision must be made to monitor any unforeseen impact that may arise as a result of the proposed mining activities and incorporated into post closure monitoring and management. The small-scale mine shall continue to monitor and manage rehabilitation areas until the vegetation is self-sustaining and meets the requirements of the landowner or land manager, until their management can be integrated into the management of the surrounding area

36.5 Post-Closure Monitoring and Maintenance

Prior to decommissioning and rehabilitation activities, a monitoring programme shall be developed and submitted to the relevant authority for approval, as a part of the Final Rehabilitation Plan. The programme is to include proposed monitoring during and after the closure of the trench site and related activities.

It is recommended that the post-closure monitoring include the following:

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

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

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

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

The rehabilitation plan is compatible with the closure objectives in that it seeks to ensure that negative impacts on the receiving environment that could not be prevented or mitigated during mining are rehabilitated. The use of indigenous species during re-vegetation will ensure that ecosystem restoration is initiated and prevent invasion by alien species. The appropriate disposal of waste will ensure that land is usable, in alignment with surrounding land uses and that no hazardous materials are left on-site post-mining.

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

Table 22 details the quantum for financial provision for the Final Rehabilitation, Decommissioning and Closure Plan.

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

The amount will be provided from the operating expenditure.

Table 5: Quantum for financial provision.

CALCULATION OF THE QUANTUM							
						DMRE REF No	MP/30/5/1/3/2/13516 MP
Applicant:	NOTRE COAL					Date	04-Aug-22
Evaluator:	Tsedzuluso Mundalamo						
No.	Description	Unit	A	B	C	D	E=A*B*C*D
			Quantity	Master Rate	Multiplication factor	Weighting factor 1	Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	19	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	271	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	400	1	1	0
3	Rehabilitation of access roads	m2		49	1	1	0
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	471	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	257	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	542	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	4,5	284292	0,5	1	639657
7	Sealing of shafts adits and inclines	m3	0	146	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0,18	189528	0	1	0
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	236054	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha		685612	1	1	0
9	Rehabilitation of subsided areas	ha	0	158701	1	1	0
10	General surface rehabilitation	ha	4,5	150138	0,4	1	270248,4
11	River diversions	ha	0	150138	1	1	0
12	Fencing	m	0	171	1	1	0
13	Water management	ha	0,08	57087	0,08	1	365,3568
14	2 to 3 years of maintenance and aftercare	ha	0	19980	1	1	0
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
						Sub Total 1	910270,7568
1	Preliminary and General		109232,4908			weighting factor 2	109232,4908
2	Contingencies				91027,07568	1	91027,07568
						Subtotal 2	1110530,32
SIGN DATE	Tsedzuluso Mundalamo					VAT (15%)	166579,55
	2022/09/04					Grand Total	1277110

38. MECHANISMS FOR MONITORING COMPLIANCE

Table 25: Mechanisms for monitoring compliance.

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
General surface rehabilitation Mining Permit area site preparation Opencast mining Site establishment Infrastructure	Alteration of topography	Topography and Landform	Construction Operation Decommissioning Rehabilitation and Closure	Control through site planning and design	Original topography and landform serve as a reference for rehabilitation
General surface rehabilitation Infrastructure removal Maintenance and operation of site infrastructure and facilities Mining Permit area	Altered drainage patterns	Topography and Landform	Construction Operation Decommissioning Rehabilitation and Closure	Control through proper soil management procedures	Rehabilitation and closure plan DWAF best practice Guidelines

site preparation Opencast mining Site establishment					
Opencast mining	Soil surface subsidence	Topography and Landform	Construction	Avoidance through mine	Appropriate safety factors

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
Post closure monitoring and maintenance			Operation Decommissioning Rehabilitation and Closure	design and planning (depth of mining, safety factors, overburden and rock qualities)	in consultation with DWA/DMR
Opencast mining	Impact on geology	Geology	Operation	Modify through mine planning, design and rehabilitation	MPRDA Rehabilitation and Closure Plan
General surface rehabilitation Infrastructure removal Maintenance and operation of site infrastructure and facilities Mining Permit area site preparation Opencast mining	Erosion and sedimentation	Soils	Construction Operation Decommissioning Rehabilitation and Closure	Avoid and control through preventative measures (Soil placement, storm water infrastructure, erosion control structures)	CARA

Post closure monitoring and maintenance					
Site establishment					
Infrastructure					

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
General surface rehabilitation Infrastructure removal Maintenance and operation of site infrastructure and facilities Mining Permit area site preparation Opencast mining Post closure monitoring and maintenance Site establishment Infrastructure	Soil compaction	Soils	Planning and Design Construction Operation Decommissioning Rehabilitation and Closure	Avoid through implementation of EMPR mitigation measures	Principles of CARA Rehabilitation and Closure Plan

<p>General surface rehabilitation</p> <p>Infrastructure removal</p> <p>Maintenance and operation of site infrastructure and facilities</p> <p>Mining Permit area site preparation</p>	<p>Soil pollution/contamination</p>	<p>Soils</p>	<p>Construction Operation Decommissioning Rehabilitation and Closure</p>	<p>Avoid through preventative measures (e.g. bunding and spill kits)</p> <p>Remedy through cleanup and waste disposal</p> <p>Modify through soil treatment if required</p>	<p>Hazardous Substances Act</p> <p>NWA</p> <p>NEMA Duty of Care NEMWA</p> <p>Incident reporting procedures</p>
---	-------------------------------------	--------------	--	--	--

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
Opencast mining Post closure monitoring and maintenance Site establishment Infrastructure					DWAF minimum standards for waste disposal
General surface rehabilitation Infrastructure removal Maintenance and operation of site infrastructure and facilities Mining Permit area site preparation Opencast mining Post closure monitoring and maintenance	Loss of soil fertility (denitrification, loss of soil nutrient store and organic carbon stores) and loss of land capability	Land Capability	Construction Operation Decommissioning Rehabilitation and Closure	Avoid through preventative measures (e.g. limit area of disturbance) Remedy through soil remediation if required (e.g. fertilizer and organic matter applications)	CARA Rehabilitation and Closure Plan

Site establishment Infrastructure					
General surface rehabilitation Infrastructure removal	Loss of soil resource and its utilisation potential	Land Capability	Constructio n Operation	Avoid through preventative measures (e.g. limit area of disturbance)	CARA Rehabilitation and Closure Plan

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
Maintenance and operation of site infrastructure and facilities Mining Permit area site preparation Opencast mining Post closure monitoring and maintenance Site establishment Infrastructure			Decommissioning Rehabilitation and Closure	Remedy through soil remediation if required (e.g. fertilizer and organic matter applications)	
General surface rehabilitation Infrastructure removal Maintenance and operation of site infrastructure and facilities	Damage/disruption of services	Land use	Construction Operation Decommissioning Rehabilitation and Closure	Avoid through implementation of EMPR mitigation measures (e.g. service detection and communication with landowners) Remedy through repair	Stakeholder Engagement Plan Rehabilitation and Closure Plan

Mining Permit area site preparation				or reinstatement of services if required	
Opencast mining					
Post closure monitoring and maintenance					

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
Site establishment Infrastructure					
General surface rehabilitation Infrastructure removal Maintenance and operation of site infrastructure and facilities Mining Permit area site preparation Opencast mining Post closure monitoring and maintenance Site establishment Infrastructure	Interference with existing land uses	Land use	Planning and Design Construction Operation Decommissioning Rehabilitation and Closure	Avoid through implementation of EMPR mitigation measures (e.g. communication with landowners)	Stakeholder Engagement Plan Rehabilitation and Closure Plan
General surface	Direct and indirect mortality of flora and	Fauna and Flora	Planning and Design	Control through implementation of	NEMBA

rehabilitation	fauna		Construction	EMPR mitigation measures (e.g. limit area of disturbance, training)	TOPS
Infrastructure removal			Operation		
Maintenance and operation of site			Decommissioning	Avoid/Stop through	

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
infrastructure and facilities Mining Permit area site preparation Opencast mining Post closure monitoring and maintenance Site establishment Infrastructure			Rehabilitation and Closure	relocation of threatened or protected species	
General surface rehabilitation Infrastructure removal Maintenance and operation of site infrastructure and facilities Mining Permit area site preparation	Habitat fragmentation and blockage of seasonal and dispersal movements	Fauna and Flora	Construction Operation Decommissioning Rehabilitation and Closure	Avoid and control through implementation of EMPR mitigation measures (e.g. shape of disturbed areas, maintaining corridors)	NEMBA

Opencast mining					
Post closure monitoring and maintenance					
Site establishment					

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
Infrastructure					
General surface rehabilitation Infrastructure removal Maintenance and operation of site infrastructure and facilities Mining Permit area site preparation Opencast mining Post closure monitoring and maintenance Site establishment Infrastructure	Introduction/invasion of alien (non-native) species	Fauna and Flora	Planning and Design Construction Operation Decommissioning Rehabilitation and Closure	Control through implementation of EMPR mitigation measures (e.g. alien vegetation management plan) Avoid/Stop through preventative measures (e.g. limit extent of disturbance)	NEMBA TOPS Alien Vegetation Management Plan Hazardous Substances Act SANS 10206

<p>General surface rehabilitation</p> <p>Infrastructure removal</p> <p>Maintenance and operation of site infrastructure and facilities</p>	<p>Pollution of surface water resources/decreased water quality</p>	<p>Surface Water</p>	<p>Construction</p> <p>Operation</p> <p>Decommissioning</p> <p>Rehabilitation and Closure</p>	<p>Avoid through implementation of preventative measures (e.g. Bunding, Hazardous materials management, Pollution prevention measures, storm water management)</p>	<p>NWA GN 704</p> <p>WUL Conditions</p> <p>NEMA Duty of Care</p> <p>NEMA Polluter Pays Principle</p>
--	---	----------------------	---	--	--

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
Mining Permit area site preparation Opencast mining Post closure monitoring and maintenance Site establishment Infrastructure				Control through implementation of mitigation measures	DWF Best Practice Guidelines
Maintenance and operation of site infrastructure and facilities Water management Infrastructure construction	Decrease in surface water availability	Surface Water	Construction Operation	Avoid and control through implementation of preventative measures (e.g. limitation of water usage, water conservation strategies, optimisation of water usage and recycling)	NWA GN 704 WULA Conditions NEMA Duty of Care NEMA Polluter Pays Principle DWF Best Practice Guidelines

<p>General surface rehabilitation</p> <p>Infrastructure removal</p> <p>Maintenance and operation of site infrastructure and facilities</p> <p>Mining Permit area site</p>	<p>Dewatering of groundwater aquifers</p>	<p>Groundwater</p>	<p>Operation</p> <p>Decommissioning</p> <p>Rehabilitation and Closure</p>	<p>Avoid and control through implementation of preventative measures (e.g. limitation of water usage, water conservation strategies, optimization of water usage and recycling)</p>	<p>NWA</p> <p>GN 704</p> <p>WULA Conditions</p> <p>NEMA Duty of Care</p> <p>NEMA Polluter Pays Principle</p> <p>DWF Best Practice</p> <p>Guidelines</p>
---	---	--------------------	---	---	---

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
preparation Opencast mining Post closure monitoring and maintenance Site establishment Infrastructure					
General surface rehabilitation Infrastructure removal Maintenance and operation of site infrastructure and facilities Mining Permit area site preparation Opencast mining	Pollution of groundwater/decrea sed water quality	Groundwater	Constructio n Operation Decommissioning Rehabilitation and Closure	Avoid and control through implementation of preventative measures (e.g. Bunding, Hazardous materials management, Pollution prevention measures) Control through implementation of mitigation measures (progressive	NWA GN 704 IWULA Conditions NEMA Duty of Care NEMA Polluter Pays Principle DWF Best Practice Guidelines Rehabilitation and Closure Plan

Post closure monitoring and maintenance				rehabilitation)	
Site establishment					
Infrastructure					
Post closure monitoring	General Environmental	Environmental Pollution	Rehabilitation and Closure	Avoid through	MPRDA

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
and maintenance	Pollution			implementation of suitable progressive rehabilitation and soil management Control/Remedy through interception of decant and treatment of polluted water where required	NWA NEMA Duty of Care Polluter Pays Principle NEMWA GN 704 DWF Best Practice Guidelines Rehabilitation and Closure Plan
General decommissioning activities Infrastructure removal	General Environmental Pollution	Environmental Pollution	Planning and Design Construction Operation Decommissioning	Avoid through preventative measures (e.g. bunding, spill kits) Remedy through cleanup and waste disposal	Hazardous Substances Act NWA MSDS OHSA MHSA NEMA Duty of

			Rehabilitation and Closure	Modify through soil treatment if required	Care NEMWA Incident Reporting Procedures DWAF Minimum Standards for Waste Disposal
General surface rehabilitation	Hydrocarbon spills/contamination	Environmental Pollution	Planning and Design	Avoid through preventative measures (e.g. bunding,	Hazardous Substances Act

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
<p>Infrastructure removal</p> <p>Maintenance and operation of site infrastructure and facilities</p> <p>Mining Permit area site preparation</p> <p>Opencast mining</p> <p>Post closure monitoring and maintenance</p> <p>Site establishment</p> <p>Infrastructure</p>			<p>Construction</p> <p>Operation</p> <p>Decommissioning</p> <p>Rehabilitation and Closure</p>	<p>spill kits)</p> <p>Remedy through cleanup and waste disposal</p> <p>Modify through soil treatment if required</p>	<p>NWA</p> <p>OHSA</p> <p>MHSA</p> <p>NEMA Duty of Care NEMWA</p> <p>Incident Reporting Procedures</p> <p>DWAF Minimum Standards for Waste Disposal</p>
Opencast mining	Discovery and preservation of fossils	Heritage	Operation	<p>Avoid and control through implementation of preventative measures</p> <p>Modify through removal and curation of fossils</p>	

<p>General surface rehabilitation</p> <p>Infrastructure removal</p> <p>Maintenance and operation of site</p>	<p>Destruction/damage of palaeontological resources</p>	<p>Heritage</p>	<p>Construction</p> <p>Operation</p> <p>Rehabilitation and</p> <p>Closure</p>	<p>Avoid and control through implementation of preventative measure</p> <p>Modify through removal and curation of fossils</p>	<p>NEMA</p> <p>MPRDA</p> <p>NHRA</p> <p>SAHRA</p> <p>permitting requirements</p> <p>Human Tissue Act</p>
--	---	-----------------	---	---	--

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
<p>infrastructure and facilities</p> <p>Mining Permit area site preparation</p> <p>Opencast mining</p> <p>Post closure monitoring and maintenance</p> <p>Site establishment</p> <p>Infrastructure</p>					<p>IFC Performance Standard 8: Cultural Heritage</p>
<p>General surface rehabilitation</p> <p>Infrastructure removal</p> <p>Maintenance and operation of site</p> <p>infrastructure and facilities</p> <p>Mining Permit area site preparation</p>	<p>Destruction/damage of heritage resources</p>	<p>Heritage</p>	<p>Construction</p> <p>Operation</p> <p>Decommissioning</p> <p>Rehabilitation and Closure</p>	<p>Avoid and control through implementation of preventative measures (e.g. fencing of graveyards, watching brief, chance finds procedure)</p> <p>Stop through relocation of graves if required</p>	<p>NEMA</p> <p>MPRDA</p> <p>NHRA</p> <p>SAHRA permitting requirements</p> <p>Human Tissue Act</p> <p>IFC Performance Standard 8: Cultural Heritage</p>

Opencast mining					
Post closure monitoring and maintenance					
Site establishment					

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
Infrastructure					
General construction management General opencast management	Crime and violence	Social	Construction Operation Decommissioning Rehabilitation and Closure	Avoidance and control through preventative measures (e.g. site security, code of conduct)	ESMS MHSA OHSA Code of Conduct
General construction management General opencast management Mining Permit area site preparation Opencast pit mining	Influx of migrant workers	Social	Construction Operation Decommissioning Rehabilitation and Closure	Avoidance and control through mitigation measures (e.g. recruitment procedure, grievance mechanism)	Labour Act Basic Conditions of Employment Act IFC Performance Standard 5 Land Acquisition and Involuntary Resettlement
General surface	Sense of place	Social	Construction	Modify through reduction of visual	Rehabilitation and Closure Plan

rehabilitation			Operation	impact	
Infrastructure removal			Decommissioning		
Maintenance and operation of site infrastructure and facilities			Rehabilitation and Closure		
Mining Permit area site preparation					

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
Opencast mining Post closure monitoring and maintenance Site establishment Infrastructure					
General construction management General opencast pit management Maintenance and operation of site infrastructure and facilities Opencast mining	Social vices	Social	Construction Operation Decommissioning Rehabilitation and Closure	Avoidance and control through mitigation measures (e.g. recruitment procedure, grievance mechanism, code of conduct) Stakeholder engagement plan	Labour Act Basic Conditions of Employment Act IFC Performance Standard 5 Land Acquisition and Involuntary Resettlement Grievance Mechanism Code of Conduct

General Construction Management General opencast management Opencast mining	Employment opportunities	Socio-Economic	Construction Operation Decommissioning Rehabilitation and Closure	Minimise impacts of job loss through skills development and livelihood restoration	IFC Performance Standard 5 Land Acquisition Involuntary Resettlement
Opencast mining	Coal supply to the market	Socio-Economic	Operation	Maximise security of Coal supply through	ESMS

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
				sound and responsible mine management	
General surface rehabilitation Infrastructure removal Maintenance and operation of site infrastructure and facilities Mining Permit area site preparation Opencast mining Post closure monitoring and maintenance Site establishment Infrastructure	Health and safety	Health and Safety	Construction Operation Decommissioning Rehabilitation and Closure	Avoidance and control through preventative measures (e.g. HIV/AIDS awareness) Remedy through application of mitigation measures in EMPR	OHSA MHSA IFC Performance Standard 4: Community Health, Safety, and Security Grievance Mechanism

<p>General surface rehabilitation</p> <p>Infrastructure removal</p> <p>Maintenance and operation of site infrastructure and facilities</p>	<p>Fire and explosion hazard</p>	<p>Health and Safety</p>	<p>Construction</p> <p>Operation</p>	<p>Avoid and control through implementation of preventative measures (e.g. Fire breaks, Blasting procedures, hazardous substances management</p>	<p>Explosives Act MSHA</p> <p>OHSA</p> <p>MPRDA</p> <p>United States Bureau of Mines (USBM) criteria for safe blasting for ground</p>
--	----------------------------------	--------------------------	--------------------------------------	--	---

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
Mining Permit area site preparation Opencast mining Post closure monitoring and maintenance Site establishment Infrastructure					vibration and recommendations on blasting
Opencast mining	Fly rock	Health and Safety	Operation	Avoid and control through implementation of preventative measures (e.g. blast procedures, monitoring, communication with landowners, emergency response procedures)	Explosives Act MHSA OHS MPRDA United States Bureau of Mines (USBM) criteria for safe blasting for ground vibration and recommendations on air blast Blast Procedures Emergency response

					procedure IFC Performance Standard 4: Community Health, Safety, and Security
--	--	--	--	--	--

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
General surface rehabilitation Infrastructure removal Maintenance and operation of site infrastructure and facilities Mining Permit area site preparation Opencast mining Post closure monitoring and maintenance Site establishment Infrastructure	Damage to road infrastructure	Transportation, Infrastructure and Traffic	Construction Operation Decommissioning	Avoid and control through implementation of EMPR mitigation measures (e.g. speed limit enforcement, vehicle maintenance)	National Road Traffic Act OHSAA MHSA

<p>General surface rehabilitation</p> <p>Infrastructure removal</p> <p>Maintenance and operation of site infrastructure and facilities</p> <p>Mining Permit area site preparation</p>	<p>Increased traffic</p>	<p>Transportation, Infrastructure and Traffic</p>	<p>Construction Operation</p>	<p>Avoid and control through implementation of EMPR mitigation measures (e.g. speed limit enforcement, vehicle maintenance)</p>	<p>National Road Traffic Act OHSA MHSA</p>
---	--------------------------	---	-------------------------------	---	--

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
Opencast mining					
Post closure monitoring and maintenance					
Site establishment					
Infrastructure					
General surface rehabilitation	Visual impact of mine infrastructure, stockpiles and dust	Visual	Construction Operation Decommissioning Rehabilitation and Closure	Avoid and control through implementation of EMPR mitigation measures (e.g. vehicle maintenance, progressive rehabilitation)	Rehabilitation and Closure Plan Final Land-use Objectives
Infrastructure removal					
Maintenance and operation of site infrastructure and facilities					
Mining Permit area site preparation					
Opencast mining					
Post closure					

monitoring and maintenance Site establishment Infrastructure					
General surface rehabilitation	Greenhouse gas emissions	Air Quality	Construction Operation	Avoid and control through implementation of EMPR	NEMAQA Equator Principles

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
<p>Infrastructure removal</p> <p>Maintenance and operation of site infrastructure and facilities</p> <p>Mining Permit area site preparation</p> <p>Opencast mining</p> <p>Post closure monitoring and maintenance</p> <p>Site establishment</p> <p>Infrastructure</p>			<p>Decommissioning</p> <p>Rehabilitation and Closure</p>	<p>mitigation measures (e.g. vehicle maintenance, progressive rehabilitation)</p>	<p>IFC Performance Standard 3: Resource Efficiency and Pollution Prevention</p>
<p>General surface rehabilitation</p> <p>Infrastructure removal</p> <p>Maintenance and operation of site</p>	Fugitive emissions (Dust)	Air Quality	<p>Construction</p> <p>Operation</p> <p>Decommissioning</p> <p>Rehabilitation and Closure</p>	<p>Avoid through preventative measures (e.g. speed limit enforcement)</p> <p>Control through implementation of EMPR mitigation</p>	<p>Road Traffic Act NEMAQA</p> <p>Dust Regulations</p>

infrastructure and facilities				measures (e.g. dust suppression)	
Mining Permit area					
site preparation					
Opencast mining					
Post closure monitoring					

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
and maintenance Site establishment Infrastructure					
General surface rehabilitation Infrastructure removal Maintenance and operation of site infrastructure and facilities Mining Permit area site preparation Opencast mining Post closure monitoring and maintenance Site establishment Infrastructure	Disturbing and/or nuisance noise		Construction Operation Decommissionin g Rehabilitation and Closure	Avoid through preventative measures (e.g. communication with landowners, timing of activities) Control through implementation of EMPR mitigation measures (e.g. Noise abatement measures)	ECA Noise Regulations SANS 10103 OHSA MHSA

Opencast mining	Blasting	Blasting and Vibration	Operation	Avoid and control through implementation of preventative measures (e.g. blast procedures, monitoring,	Explosives Act MHSA OHSA MPRDA United States Bureau of
-----------------	----------	------------------------	-----------	---	--

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
				communication with landowners, emergency response procedures)	Mines (USBM) Criteria for Safe Blasting for Ground Vibration Blast Procedures Emergency Response Procedure IFC Performance Standard 4: Community Health, Safety, and Security

Opencast mining	Ground vibration and human perception	Blasting and Vibration	Operation	Avoid and control through implementation of preventative measures (e.g. blast procedures and monitoring, communication with landowners and emergency response procedures)	Explosives Act MHS Act MHS OHS MPRDA United States Bureau of Mines (USBM) Criteria for Safe Blasting for Ground Vibration Blast Procedures Emergency Response Procedure IFC Performance Standard 4: Community Health, Safety, and Security
-----------------	---------------------------------------	------------------------	-----------	---	--

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
Opencast mining	Impacts on Infrastructure (roads, communications infrastructure, services, houses, boreholes)	Blasting and Vibration	Operation	Avoid and control through implementation of preventative measures (e.g. structural surveys, blast procedures, monitoring and communication with landowners)	Explosives Act MHS OHSA MPRDA United States Bureau of Mines (USBM) Criteria for Safe Blasting for Ground Vibration Blast Procedures Emergency Response Procedure IFC Performance Standard 4: Community Health, Safety, and Security

Opencast mining	Noxious fumes	Blasting and Vibration	Operation	Avoid and control through implementation of preventative measures (e.g. structural surveys, blast procedures, monitoring, and communication with landowners)	Explosives Act MSHA OSHA MPRDA United States Bureau of Mines (USBM) Criteria for Safe Blasting for Ground Vibration Blast Procedures Emergency Response
-----------------	---------------	------------------------	-----------	--	--

Activity	Potential impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
					Procedure IFC Performance Standard 4: Community Health, Safety, and Security

39. FREQUENCY OF THE SUBMISSION OF THE PERFORMANCE ASSESSMENT/ENVIRONMENTAL AUDIT REPORT

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

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

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

40. ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM

Management of operational risk is a key consideration for mines/pits operating within the social and economic context of South Africa. Operational risk is defined as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. Operational risks and impacts are usually managed through the implementation of the Environmental and Social Management System (ESMS) and Safety, Health and Environmental (SHE) system. A formal, effective ESMS is an important requirement for establishing and maintaining effective environmental management and should be undertaken during the planning phase of the Project. As such the Applicant shall be required to appoint a suitably qualified specialist to develop the ESMS to be implemented on the mine. Adequate resources (people, financial and technical) need to be made available to ensure effective establishment, implementation, maintenance and continual improvements of the ESMS. The roles and responsibilities for these key environmental personnel should be clearly defined and communicated throughout the organisation. The ESMS should include the requirement to constantly monitor environmental performance and assess the adequacy of environmental resources provided for the Mine. If required, the Mine would need to procure further environmental resources to ensure the successful implementation of the ESMS

and EMPR. The development and implementation of an ESMS is a requirement in terms of compliance with international standards of best practise such as the IFC Performance Standards and Equator principles

42.1 EMS Framework

The ESMS will be based on:

- South African legal requirements.
- Mining best practice.

The ESMS to be developed for the Mine should incorporate and provide for:

- A project specific environmental policy.
- Organizational capacity and competency
- The ESMS shall identify roles and responsibilities of key role players.

- The ESMS shall incorporate a mechanism for ongoing identification of risks and impacts (e.g. Impacts and aspects register of an ISO system).
- Integration of the ESMS with the SHE management system may be undertaken to form a holistic SHE risk management system.
- The ESMS shall comprise appropriate management plans and procedures to ensure effective operational control.
- The ESMS shall provide for emergency response and also make provision for emergency protocols.
- Effective communication (both internal and external) is a key requirement for successful implementation of the ESMS and an appropriate communication procedure to this effect shall be developed.
- The ESMS shall involve engagement between the client, its workers, local communities directly affected by the project (the affected communities) and where appropriate, other stakeholders. It is therefore imperative that there is integration between Stakeholder Engagement procedures and the ESMS.
- The ESMS shall make provision for ongoing compliance monitoring and environmental audits.
- The ESMS shall make provision for internal auditing and continual improvement which should be incorporated into internal management review processes. The ESMS should provide for setting and reviewing objectives and targets to demonstrate continual SHE improvements associated with the project.

Ultimately an effective ESMS should provide for effective management of social and environmental risks and impacts whilst maintaining legal compliance and meeting international standards of best practise where these are feasible and appropriate.

42.2 Stakeholder Engagement

Social impacts occur immediately in the planning phase of a project and as such it is imperative to start with stakeholder engagement as early in the process as possible. Stakeholder engagement is required on an ongoing basis throughout the operation of the mine. As such, the mine will need to develop and implement a detailed Stakeholder Engagement Plan, designed to work as a living document for implementation over the entire duration of the project.

The following stakeholder engagement framework outlines the principles and objectives for stakeholder engagement during all phases of the mining operation.

- To identify and assess the processes and/or mechanisms that will improve the communication between local communities, the wider community and the small-

scale mine.

- To improve relations between mine staff and the people living in the local communities.
- To provide a guideline for the dissemination of information crucial to the local communities in a timely, respectful and efficient manner.
- To provide a format for the timely recollection of information from the local communities in such a way that the communities are included in the decision making process.

This stakeholder engagement plan will assist the mine to outline their approach towards communicating in the most efficient way possible with stakeholders throughout the life of the project. Such a plan cannot be considered a once off activity and should be updated on a yearly basis to ensure that it stays relevant and to capture new information. The Stakeholder Engagement Plan should be compiled in line with IFC Guidelines (IFC) and should consist of the following components:

- Stakeholder Identification and Analysis – time should be invested in identifying and prioritizing stakeholders and assessing their interests and concerns.

- Information Disclosure – information must be communicated to stakeholders early in the decision- making process in ways that are meaningful and accessible, and this communication should be continued throughout the life of the project.
- Stakeholder Consultation – each consultation process should be planned out, consultation should be inclusive, the process should be documented and follow-up should be communicated.
- Negotiation and Partnerships – add value to mitigation or project benefits by forming strategic partnerships and for controversial and complex issues, enter into good faith negotiations that satisfy the interest of all parties.
- Grievance Management – accessible and responsive means for stakeholders to raise concerns and grievances about the project must be established throughout the life of the project.
- Stakeholder Involvement in Project Monitoring – directly affected stakeholders must be involved in monitoring project impacts, mitigation and benefits. External monitors must be involved where they can enhance transparency and credibility.
- Reporting to Stakeholders – report back to stakeholders on environmental, social and economic performance, both those consulted and those with more general interests in the project and parent company.
- Management Functions – sufficient capacity within the company must be built and maintained to manage processes of stakeholder engagement, track commitments and report on progress.

It is of critical importance that stakeholder engagement takes place in each phase of the project cycle and it must be noted that the approach will differ according to each phase

42.3 Grievance Mechanism

In accordance with international good practice the mine shall establish a specific mechanism for dealing with grievances. A grievance is a complaint or concern raised by an individual or organisation that judges that they have been adversely affected by the project during any stage of its development. Grievances may take the form of specific complaints for actual damages or injury, general concerns about project activities, incidents and impacts, or perceived impacts. The IFC standards require Grievance Mechanisms to provide a structured way of receiving and resolving grievances. Complaints should be addressed promptly using an understandable and transparent process that is culturally appropriate and readily acceptable to all segments of affected communities, and is at no cost and without retribution. The mechanism should be appropriate to the scale of impacts and risks presented by a project and beneficial for both the company and stakeholders. The mechanism must not impede access to other judicial or administrative remedies.

The proposed grievance mechanism shall be based on the following principles:

- Transparency and fairness.
- Accessibility and cultural appropriateness.
- Openness and communication regularity.
- Written records.
- Dialogue and site visits.
- Timely resolution.

Based on the principles described above, the grievance mechanism process involves four stages:

- Receiving and recording the grievance.
- Acknowledgement and registration.
- Site inspection and investigation.

- Response.

42.4 Internal Grievance Procedure

The mine shall develop a detailed internal grievance mechanism designed to receive and facilitate resolution of workplace concerns and grievances raised by employees (and their organizations, where they exist). Employees must be informed of the grievance mechanism at the time of recruitment and it must be made easily accessible to them. The mechanism should involve an appropriate level of management and address concerns promptly, using an understandable and transparent process that provides timely feedback to those concerned, without any retribution. The mechanism should also allow for anonymous complaints to be raised and addressed. The mechanism should not impede access to other judicial or administrative remedies that might be available under the law or through existing arbitration procedures, or substitute for grievance mechanisms provided through collective agreements.

Document Control

A formal document control system should be established during the development of the ESMS. The document control system must provide for the following requirements:

- Documents are approved for adequacy prior to use.
- Review and update documents as necessary and re-approve documents.
- Ensure that changes and the current version status of documents are identified.
- Ensure that relevant versions of applicable documents are available at points of use.
- Ensure that documents remain legible and readily identifiable.
- Ensure that documents of external origin necessary for the ESMS are identified and their distribution controlled.
- Prevent unintended use of obsolete documents and apply suitable identification to them if they are retained for any purpose.

42.5 Record Keeping

It is essential that an official procedure for control of records be developed to ensure records required to demonstrate conformity to environmental and social standards are maintained. This project is therefore required to develop and maintain a procedure for the identification, storage, protection, retrieval, retention and disposal of records as part of the ESMS. Records must be legible, identifiable and traceable.

42.6 Auditing and Reporting Procedures

The Mining Permit holder shall develop and auditing and reporting procedure, for conveying information from the compliance monitoring activities and to ensure that management is able to take rapid corrective action should certain thresholds be exceeded. The sections below present a framework for the development of the necessary procedures. Different reporting mechanisms may include:

- Inspections
- Accidents and emergencies
- Measuring performance indicators and interpreting and acting on the indicators
- Records of monitoring activities to test the effectiveness of mitigation measures and impact controls, as well as for compliance auditing purposes
- Training programmes and evidence of appropriate levels/amount of skills/capacities created

All monitoring and auditing must be accompanied by applicable records and evidence (e.g. delivery slips, photographic records, etc.). All reports must be retained and made available for inspection by the ECO, the Applicant and /or the Relevant Competent Authorities. All reports shall be signed by the relevant parties to ensure accountability. The Mining Permit holder must use the audit report findings to continually ensure that environmental protection measures are working effectively on site through a system of self-checking. The EMPR should be viewed as a dynamic document aimed at continual environmental performance improvement.

The following auditing and reporting shall be required throughout the operation phase:

- Weekly Compliance Reports: These reports must be prepared by the designated Pit EO and must aim to monitor and report on-site environmental performance
- Quarterly Compliance Audit Reports: The ECO must compile quarterly compliance audit reports which are to be submitted to the Mining Permit holder for his review and correction of non-compliance issues. It is the responsibility of the ECO to report any non-compliance, which is not correctly rectified.

42.7 Responding to Non-Compliances

Non-compliance will be identified and managed through the following four key activities including:

- Inspections of the site and activities across the site
- Monitoring of selected environmental quality variables
- Audits of the site and relevant documentation as well as specific activities
- Reporting on a monthly basis

An environmental non-conformance and incident register must be prepared and maintained by the ECO throughout the lifespan of the small-scale mine in order to monitor environmental concerns, incidents, and non-conformances. The register must include details of date, location, description of the NC or Incident, applicable environmental commitment/standard, corrective action taken, adequacy of corrective action, date rectified, etc.

Non-compliance with the EMPR or any other environmental legislation, specifications or standards shall be recorded by the ECO in the non-conformance register. This register shall be maintained by the ECO and will be sent to the Mining Permit holder and Contractor on a regular basis (quarterly), and the Mining Permit holder shall ensure that the responsible party takes the necessary corrective actions. Non-conformances may only be closed out in the register by the ECO upon confirmation that adequate corrective action has been taken. The

register should be utilised to measure overall environmental performance.

42.8 Environmental Incidents

For the purposes of this project, an environmental incident can be divided into three levels, i.e. major, medium and minor. All major and medium environmental incidents shall be recorded in the incident register. Minor incidents do not need to be reported, but require immediate rectification on site. Definitions and examples of environmental incidents are provided in Table 26.

Table 26: Description of incidents and non-conformances for the purpose of the project.

Non-Conformance	Any deviation from work standards, practices, procedures, regulations, management system performance etc. that could either directly or indirectly lead to injury or illness, property damage, damage to the workplace environment, or a combination of these.
Major Environmental Incident	An incident or sequel of incidents, whether immediate or delayed, that results or has the potential to result in widespread, long-term, irreversible

	<p>significant negative impact on the environment and/or has a high risk of legal liability.</p> <p>A major environmental incident usually results in a significant pollution and may entail risk of public danger. Major environmental incidents usually remain an irreversible impact even with the involvement of long-term external intervention i.e. expertise, best available technology, remedial actions, excessive financial cost etc. Major environmental incidents may be required to be reported to the authorities. The ECO shall make the final decision as to whether a particular incident should be classified as a Major incident.</p> <p>An example of a Major environmental incident would be a significant spillage (e.g. 500 litres) of fuel into a watercourse.</p>
<p>Medium Environmental Incident</p>	<p>An incident or sequel of incidents, whether immediate or delayed, that results or has the potential to result in widespread or localised, short term, reversible significant negative impact on the environment and/or has a risk of legal liability.</p> <p>A medium environmental incident may be reported to the authorities, can result in significant pollution or may entail risk of public danger. The impact of medium environmental incidents should be reversible within a short to medium term with or without intervention. The ECO shall make the final decision as to whether a particular incident should be classified as a Medium incident.</p> <p>An example of a Medium environmental incident would be a large spill of fuel (e.g. 20 – 50 litres) onto land.</p>
<p>Minor Environmental Incident</p>	<p>An incident or sequel of incidents, whether immediate or delayed, where the environmental impact is negligible immediately after occurrence and/or once-off intervention on the day of occurrence.</p> <p>An incident where there is unnecessary wastage of a natural resource is also classified as a minor environmental incident. An example would be leaking water pipes that result in the wastage of water.</p>

	<p>A minor environmental incident is not reportable to authorities. An example of a minor incident is day to day spills of fuel or oil onto the ground where the spill is less than one or two litres.</p>
--	--

The following incident reporting procedures shall apply to this project:

- All environmental incidents shall be reported to Contractor's EO and Pit EO who shall ensure that the appropriate rectification is undertaken.
- The Pit EO shall record all medium and major incidents in the incident register and advise on the appropriate measures and timeframes for corrective action.
- An incident report shall be completed by party responsible for the incident for all medium and major incidents and the report shall be submitted to the Pit Manager and Pit EO within 5 calendar days of the incident.

- The Pit EO shall investigate all medium and minor incidents and identify any required actions to prevent a recurrence of such incidents.

In the event of an emergency incident (unexpected sudden occurrence), including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed, the Applicant shall notify the relevant authorities in accordance with legal requirements (e.g. Section 30 of NEMA and Section 20 of the NWA). In the event of a dispute in terms of the classification of a such an incident, the Applicant shall engage the ECO to advise on the potential reporting requirements in terms of the above.

41. ENVIRONMENTAL AWARENESS PLAN AND TRAINING

Safety, Health and Environment (SHE) Officer to ensure that personnel attend the relevant identified training and ensure.

- ❖ New employees to attend environmental awareness programs through inductions
- ❖ Environmental control officer must conduct environmental awareness meetings once in a month
- ❖ Mine management to conduct bi-annually workshops
- ❖ Documented training and competency
- ❖ Training records shall be maintained;
- ❖ Training includes proper management of the waste streams, labelling, containers, emergency procedures outlined;
- ❖ Hazardous waste handlers and their supervisors / managers must complete training or on-the-job instruction relevant to their duties to include hazardous waste management procedures and contingency plan implementation.
- ❖ Training of all personnel must be completed before duties are assigned and training in terms of handling of hazardous waste must be repeated annually and as and when required.

Outsourced specialist skills

Training department will be established on site during operation. All inductions and workshops will be hosted by this department. This department in conjunction with the SHE Officer are responsible for ensuring job specific training for personnel performing tasks, which can cause significant environmental (e.g. receipt of bulk hazardous chemicals/fuel, hazardous materials handling, responding to emergency situations etc.). The General Mine Manager (GM) with the assistance of the SHE Officer must identify relevant personnel and training courses;

Short courses such as; First aid training Level 1 and 2, Fire Fighting Level, safety representative training, etc. should be mandatory and sourced from the training providers,

3. Review and updating of training manual and course layout

- ❖ Before implementing the Emergency and response plans and other environmental standard operating procedure, the SHE Coordinator and GM/Supervisors shall designate and train a sufficient number of persons to assist in the safe and orderly emergency evacuation of employees.
- ❖ All training manual and courses must be reviewed with all employees at the following times:
 - Initially when the plan is developed,
 - Whenever the employee's responsibilities or designated action under the plan change,
 - and whenever the plan or mining processes has changed.
- ❖ At least annually employee meetings are to be held to train employees of the contents of the EP&RP and revise the plan as appropriate.
- ❖ Drills will be conducted, and full participation encouraged.
- ❖ All training must be documented in writing and copies sent to General Manager.

Effectiveness of the environmental management training will be done by the management through task observations and during internal and external audits. All training material for presentation to personnel and contractors will be reviewed annually to ensure consistency with organisational requirements and best practice guidelines. In addition to this, annual monitoring reports, audit results and all incident reports will be reviewed; any short comings and non-compliance will be highlighted, and management measures incorporated or improved upon within the training material.

Records

Mine will keep records such as waste, water, electricity usage e.tc. Record of incoming and outgoing waste must be kept, and these should include:

- ❖ Types and Categories of incoming and outgoing Wastes;
- ❖ Quantities of each waste type and category;
- ❖ Transporter details;
- ❖ Safe disposal certificate must always be returned and filed at the waste disposal site;
- ❖ Training records for all employees working on the hazardous waste facility.
- ❖ All records must be computerized or legible paper trails and cross-referenced, waste tracking easily accomplished.
- ❖ Records must be kept in database on site for at least 3 years or more.

Records from the implementation of this EAP will be kept and controlled in accordance with the

SHE Management System Control of Records Procedure of the mine, which is required to be implemented so as to provide evidence of conformity and effective operation of the relevant requirements of the SHE management system.

. Environmental awareness notice boards

The following basic environmental education material will be posted on a monthly basis on accessible notice boards within the mine premises, one topic will be selected each month.

<h3>WHAT IS THE ENVIRONMENT?</h3> <ul style="list-style-type: none"> • Soil • Water • Plants • People • Animals • Air we breathe • Buildings, cars and houses 	<h3>WHY MUST WE LOOK AFTER THE ENVIRONMENT?</h3> <ul style="list-style-type: none"> • It affects us all as well as future generations • We have a right to a healthy environment • A contract has been signed • Disciplinary action (e.g. construction could stop or fines issued)
<h3>ANIMALS</h3> <ul style="list-style-type: none"> • Do not injure or kill any animals on the site • Ask your supervisor or Contract's Manager to remove animals found on site 	<h3>TREES AND FLOWERS</h3> <ul style="list-style-type: none"> • Do not damage or cut down any trees or plants without permission • Do not pick flowers 
<h3>SMOKING AND FIRE</h3> <ul style="list-style-type: none"> • Put cigarette butts in a rubbish bin • Do not smoke near gas, paints or petrol • Do not light any fires without permission • Know the positions of fire fighting equipment • Report all fires • Do not burn rubbish or vegetation without permission 	<h3>PETROL, OIL AND DIESEL</h3> <ul style="list-style-type: none"> • Work with petrol, oil & diesel in marked areas • Report any petrol, oil & diesel leaks or spills to your supervisor • Use a drip tray under vehicles & machinery • Empty drip trays after rain & throw away where instructed 
<h3>DUST</h3> <p>Try to avoid producing dust - Use water to make ground & soil wet</p> 	<h3>NOISE</h3> <ul style="list-style-type: none"> • Do not make loud noises around the site, especially near schools and homes • Report or repair noisy vehicles 
<h3>TRUCKS AND DRIVING</h3> <ul style="list-style-type: none"> • Always keep to the speed limit • Drivers - check & report leaks and vehicles that belch smoke • Ensure loads are secure & do not spill 	<h3>RUBBISH</h3> <ul style="list-style-type: none"> • Do not litter - put all rubbish (especially cement bags) into the bins provided • Report full bins to your supervisor • The responsible person should empty bins regularly 
<h3>EATING</h3> <ul style="list-style-type: none"> • Only eat in demarcated eating areas • Never eat near a river or stream • Put packaging & leftover food into rubbish bins 	<h3>TOILETS</h3> <ul style="list-style-type: none"> • Use the toilets provided • Report full or leaking toilets 



EMERGENCY, PREPAREDNESS AND RESPONSE PLAN

Training, as detailed above, will address the specific measures and actions required for specific emergency event. In this way each employee member will be provided the knowledge required for their job to firstly prevent impact and secondly identify if an impact is likely to occur and then to report the possibility of risk or impact immediately so as to ensure immediate response.

The most likely potential environmental emergencies in this proposed mining operation are the following.

- ❖ Fires and explosion;
- ❖ chemical spill or leak;
- ❖ Flooding; and

In the case of environmental emergencies, the remedial measures and actions as listed in the Emergency Response Plan should be followed, in addition the relevant authorities should be contacted; these are listed below:

Ambulance Middelburg: 013 246 2716

: 013 249 3874

Middelburg Fire Department: 013 243 2222

Fire and Explosion control measures

Hazardous waste and dangerous substances can, by the verify definition be flammable and reactive and therefore special precautionary measures must be taken when handling these substances. On the other hand, Veld fires and fires resulting from other sources must be handled with extreme caution.

In the event of a fire:

- ❖ Fire extinguishers should be placed around the mine at accessible locations and needs to be frequently inspected and maintained in working condition.

- ❖ An alarm should be activated to alert all employees and contractors.
- ❖ Identify the type of fire and the appropriate extinguishing material. For example, water for a grass fire, and mono ammonium phosphate-based fire extinguisher for chemical and electrical fires
- ❖ In the event of a small fire the fire extinguishers placed around the mine should be used to contain and extinguish the fire.
 - In the event of a large fire, the fire department will be notified.
 - All staff will receive training in response to a fire emergency on site, including evacuation procedures.
 - A Fire Association should be set up with the mine and surrounding land owners (especially other mining permits and major collieries such as Shanduka colliery near) to facilitate communication during fire events and assist in fighting fires, where necessary. If such an association exists, then the mine will join such an association.
 - If possible all surrounding drains, such as storm water drains need to be covered and or protected to prevent any contaminated water from entering the drains.
 - In case of a chemical or petroleum fire, run-off from the area should be contained as far as possible using the most appropriate measures e.g. spill absorbent cushions, sand or a physical barrier.
 - Contaminated run-off must be diverted into an oil sump or cleaned up.
- ❖ **Some of the control measures are:**
 - ❖ Minimize the storage of flammable liquids on site (e.g. fuel, flammable wastes);
 - ❖ Use of a nitrogen atmosphere for organic waste liquid with a low flashpoint stored in tanks;
 - ❖ No Smoking is everywhere is allowed
 - ❖ Provide an emergency tipping area for waste loads identified to be on fire or otherwise deemed to be an immediate risk;
 - ❖ Prepare and annually review a fire risk assessment;
 - ❖ Ensure all staff are appropriately trained for fire and explosion hazards.

Other than explosion incidents related to mining, explosions can occur in the workshop areas when working with gas cylinders and chemicals. These could result in large numbers of employees being injured and requiring medical assistance.

The procedure to be followed is:

- Safe evacuation routes should be devised in the event of an uncontrolled explosion and all staff trained on relevant evacuation routes and assembly points.

- Once safe to do so first responders may provide first aid to injured parties.
- All relevant emergency response units must be notified, and hospitals informed of incoming patients.
- DMR to be notified of the incident.

Chemical Spills

Hydrocarbons such as diesel, petrol, and oil which are used as fuel for mine machinery will be kept on site; therefore, there is the possibility that spillage may occur. As this is a coal mine there is also the possibility of a coal spillage occurring. Further, any chemicals contained on site, such as those associated with explosives may also be detrimental to the environment if spills occur. In the event of a spillage, procedures must be put into place to ensure that there are minimal impacts to the surrounding environment.

The following procedure applies to a chemical spill:

- ❖ The incident must be reported to the SHE officer immediately.
- ❖ The SHE officer will assess the situation from the information provided and set up an investigation team. Included in this team could be the General Mine Manager, SHE Officer, the employee who reported the incident and an individual responsible for the incident.
- ❖ When investigating the incident, priority must be given to safety.
- ❖ Once the situation has been assessed, the Environmental Coordinator must report back to the Mine Manager.
- ❖ The General Mine Manager and the investigation team must make a decision on what measures can be taken to limit the damage caused by the incident, and if possible, any remediation measures that can be taken.
- ❖ In the event of a small spillage, the soil should be treated in situ, using Hazmat clean up kits and bioremediation.
- ❖ Every precaution should be taken to prevent the spill from entering the surface water environment.
- ❖ In the event of a large spillage, adequate emergency equipment for spill containment or collection, such as additional supplies of booms and absorbent materials, will be made available and if required, a specialised clean-up crew will be called in to decontaminate the area. The soil should be removed and treated at a special soil rehabilitation facility.
- ❖ Reasonable measures must be taken to stop the spread of spills and secure the area to limit access.

3 Flooding

- ❖ There is always potential for flooding during the rainy season. This could result in a large volume of water accumulating in a water containment facility and could cause major damage to equipment and endanger the lives of employees on site. Procedures must be put in place to ensure that there is a quick response to flood events and damage is kept to a minimum.
- ❖ The procedure for flooding is as follows:
 - During operational, DWS's flood warning system should be developed reviewed annually.
 - The use of emergency pumps should occur if the water floods the pit.
 - Mine management should be made aware of any such event, so they can take appropriate action to ensure production losses are kept to a minimum.
 - Pollution Control Dam should have a 0.8m freeboard and an overflow or outlet to ensure that no damage occurs to the facilities.

43.1 Manner in which Risks will be Dealt with to Avoid Pollution or Degradation

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

- ❖ Contain potential pollutants and contaminants (where possible) at source.
- ❖ Handling of potential pollutants and contaminants (where possible) must be conducted in bunded areas and on impermeable substrates.
- ❖ Ensure the timeous clean-up of any spills.
- ❖ Implement a waste management system for all waste present on site.
- ❖ Investigate any I&AP claims of pollution or contamination as a result of mining activities.
- ❖ Implement the impact management objectives, outcomes and actions, as described in Section 12 above.

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

42. SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

No additional information was requested or is deemed necessary.

43. ENVIRONMENTAL MONITORING

45.1 Functional Requirements of Monitoring Programmes

The purpose of monitoring is not merely to collect data, but to provide information necessary to make informed decisions on managing and mitigating potential impacts. Monitoring therefore serves the following functions:

- Serve as early warning system to detect any potential negative impacts.
- To provide information to feedback into management controls to avoid, prevent or minimise potential negative impacts.
- Provide quantitative data that can serve as evidence for the presence of negative impacts or the lack thereof.
- Allows for trending, modelling and prediction of future conditions or potential impacts.

Based on the above, the small-scale mine must ensure that monitoring programmes comprise of the following (at a minimum) in order to obtain valuable environmental data:

- Environmental aspect monitoring must be a formalized procedure.
- All equipment used in monitoring must be correctly calibrated and serviced regularly.
- Samples required for analysis will be sent to an independent and accredited laboratory.
- Monitoring data must be stored.
- Data must be checked and interpreted and trending undertaken on a quarterly basis.
- Both the data and reports on environmental monitoring must be kept on record for the life of mine and where relevant provided to I&APs.
- The general and site specific parameters to be monitored must be identified by an independent specialist, the authorities and where relevant I&APs.

45.2 List of Aspects that Require Monitoring Plans

The list of aspects that require on-going environmental monitoring includes the following:

- Air quality.
- Blasting and vibration.
- Surface water.
- Groundwater.
- Noise.
- Traffic.
- Rehabilitation.

As mines/pits and the environment are both dynamic it is likely that future scenarios may require the monitoring of additional or unforeseen impacts. As such, the list provided is by no means conclusive and must instead be used as a guideline for the impacts that require monitoring.

45.3 Monitoring Plans for Environmental Aspects

The monitoring of various environmental aspects and the impact on them as a result of the proposed project shall take place by means of both quantitative and qualitative techniques in order to determine whether or not the requirements of the Environmental Management Programme are being complied with. The importance and value of detailed environmental monitoring networks cannot be overstated.

Environmental monitoring serves as a tool to track compliance, assist with potential liability identification, and mitigation throughout the life of the proposed project. This is achieved through the provision of actual evidence-based monitoring and reporting thereof. In essence, monitoring is a continuous data-gathering, data interpreting, and control procedure that ranges from visual inspection to in-depth investigative monitoring and reporting. These monitoring plans need to be drawn into standalone plans that can be updated and amended as per authority requirements and additional data requirements identified during the mining activities. These plans need to include the site-specific roles and responsibilities for actions.

44. 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.
- (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.

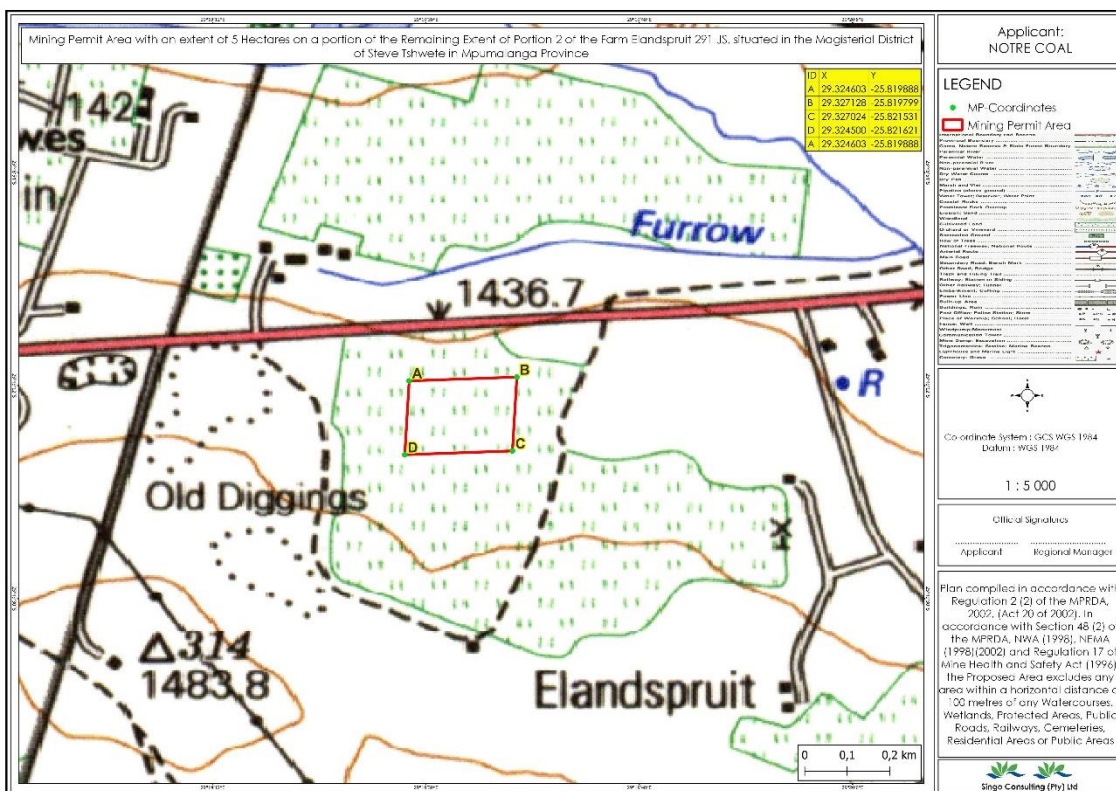
Signature of the environmental assessment practitioner

Singo Consulting (Pty) Ltd

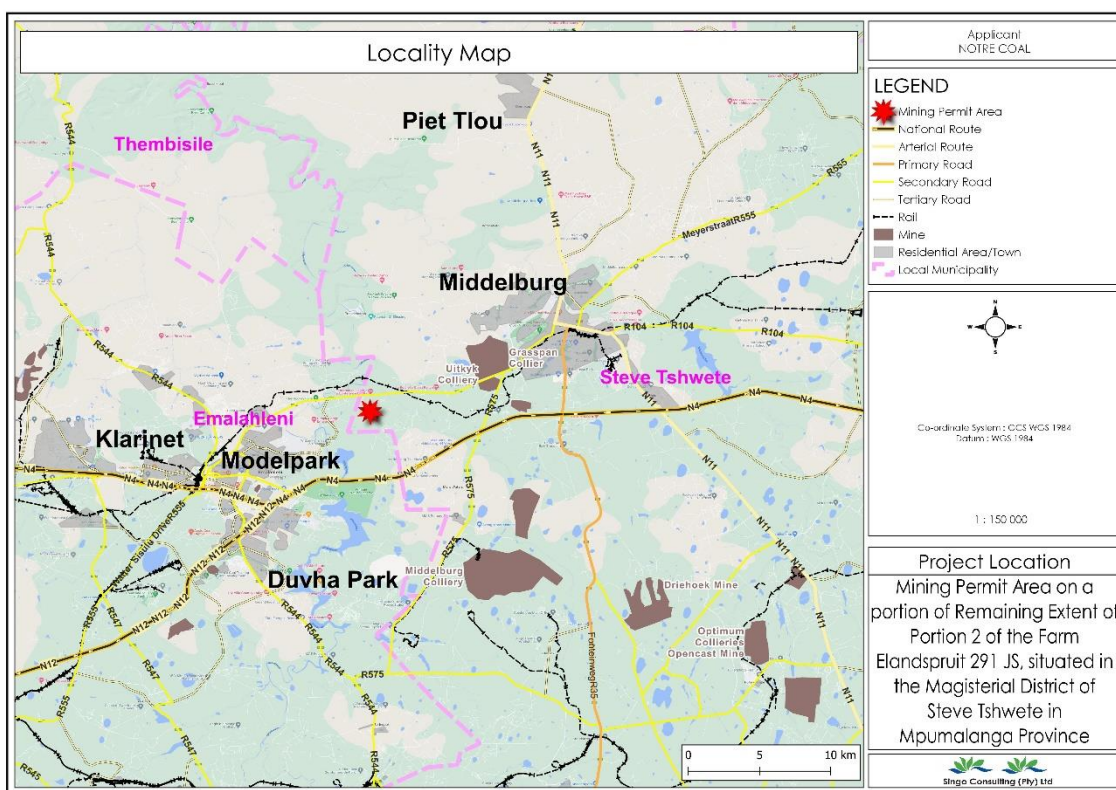
Name of company (if applicable):

Date: 12/09/2022

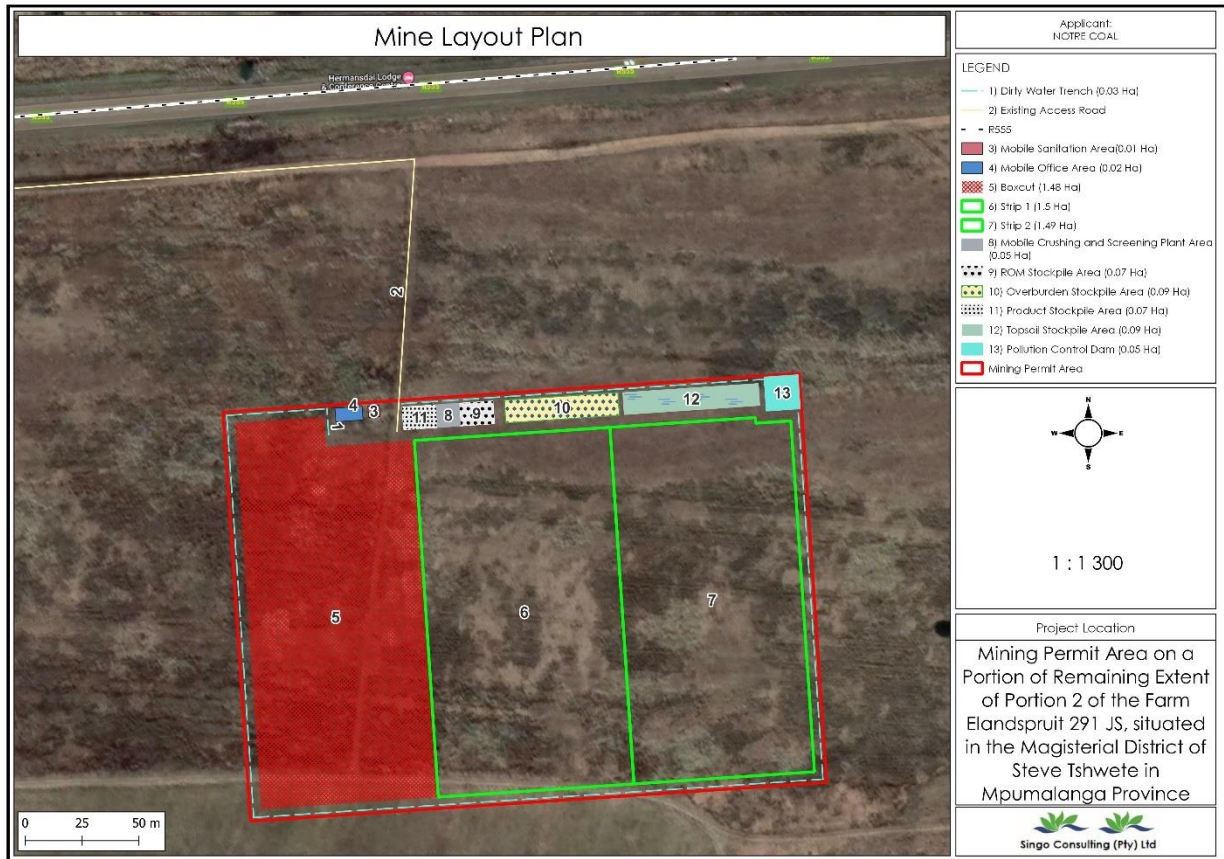
APPENDIX A: PROJECT MAPS



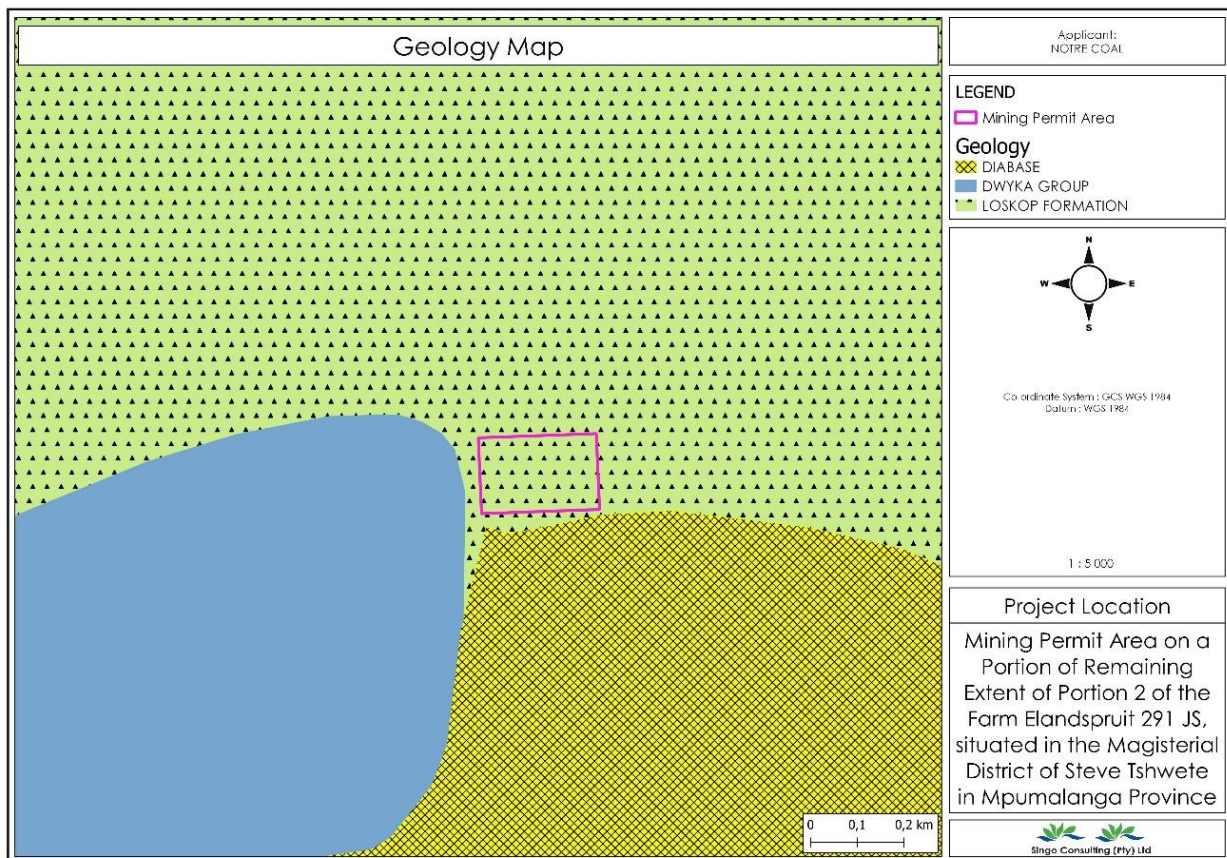
Regulation Map



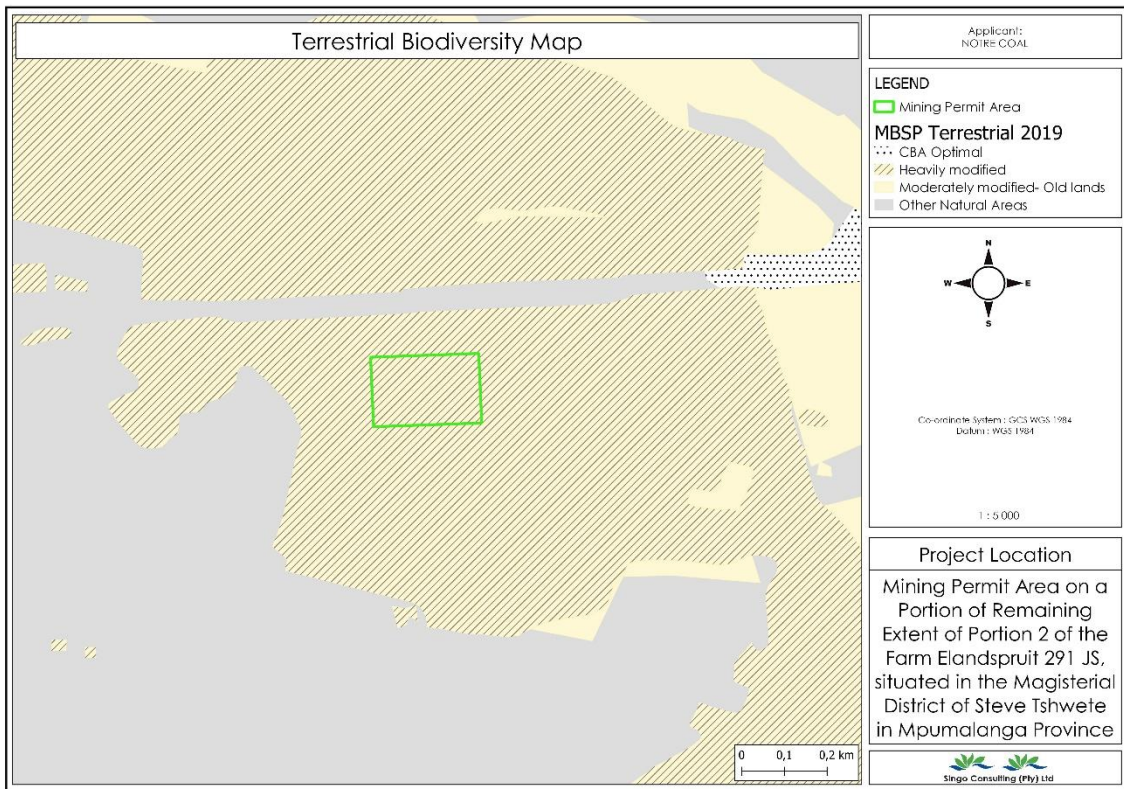
Locality Map



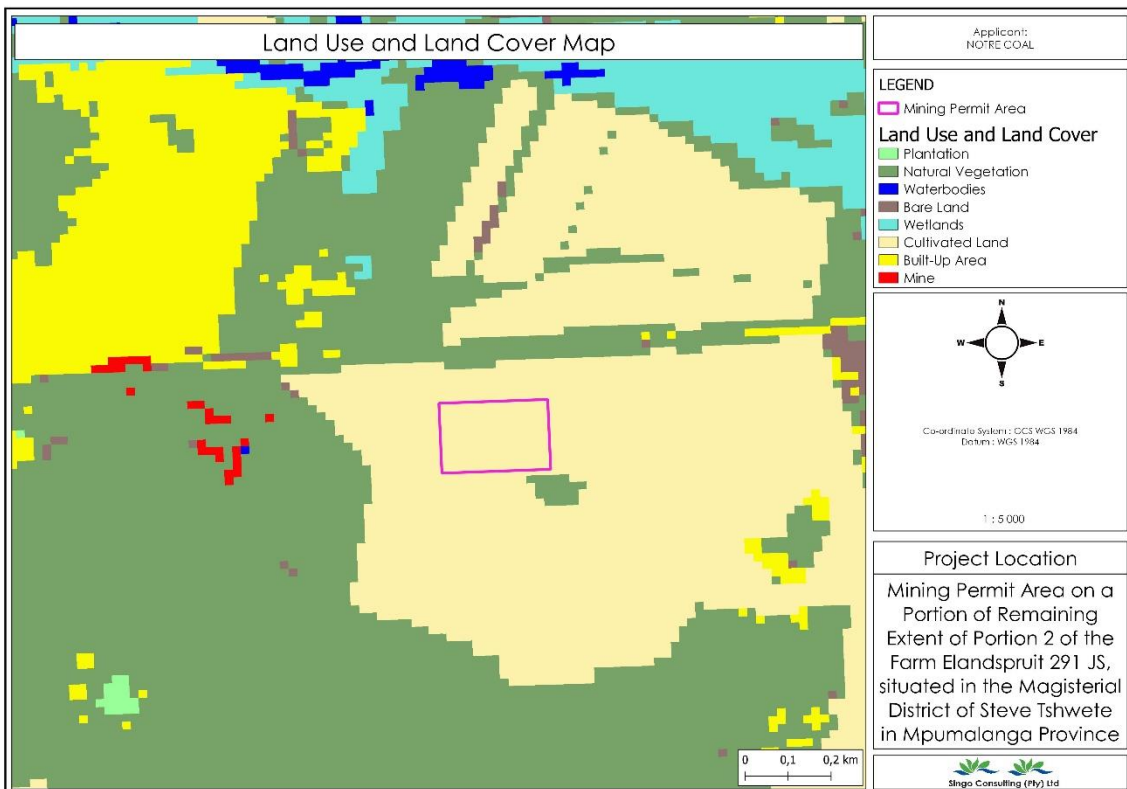
Mine Layout Plan Map



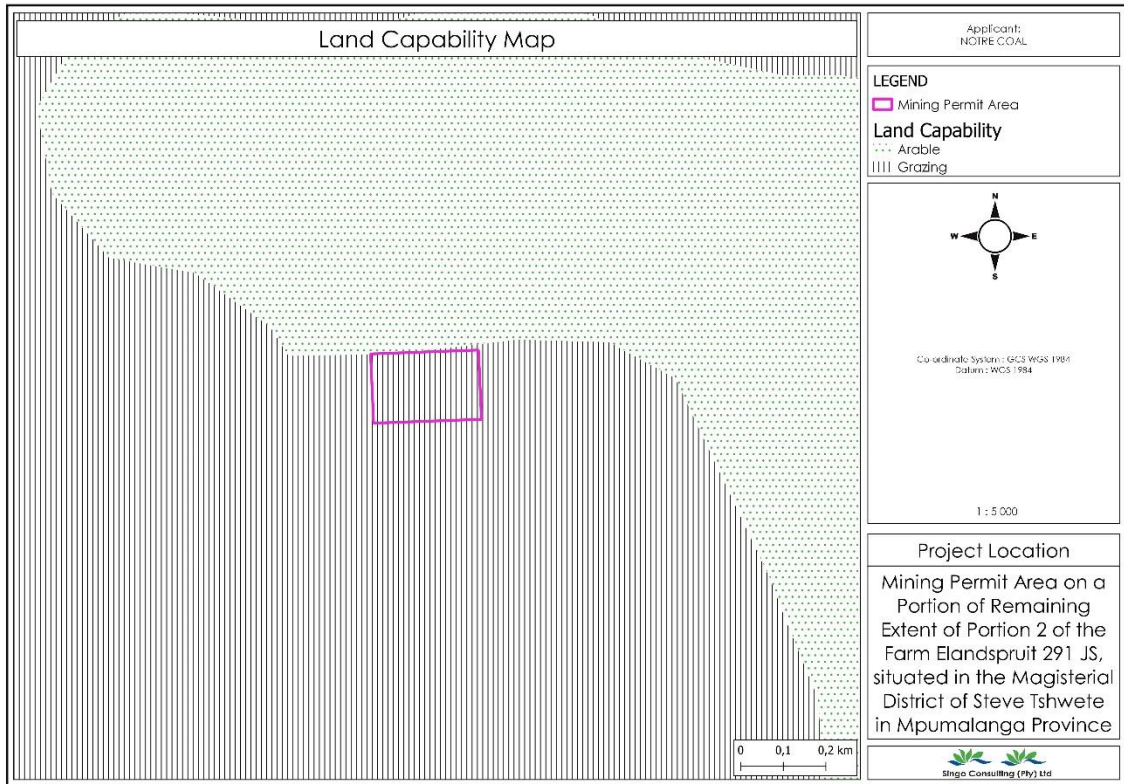
Geology Map



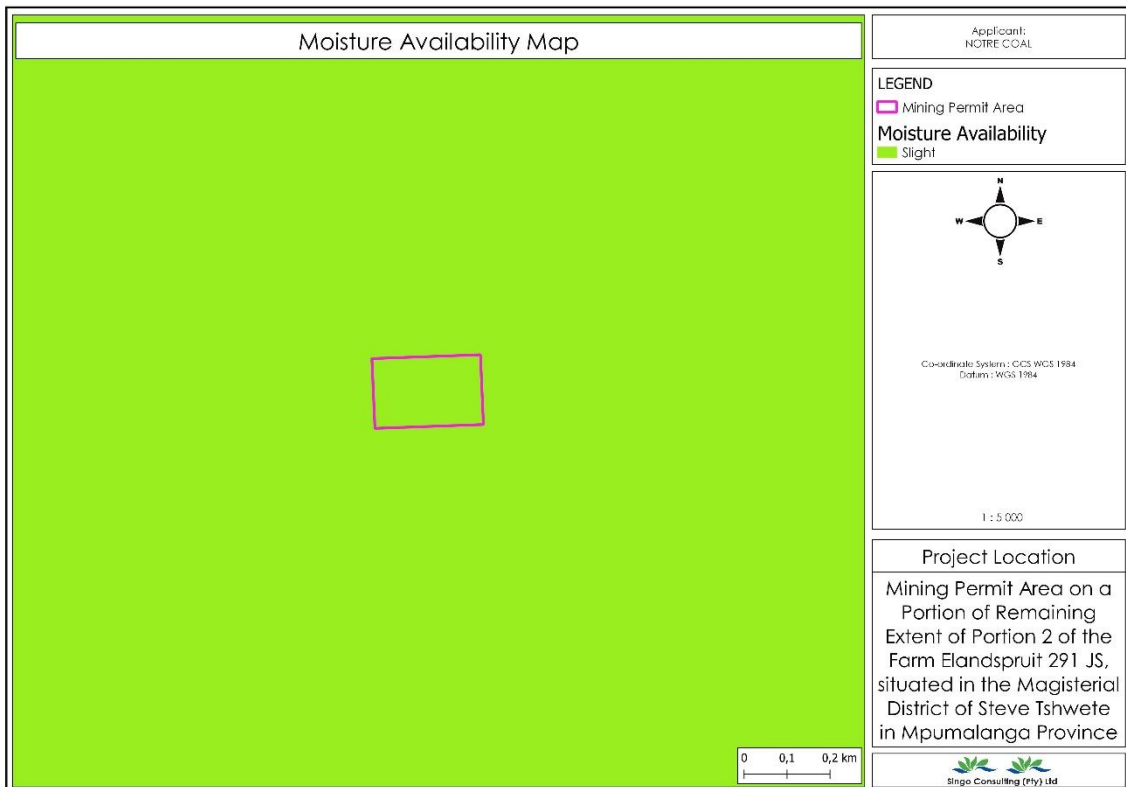
Biodiversity Map



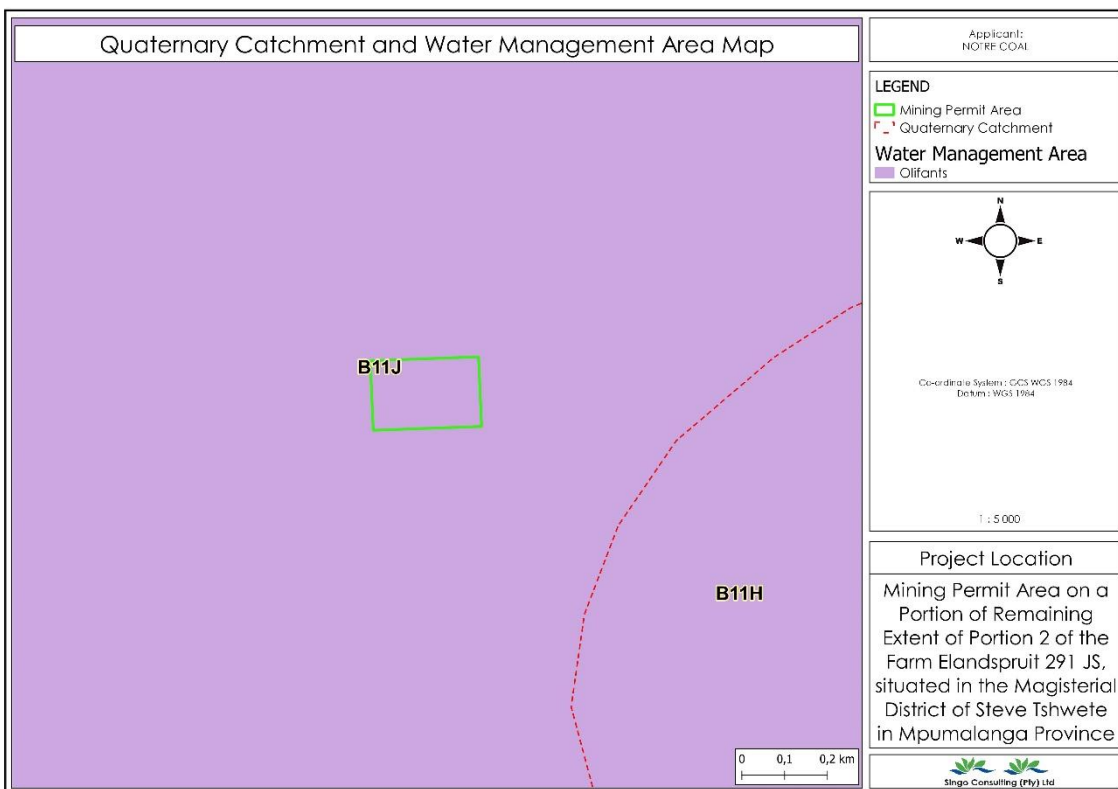
Land Use and Land Cover Classes



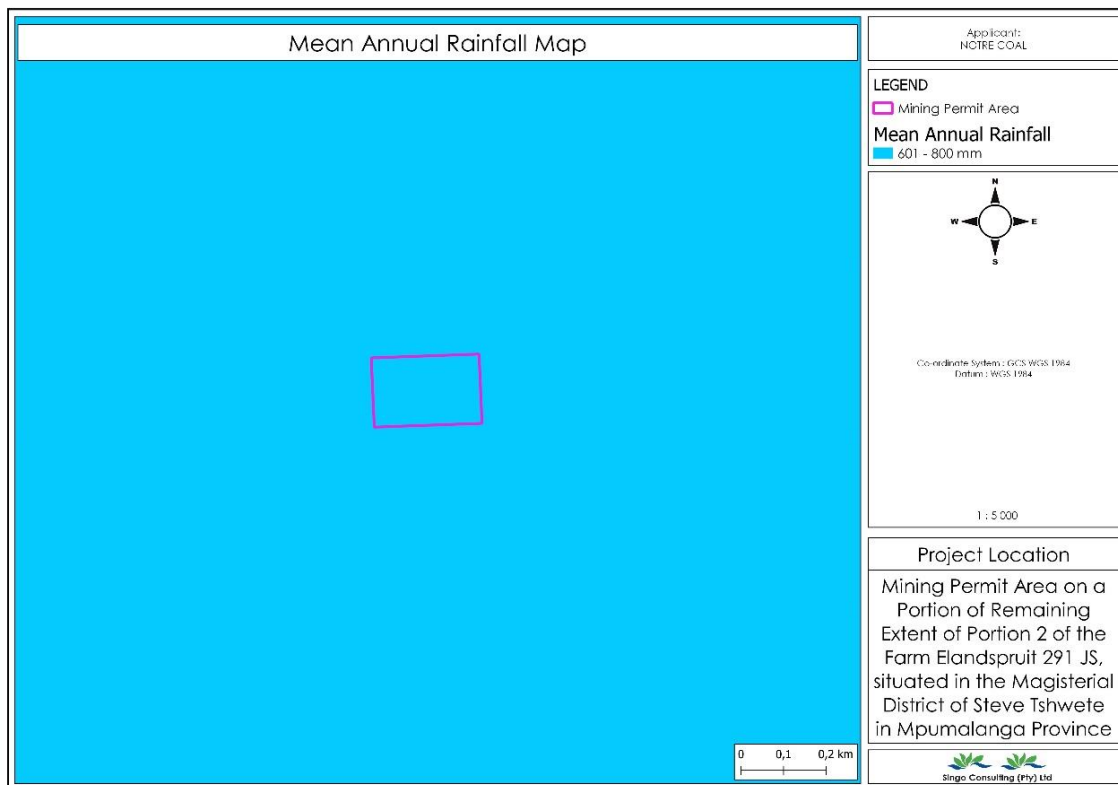
Land Capability



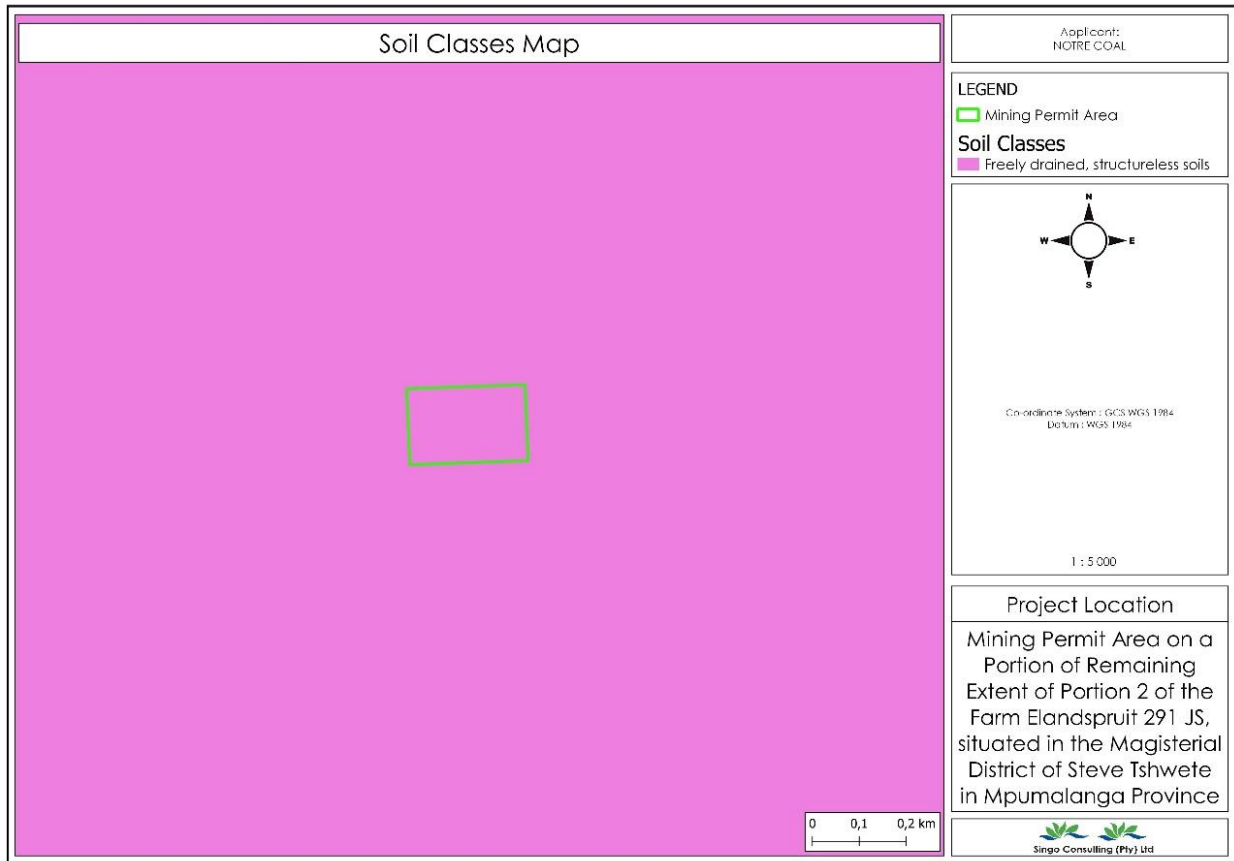
Moisture Availability



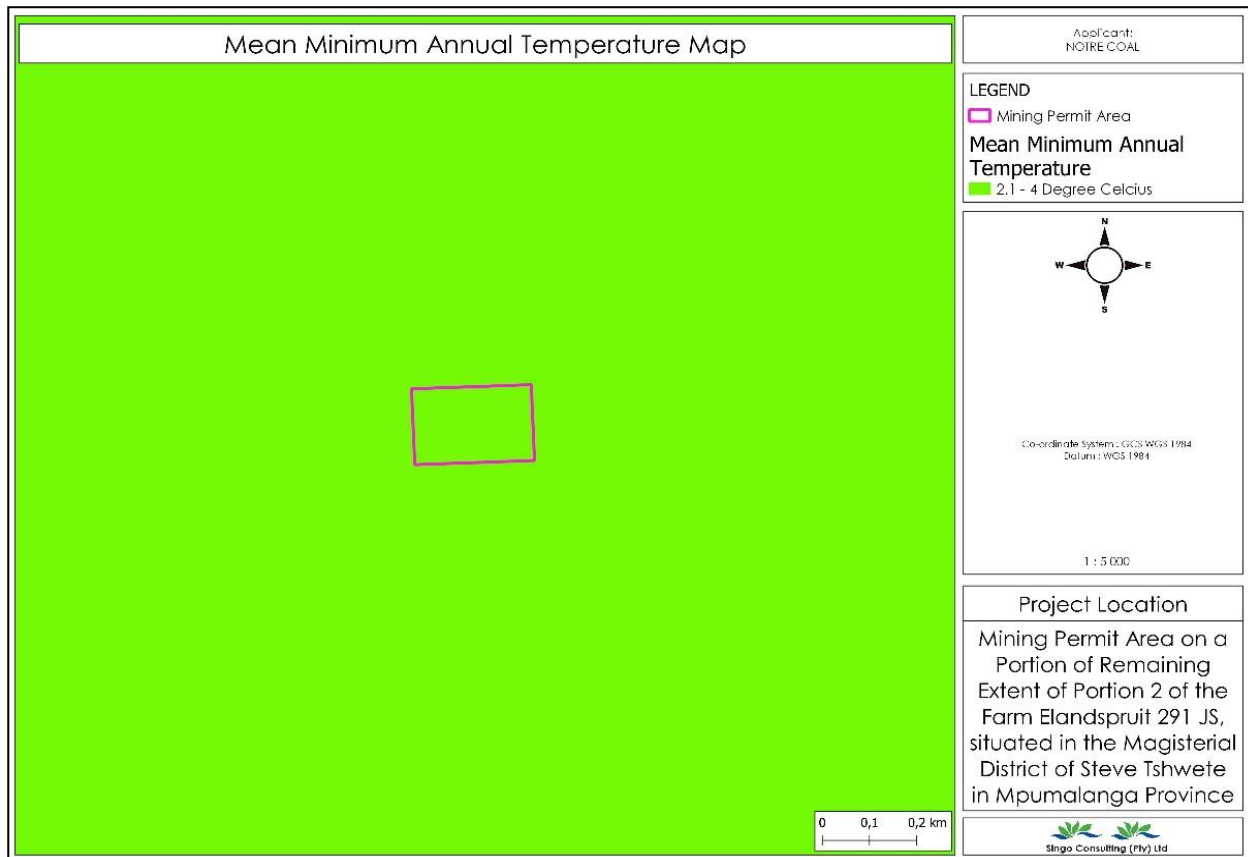
Quaternary Catchment Map



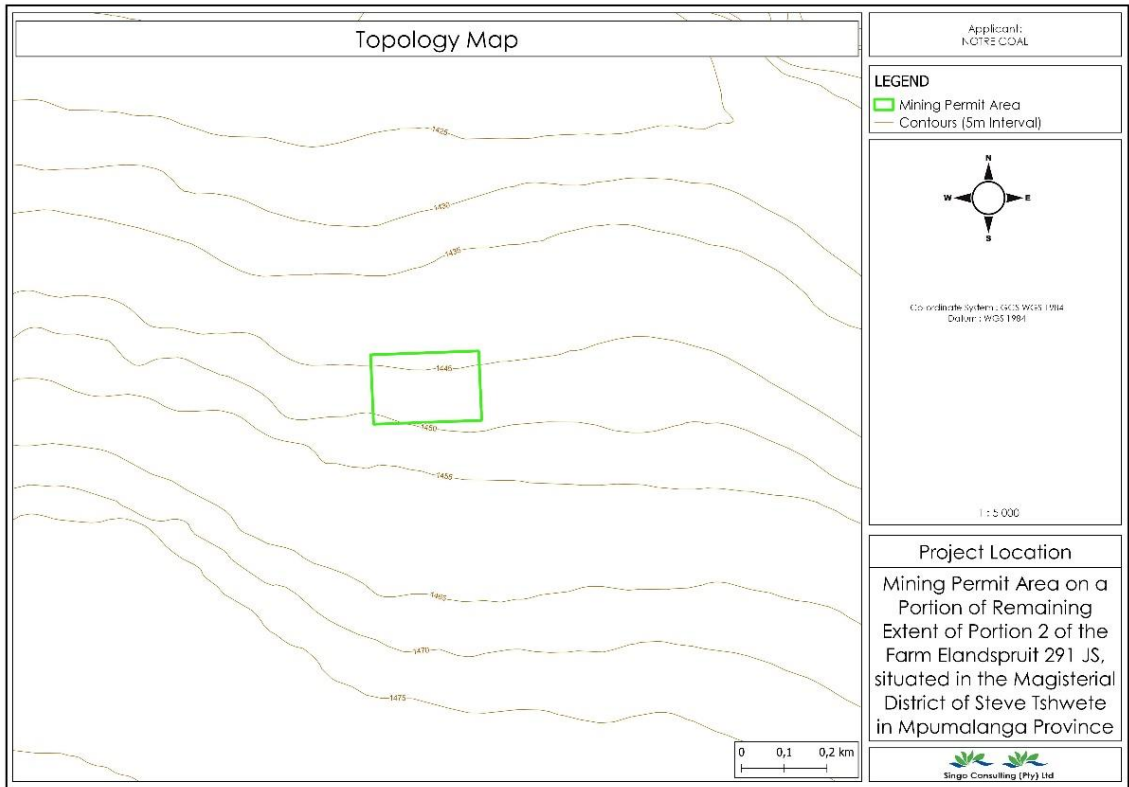
Rainfall Map



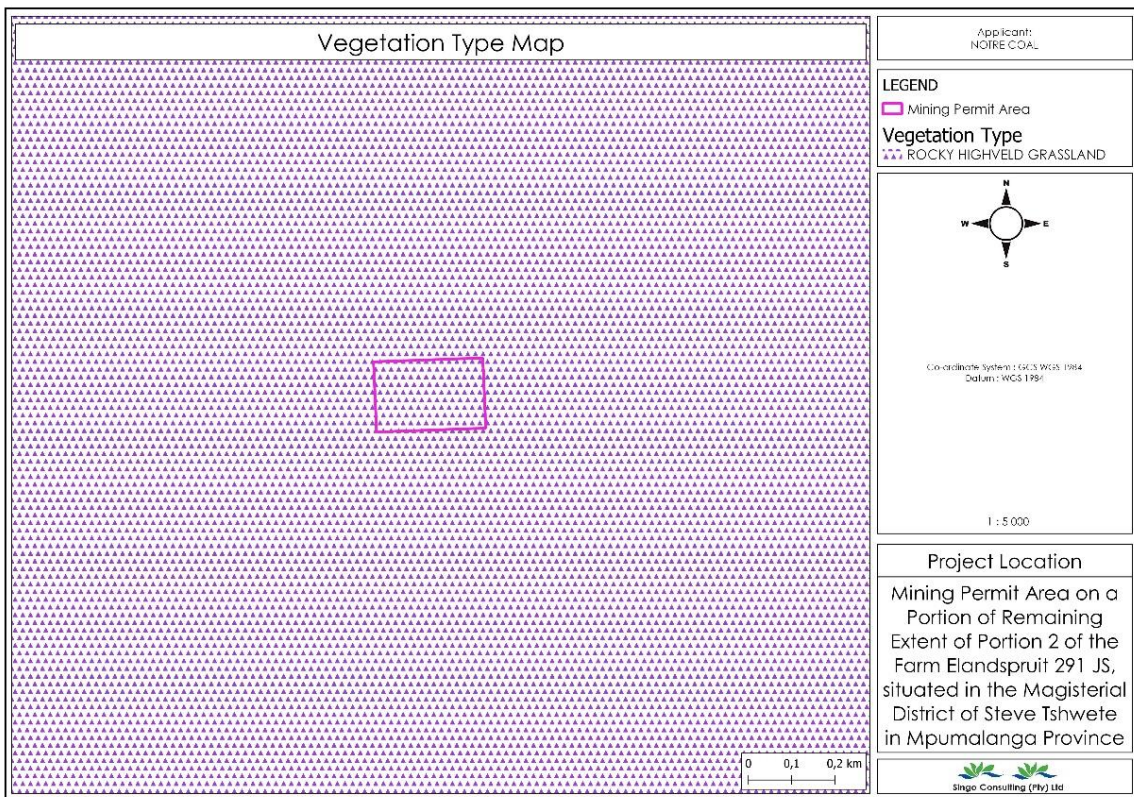
Soil Classes



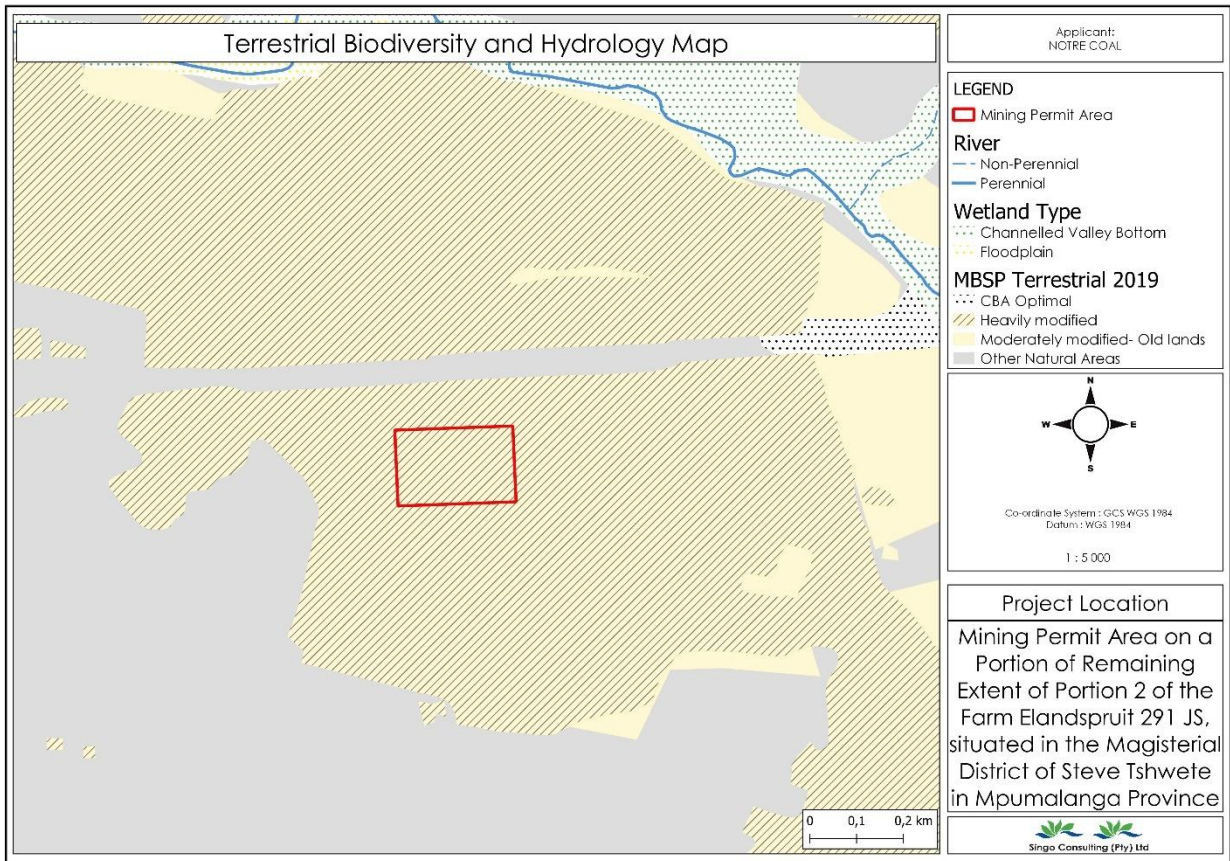
Mean Minimum Annual Temperature



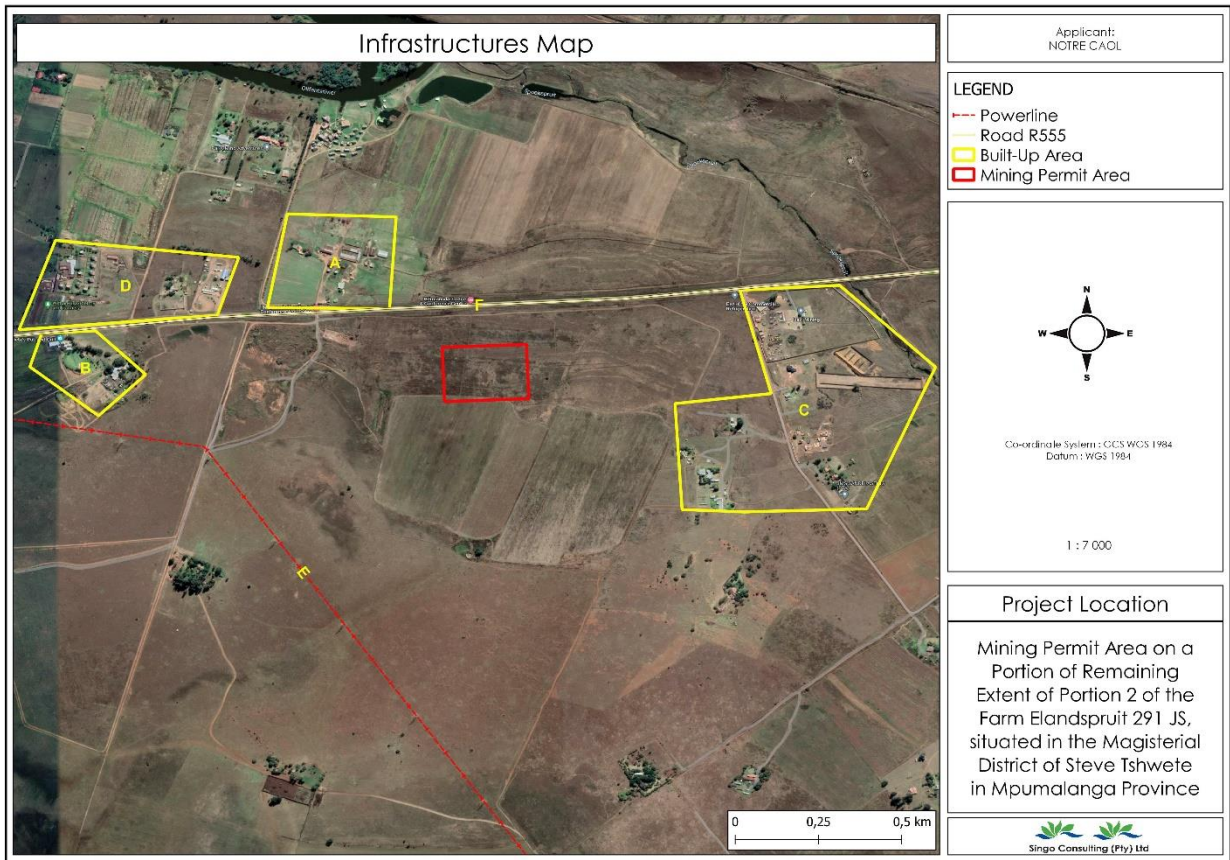
Topology Map



Vegetation Type Map



Combined Sensitivity Map



Infrastructure Map

APPENDIX B: ENVIRONMENTAL IMPACT STATEMENT.

Taking the assessment of potential impacts into account, herewith please receive an environmental impact statement that summarizes the impact that the proposed activity may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and significance of impacts.

Type of impact	Likelihood	Significance
Site establishment/ construction phase	Duration: Planning phase	
Topsoil stripping and stockpiling		
Visual intrusion associated with mining area establishment	Possible	Medium concern
Dust nuisance caused by soil disturbance	Low possibility	Low concern
Noise nuisance caused by machinery stripping and stockpiling topsoil	Low possibility	Low concern
Infestation of topsoil heaps by weeds and invader plants	Low possibility	Low concern
Loss of topsoil due to incorrect storm water management	Low possibility	Low concern
Area contamination with hydrocarbon/hazardous waste	Low possibility	Low concern
Operational phase	Duration: Operational phase; minimum of 3 years	
Blasting		
Health and safety risk posed by blasting activities	Low possibility	Low concern
Dust nuisance caused by blasting activities	Definite	Low-medium concern
Noise nuisance caused by blasting activities	Definite	Low-medium concern
Excavation		
Visual intrusion associated with the excavation activities	Definite	Medium concern
Dust nuisance due to excavation activities	Low possibility	Low concern
Noise nuisance generated by excavation equipment	Low possibility	Low-medium concern
Unsafe working conditions for employees	Low possibility	Low concern
Negative impact on the fauna and flora of the area	Low possibility	Low concern
Area contamination with hydrocarbon/hazardous waste	Low possibility	Low concern
Weed and invader plant infestation of the area	Low possibility	Low concern
Crushing		

Dust nuisance due to the crushing activities	Possible	Low-medium concern
Noise nuisance generated by the crushing activities	Possible	Low-medium concern
Area contamination with hydrocarbon/hazardous waste	Low possibility	Low-medium concern
Stockpiling and transporting		
Visual intrusion associated with the stockpiled material and vehicles transporting the material	Low possibility	Low-medium concern
Loss of material due to ineffective storm water handling	Low possibility	Low concern
Weed/invader plant infestation of area due to soil disturbance	Low possibility	Low concern
Dust nuisance from stockpiled material and vehicles transporting the material	Low possibility	Low concern
Degradation of access roads	Possible	Low-medium concern
Noise nuisance caused by vehicles	Low possibility	Low concern
Area contamination with hydrocarbon/hazardous waste	Low possibility	Low concern
Decommissioning phase	Duration: Decommissioning phase	
Sloping and landscaping during rehabilitation		
Soil erosion	Low possibility	Low concern
Health and safety risk posed by un-sloped areas	Low possibility	Low concern
Dust nuisance caused by sloping and landscaping	Low possibility	Low concern
Noise nuisance caused by machinery	Low possibility	Low concern
Area contamination with hydrocarbon/hazardous waste	Low possibility	Low concern
Replacing of topsoil and rehabilitation of disturbed area		
Loss of reinstated topsoil due to absence of vegetation	Low possibility	Low concern
Infestation of the area by weed/invader plants	Low possibility	Low concern

APPENDIX C: SITE PICTURES.



APPENDIX D: CV OF THE EAP AND REVIEWER

- CV available on request

APPENDIX E: SPECIALIST STUDIES